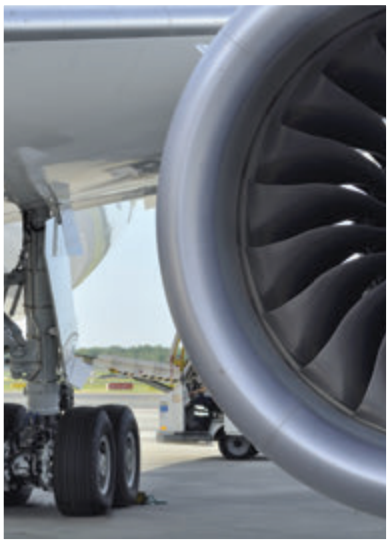
MIL Qualified Capacitors

Product Range

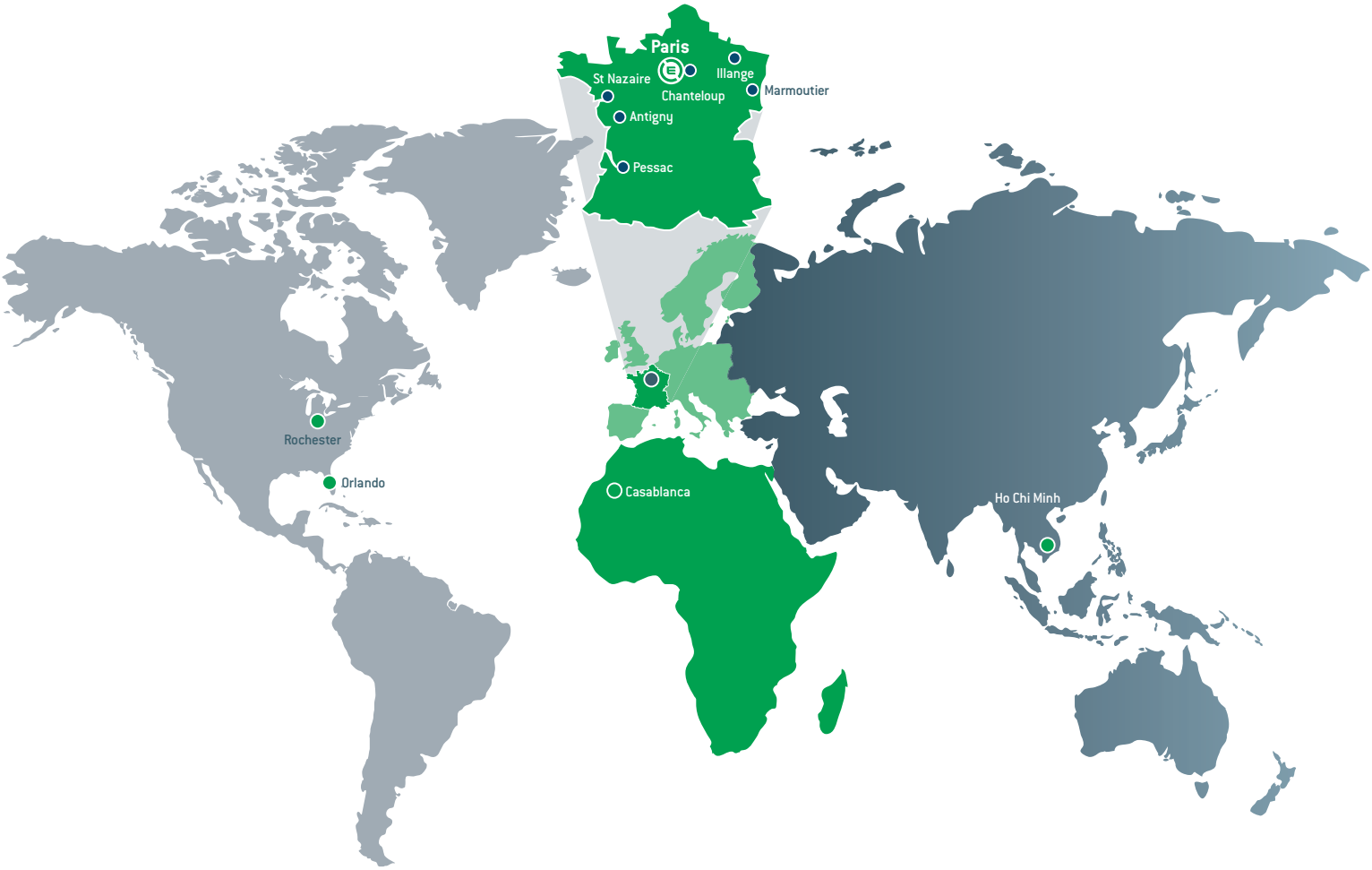


EXXELIA

MIL Qualified Capacitors

EXXELIA

A Worldwide presence



Military Specification Qualifications

FILM CAPACITORS - WET TANTALUM CAPACITORS

Exxelia Type	Military Spec. Style		Failure rate level	Capacitance range	Voltage range	Temperature range	Characteristic / Dielectric	Main Features	Remarks	Page
MIL-WET TANTALUM CAPACITORS										
	DSCC 10004			220 µF to 10,000 µF	10 V to 125 V	–55°C +125°C		Very high capacitance Enhanced performances	–	**10**
	DSCC 93026			10 µF to 1,800 µF	25 V to 125 V	–55°C +125°C		High capacitance Very high ripple current	–	**12**
	MIL 39006/22		**M, P**	1.7 µF to 1,200 µF	6 V to 125 V	–55°C +125°C		Reverse voltage High ripple current	–	**14**
	MIL 39006/25		**M, P**	6.8 µF to 680 µF	25 V to 125 V	–55°C +125°C		Reverse voltage High ripple current Extended range	–	**17**

MIL STYLE CAPACITORS

Military style capacitors are manufactured by EXXELIA to meet all the requirements of the pertinent military specifications. All capacitors ordered by the military part number will be manufactured, tested and marked in accordance with the military specifications. The military specification shall be used for verification for specific operational parameters and other characteristics.

COPIES OF THE MIL SPECS ARE AVAILABLE:

www.landandmaritime.dla.mil / Programs / MilSpec / DocSearch.aspx

ESTABLISHED RELIABILITY CAPACITORS

The reliability of these capacitors is established by continuous life testing performed at maximum rated voltage and maximum rated temperature. The maximum failure rate at 90% confidence level is expressed as percent failures for each 1,000 hours of test. EXXELIA has attained a failure rate level down to 0.001% per 1,000 hrs depending on the specifications. This is the lowest failure rate available for these specifications and the true failure rates are much lower than stated. The failure rate levels attained for each specification are listed on the following page. Failure rate levels are 1% / 1,000 hrs (M), 0.1% / 1,000 hrs (P), 0.01% / 1,000 hrs (R), and 0.001% / 1,000 hrs (S).

Military Specification Qualifications

FILM CAPACITORS

Exxelia Type	Military Spec. Style		Failure rate level	Capacitance range	Voltage range	Temperature range	Characteristic	Dielectric	Remarks	Page
MIL-FILM CAPACITORS										
154P	**MIL-C - 25/4** CP53, 54, 55		Non ER		100 V to 1000 V	Charact. **E, F** –55°C to +85°C	**E, F, K**	Paper & / or Polyester - Foil	–	20
103P	**MIL-PRF-11693/7** CZ23-24 / CZR 23-24		**M** (CZR)	4.7 nF to 2 µF	100 V to 600 V	Charact. **K** –55°C to +125°C	**E, K**	Paper / Foil	–	23
131P	**MIL-PRF-19978/9** CQR09		**M, P, R**	1 nF to 1 µF	200 V to 1,000 V	–65°C to +125°C	**K**	Paper / Polyester - Foil	–	25
131P	**MIL-PRF-19978/10** CQR12		**M, P, R**	1 nF to 1 µF	200 V to 1,000 V	–65°C to +125°C	**K**	Paper / Polyester - Foil	–	29
131P	**MIL-PRF-19978/11** CQR13		**M, P, R**	1 nF to 1 µF	200 V to 1,000 V	–65°C to +125°C	**K**	Paper / Polyester - Foil	–	33
127P	**MIL-PRF-19978/13** CQR29		**M, P, R**	1 nF to 10 µF	100 V to 1,000 V	–65°C to +85°C	**M**	Polyester / Foil	–	36
127P	**MIL-PRF-19978/14** CQR32		**M, P, R**	1 nF to 6.8 µF	30 V to 1,000 V	–65°C to +85°C	**M**	Polyester / Foil	–	40
127P	**MIL-PRF-19978/15** CQR33		**M, P, R**	1 nF to 10 µF	50 V to 1,000 V	–65°C to +85°C	**M**	Polyester / Foil	–	45
837P	**MIL-PRF-19978/22** CQR44		**M, P, R, S**	1 nF to 1 µF	50 V to 600 V	–55°C to +125°C	**M**	Polyphenylene Sulfide - Foil	–	49
118P 218P	**MIL-PRF-39022/1** CHR09		**M, P, R**	47 nF to 12 µF	50 V to 600 V	**50 V** –55°C to +85°C	**R, N**	Metalized	–	53
118P 218P	**MIL-PRF-39022/8** CHR12		**M, P, R**	22 nF to 12 µF	50 V to 600 V	**200 to 600 V** –55°C to +125°C.	**N,**	Metalized Paper & Polyester	–	59
118P	**MIL-PRF-39022/2** CHR19		**M, P, R**	47 nF to 8.2 µF	200 V & 400 V	–55°C to +125°C	**N**	Metalized Paper & Polyester	Replaces / 7	64
859P	**MIL-PRF-39022/12** CHR26		**M, P, R, S**	47 nF to 8.2 µF	200 V & 400 V	–55°C to +85°C		Metalized Polyphenylene Sulfide	Replaces / 10	67
820P	**MIL-PRF-39022/13** CHR27		**M, P, R, S**	10 nF to 22 µF	50 V to 600 V	–55°C to +125°C		Metalized Polyphenylene Sulfide	–	69
735P	**MIL-PRF-55514/9** CFR13 - CFR14		**M, P**	10 nF to 22 µF	50 V to 600 V	–55°C to +125°C	**L**	Metalized Polypropylene	–	73
710P	**MIL-PRF-55514/10** CFR15		**M, P**	1 nF to 1 µF	200 V to 800 V	–55°C to +125°C	**K**	Polypropylene - Foil	Replaces / 7	75
846P	**MIL-PRF-55514/13** CFR30		**M, P**	0.01 µF to 18 µF	50 V to 200 V	–55°C to +125°C (+105°C for AC operation)		Metalized Polyphenylene Sulfide	–	78
720P	**MIL-PRF-83421/2** CRH11 to 13		**M, P, R, S**	1 nF to 2 µF	100 V to 400 V	–55°C to +105°C		Metalized Polypropylene		83
871P	**MIL-PRF-83421/6** CRH31 to 34		**M, P, R, S**	1 nF to 1 µF	200 V to 800 V	–55°C to +125°C		Metalized Polyphenylene Sulfide	Replaces / 1	86

Technical Informations

TERMINAL

The terminal is identified by a single letter in accordance with table below.

Symbol	Type of terminal
A	Axial wire lead
B	Solder lug (nonremovable)
C	Threaded stud and nuts
D and H	Pillar insulator for use at altitudes up to 7,500 feet (22.8 inches of mercury)
E	Pillar insulator for use at altitudes up to 50,000 feet (3.4 inches of mercury)
R	Radial wire-lead
L	Lugs

CHARACTERISTIC

The characteristic is identified by a single letter in accordance with table below.

Characteristic	Values of characteristics								
	E	F	G	K [2]	M	P	Q [4]	T	V
High ambient test temperature ±3°C [1]	+85°C	+85°C	+85°C	+125°C	+85°C	+65°C	+125°C	+170°C	+125°C
Low ambient test temperature +0°C, −5°C	−65°C	−55°C	−55°C	−65°C	−65°C	−65°C	−55°C	−65°C	−55°C

Life-test dc voltage, percent of the dc voltage rating: Watt-second group:									
I (0.5 watt-second and less)	140	140	140	140	140	140	150	140	150
II (0.5+ to 5 watt-seconds)	140	130	130	140 [3]	–	–	–	–	–
III (5+ to 50 watt-seconds)	140	110	110	140	–	–	–	–	–
IV (greater than 50 watt-seconds)	140	90	90	140	–	–	–	–	–
Flashpoint of impregnant of filling compound (°C)	+142°C	+135°C	+135°C	+142°C	+142°C	+142°C	+142°C	+217°C	+142°C

[1] For characteristic K, voltage derating may be necessary at the high ambient test temperature.
[2] For tubular units of characteristic K rated at 1,000 volts dc, life test voltage is 1,200 volts.
[3] For tubular units of characteristic K in watt-seconds group II, use 130 percent of the dc voltage at +40°C for the life-test dc voltage.
[4] Characteristic Q capacitors are no longer available

Characteristic	Construction		Operating temperature range
	Dielectric material	Electrode	
K	Polypropylene	Foil	−55°C to +105°C
L	Polypropylene	Metallized polypropylene	−55°C to +105°C
M	Polyethylene terephthalate	Foil	−55°C to +85°C
N	Polyethylene terephthalate	Metallized polyethylene terephthalate	−55°C to +85°C
Q	Polycarbonate	Foil	−55°C to +125°C [1]
R	Polycarbonate	Metallized polycarbonate	−55°C to +125°C [1]
U	Polyphenylene sulfide	Metallized polyphenylene sulfide	−55°C to +125°C [1]
V	Polyphenylene sulfide	Foil	−55°C to +125°C [1]

[1] For operation at +125°C, characteristics Q, R, U and V capacitors are voltage derated (see table below)

Symbol	DC voltage rating at +85°C [1]	Characteristics Q and V DC voltage rating at +125°C	Characteristics R and U DC voltage rating at +125°C
A	50 V	33.3 V	25 V
B	100 V	66.7 V	50 V
C	200 V	133.3 V	100 V
D	300 V	200.0 V	150 V
E	400 V	266.7 V	200 V
F	600 V	400.0 V	300 V
G	75 V	50.0 V	37.5 V
H	150 V	100.0 V	75 V
J	25 V	16.7 V	12.5 V
K	250 V	166.7 V	125 V
L	800 V	533.3 V	400 V

[1] DC voltage rating for characteristics K and L at +105°C are the same as those at +85°C.

VOLTAGE

The dc voltage rating for continuous operation at the high ambient test temperature specified in table III (except for characteristic K which is for +85°C operation), is identified by a single letter in accordance with table below.

Symbol	DC voltage rating (Volts)	Symbol	DC voltage rating (Volts)
Z	30 V	K	2,500 V
A	50 V	L	3,000 V
B	100 V	M	4,000 V
C	200 V	N	5,000 V
D	300 V	P	6,000 V
E	400 V	R	7,500 V
F	600 V	S	10,000 V
G	1,000 V	T	12,500 V
H	1,500 V	U	15,000 V
J	2,000 V		

CAPACITANCE TOLERANCE

The capacitance tolerance in percent is identified by a single letter in accordance with table below.

Symbol	Capacitance tolerance
C	±0.25%
D	±0.5%
F	±1%
G	±2%
J	±5%
K	±10%
M	±20%

CIRCUIT AND VOLTAGE CODES

Code	Circuit	Voltage (V)
A	1	50
B	3	50
C	1	100
D	3	100
E	1	200
F	3	200
G	1	400
H	3	400
J	1	600
K	3	600
L	1	300
M	3	300

Government Documents

Specifications. standards. and handbooks.
The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract (see 6.2).

FEDERAL STANDARDS

FED-STD-H28 - Screw-Thread Standards for Federal Services

DEPARTMENT OF DEFENSE SPECIFICATIONS

MIL-C-18312 - Capacitors, Fixed, Metallized (Paper, Paper-Plastic, or Plastic Film) Dielectric, Direct Current (Hermetically Sealed in Metal Cases), General Specification for

MIL-PRF-83421/1 - Capacitors, Fixed, Metallized, Plastic Film Dielectric, DC and AC, Hermetically Sealed In Metal Cases, Established Reliability,

MIL-PRF-83421/2 - Capacitor, Fixed, Metallized Plastic Film, Dielectric, (DC, AC, or DC and AC), Hermetically Sealed in Metal Cases, Established Reliability,

MIL-PRF-83421/6 - Capacitor, Fixed, Metallized Plastic Film Dielectric, DC and AC, Hermetically Sealed in Metal Cases, Established Reliability,

MIL-PRF-11693/7 - Capacitors, Feed Through, Radio-Interference Reduction, DC (Hermetically Sealed in Metal Cases), Established and Non-Established Reliability,

MIL-PRF-83421/6 - Capacitors, Fixed, Metallized Plastic Film Dielectric, DC and AC, Hermetically Sealed In Metal Cases, Established Reliability.

DEPARTMENT OF DEFENSE STANDARDS

MIL-STD-202 - Test Methods Standard Electronic and Electrical Component Parts
MIL-STD-202-101 - Method 101, Salt Atmosphere (Corrosion)
MIL-STD-202-104 - Method 104, Immersion
MIL-STD-202-105 - Method 105, Barometric Pressure (Reduced)
MIL-STD-202-106 - Method 106, Moisture Resistance
MIL-STD-202-107 - Method 107, Thermal Shock
MIL-STD-202-108 - Method 108, Life (at Elevated Ambient Temperature)
MIL-STD-202-112 - Method 112, Seal
MIL-STD-202-201 - Method 201, Vibration
MIL-STD-202-204 - Method 204, Vibration, High Frequency
MIL-STD-202-208 - Method 208, Solderability
MIL-STD-202-209 - Method 209, Radiographic Inspection
MIL-STD-202-210 - Method 210, Resistance to Soldering Heat
MIL-STD-202-211 - Method 211, Terminal Strength
MIL-STD-202-213 - Method 213, Shock (Specified Pulse)
MIL-STD-202-214 - Method 214, Random Vibration
MIL-STD-202-215 - Method 215, Resistance to Solvents
MIL-STD-202-301 - Method 301, Dielectric Withstanding Voltage
MIL-STD-202-302 - Method 302, Insulation Resistance
MIL-STD-202-305 - Method 305, Capacitance
MIL-STD-220 - Method of Insertion Loss Measurement
MIL-STD-690 - Failure Rate Sampling Plans and Procedures
MIL-STD-790 - Standard Practice for Established Reliability and High Reliability Qualified Products List (QPL) Systems for Electrical, Electronic, and Fiber Optic Parts Specifications
MIL-STD-810 - Environmental Engineering Considerations and Laboratory Tests
MIL-STD-1276 - Leads for Electronic Component Parts
MIL-STD-1285 - Marking of Electrical and Electronic Parts

Government Documents

Non-Government publications.
The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents are those listed in the solicitation or contract.

ASTM INTERNATIONAL (ASTM)

ASTM D92 - Standard Test Method for Flash and Fire Points by Cleveland Open Cup Tester

SAE INTERNATIONAL (SAE)

SAE EIA-554-1 - Assessment of Average Outgoing Quality Levels in Parts Per Million (PPM)

ASSOCIATION CONNECTING ELECTRONICS INDUSTRIES (IPC)

IPC/JEDEC J-STD-002 - Solderability Tests for Component Leads, Terminations, Lugs, Terminals and Wires

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION (ISO)

ISO/IEC 17025 - General Requirements for the Competence of Testing and Calibration laboratories

ISO 10012 - Measurement Management Systems - Requirements for Measurement Processes and Measuring Equipment

NATIONAL CONFERENCE OF STANDARDS LABORATORIES (NCSL)

NCSL Z540.3 - Requirements for the Calibration of Measuring and Test Equipment

SAE INTERNATIONAL (SAE)

SAE EIA-554-1 - Assessment of Average Outgoing Quality Levels in Parts per Million (PPM)

SOLID STATE TECHNOLOGY ASSOCIATION (JEDEC)

JEDEC JESD557 - Statistical Process Control Systems

Order of precedence.
Unless otherwise noted herein or in the contract, in the event of a conflict between the text of this document and the references cited herein (except for related specification sheets), the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

WET TANTALUM CAPACITORS

EXXELIA

DSCC 10004

Wet tantalum capacitors
Hermetically sealed tantalum cases
Very high capacitance
Enhanced performances
Axial leads
Polarized

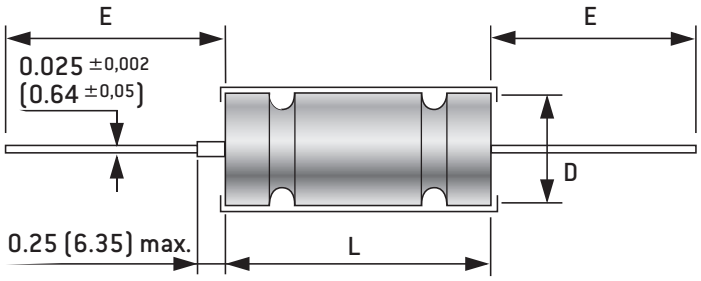
ELECTRICAL AND CLIMATIC CHARACTERISTICS

Detail specification	DWG NO. 10004
Operating temperature	−55°C +125°C
Capacitance range	220µF ⇨ 10000µF
Tolerance	±10% - ±20%
Voltage range	10V ⇨ 125V
Max. capacitance change	see table
Max. impedance	3.5 Ω to 10 Ω
Max. leakage current	At +25°C = 5 µA to 25 µA At +85°C and +125°C = 100 µA to 250 µA
Max. ESR	0.25 Ω to 140 Ω
Max. ripple current	2400 mA to 5000 ma
Reverse voltage	No continuous Reverse voltage. Reverse voltage is acceptable under some conditions: $U_{REV} \leq 1.5$ V. It ≤ 0.05 A second and repetition rate < 10Hz
Max. surge voltage at +85°C	1.15 x U_R

Full details and most up to date information found at government website.

DIMENSIONS

Case (code)	Without insulating sleeve				With insulating sleeve		Lead length	
	D ±0.016 (±0.41)		L +0.031 (+0.79) −0.016 (−0.41)		D max.		E ±0.25 (±6,35)	
	Inches	(mm)	Inches	(mm)	Inches	(mm)	Inches	(mm)
T3	0.375	(9,52)	0.766	(19,46)	0.406	(10,31)	2.250	(57,15)
T4	0.375	(9,52)	1.062	(26,97)	0,406	(10,31)	2.250	(57,15)



HOW TO ORDER

EXXELIA PN	Model code	Dash Number	Tolerance code	Insulating sleeve
	10004	-38	K	S
			K = ±10% **M** = ±20%	**U** = Without **S** = With

DSCC 10004

STANDARD RATINGS - ELECTRICAL CHARACTERISTICS

Capacitance 120Hz +25°C (µF)	Case (code)	Dash Number	Capacitance maximum change			Max. Impedance 120Hz −55°C (Ω)	Max. I leak		Irms Max. 40kHz +85°C (mA)	Max. ESR 120Hz +25°C (Ω)
			−55°C (%)	+85°C (%)	+125°C (%)		+25°C (µA)	+85°C +125°C (µA)		
Rated voltage (+85°C) 10 V - Derated voltage (+125°C) 7 V										
4700	T3	01	−80	+10	+20	3.5	16	100	4000	0.35
10000	T4	02	−85	+20	+35	3	25	150	5000	0.25
Rated voltage (+85°C) 16 V - Derated voltage (+125°C) 11 V										
3300	T3	03	−80	+10	+15	3.5	16	100	4000	0.35
6000	T4	04	−80	+15	+20	3	25	150	4500	0.30
Rated voltage (+85°C) 25 V - Derated voltage (+125°C) 15 V										
4000	T4	05	−80	+15	+20	5	25	125	4250	0.35
Rated voltage (+85°C) 30 V - Derated voltage (+125°C) 20 V										
3300	T4	06	−80	+20	+25	4	25	125	2750	0.35
Rated voltage (+85°C) 35 V - Derated voltage (+125°C) 22 V										
2800	T4	07	−80	+20	+30	4.5	25	125	4000	0.35
Rated voltage (+85°C) 50 V - Derated voltage (+125°C) 30 V										
900	T3	34	−75	+20	+20	10	15	125	2500	0.90
1500	T3	35	−85	+25	+30	8	25	130	2400	1.00
1500	T4	08	−70	+20	+20	6	15	110	3500	0.45
2200	T4	15	−80	+25	+30	4.5	25	125	3000	0.60
Rated voltage (+85°C) 60 V - Derated voltage (+125°C) 40 V										
560	T3	36	−70	+12	+15	10	20	120	2500	0.90
1000	T4	09	−40	+10	+15	5.5	20	120	3500	0.50
1200	T4	16	−70	+15	+20	6	20	200	3500	0.50
1800	T4	28	−75	+25	+25	6	25	250	3000	0.50
Rated voltage (+85°C) 75 V - Derated voltage (+125°C) 50 V										
470	T3	11	−45	+10	+25	10	25	100	3000	0.60
750	T4	12	−35	+10	+15	6.5	20	120	3500	0.50
940	T4	17	−60	+12	+20	8	20	200	3500	0.50
1200	T4	30	−75	+25	+25	8	25	250	2750	0.80
Rated voltage (+85°C) 100 V - Derated voltage (+125°C) 65 V										
220	T3	38	−55	+10	+15	18	5	25	2500	1.40
400	T4	13	−40	+6	+12	15	10	120	3000	0.70
470	T4	18	−50	+10	+20	10	25	250	3500	0.70
Rated voltage (+85°C) 125 V - Derated voltage (+125°C) 85 V										
240	T4	14	−35	+6	+12	20	15	150	2500	0.80
330	T4	24	−55	+8	+12	15	25	250	2500	0.80

DSCC 93026

Wet tantalum capacitors
Hermetically sealed tantalum cases
High capacitance
Very high ripple current
Axial leads
Polarized

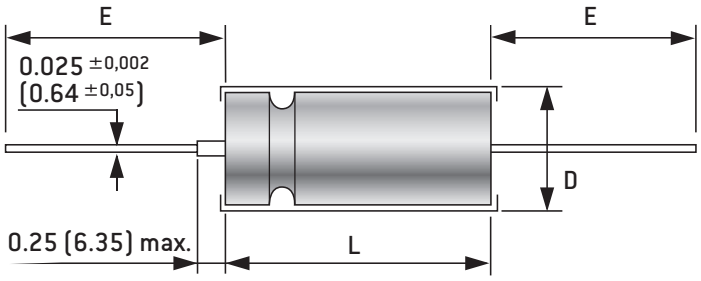
ELECTRICAL AND CLIMATIC CHARACTERISTICS

Detail specification	DWG NO. 93026
Operating temperature	−55°C +125°C
Capacitance range	10μF ⇨ 1800μF
Tolerance	±10% - ±20%
Voltage range	25V ⇨ 125V
Max. capacitance change	see table
Max. impedance	6 Ω to 175 Ω
Max. leakage current	At +25°C = 1 μA to 12 μA At +85°C and +125°C = 5 μA to 50 μA
Max. ESR	0.5 Ω to 5.5 Ω
Max. ripple current	1050 mA to 2750 mA
Reverse voltage	No continuous Reverse voltage. Reverse voltage is acceptable under some conditions: $U_{REV} \leq 1.5$ V. It ≤ 0.05 A second and repetition rate < 10Hz
Max. surge voltage at +85°C	1.15 x U_R

Full details and most up to date information found at government website.

DIMENSIONS (mm)

Case (code)	Without insulating sleeve				With insulating sleeve		Lead length	
	D ±0,41		L $^{+0,79}_{-0,41}$		D max.		E ±6,35	
T1	0.188	(4.78)	0.453	(11.51)	0.219	(5.56)	1.500	(38.10)
T2	0.281	(7.14)	0.641	(16.28)	0.312	(7.92)	2.250	(57.15)
T3	0.375	(9.52)	0.766	(19.46)	0.406	(10.31)	2.250	(57.15)
T4	0.375	(9.52)	1.062	(26.97)	0.406	(10.31)	2.250	(57.15)



HOW TO ORDER

EXXELIA PN	Model code	Dash Number	Tolerance code	Insulating sleeve
	93026	-48	K	S
			K = ±10% **M** = ±20%	**U** = Without **S** = With

DSCC 93026

STANDARD RATINGS - ELECTRICAL CHARACTERISTICS

Capacitance 120Hz +25°C (µF)	Case (code)	Dash Number	Capacitance maximum change			Max. Impedance 120Hz −55°C (Ω)	Max. I leak		Irms Max. 40kHz +85°C (mA)	Max. ESR 120Hz +25°C (Ω)
			−55°C (%)	+85°C (%)	+125°C (%)		+25°C (µA)	+85°C / +125°C (µA)		
Rated voltage (+85°C) 25 V - Derated voltage (+125°C) 15 V										
120	T1	29	−42	+8	+12	25	1	5	1250	1.3
560	T2	30	−65	+10	+15	12	2	10	2100	0.83
1200	T3	31	−70	+12	+18	7	5	20	2600	0.65
1800	T4	32	−75	+12	+20	7	6	25	3100	0.5
Rated voltage (+85°C) 30 V - Derated voltage (+125°C) 20 V										
100	T1	33	−38	+8	+12	25	1	5	1200	1.3
470	T2	34	−65	+10	+18	15	2	10	1800	0.85
1000	T3	35	−70	+10	+18	7	7	25	2500	0.7
1500	T4	36	−72	+10	+20	6	12	35	3000	0.6
Rated voltage (+85°C) 50 V - Derated voltage (+125°C) 30 V										
68	T1	37	−25	+8	+15	35	1	5	1050	1.5
220	T2	38	−50	+8	+15	17.5	2	10	1800	0.9
470	T3	39	−50	+8	+15	10	3	25	2100	0.75
680	T4	40	−58	+10	+20	8	5	40	2750	0.7
Rated voltage (+85°C) 60 V - Derated voltage (+125°C) 40 V										
47	T1	41	−25	+8	+12	44	1	5	1050	2.0
150	T2	42	−40	+8	+15	20	2	10	1650	1.1
390	T3	43	−60	+8	+15	15	3	25	2100	0.9
560	T4	44	−58	+8	+15	10	5	40	2750	0.8
Rated voltage (+85°C) 75 V - Derated voltage (+125°C) 50 V										
33	T1	45	−25	+5	+9	66	1	5	1050	2.5
110	T2	46	−35	+6	+10	24	2	10	1650	1.3
330	T3	47	−45	+6	+10	12	3	30	2100	1.0
470	T4	48	−55	+6	+10	12	5	50	2750	0.9
Rated voltage (+85°C) 100 V - Derated voltage (+125°C) 65 V										
15	T1	49	−18	+3	+10	125	1	5	1050	3.5
68	T2	50	−30	+4	+12	37	2	10	1650	2.1
150	T3	51	−35	+6	+12	22	3	25	2100	1.6
220	T4	52	−40	+6	+12	15	5	50	2750	1.2
Rated voltage (+85°C) 125 V - Derated voltage (+125°C) 85 V										
10	T1	53	−15	+3	+10	175	1	5	1050	5.5
47	T2	54	−25	+5	+12	47	2	10	1650	2.3
100	T3	55	−35	+5	+12	35	3	25	2100	1.8
150	T4	56	−35	+6	+12	20	5	50	2750	1.6

MIL 39006/22

MIL Qualified - CLR79

Wet tantalum capacitors
Hermetically sealed tantalum cases
High ripple current
Axial leads
Polarized

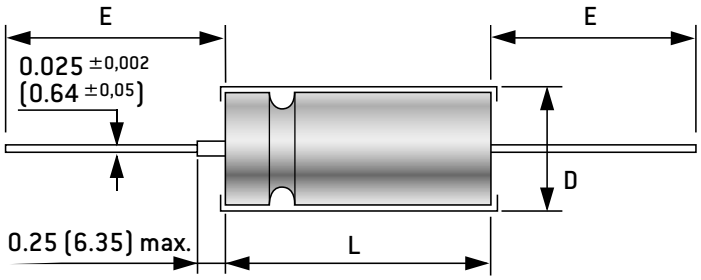
ELECTRICAL AND CLIMATIC CHARACTERISTICS

Detail specification	MIL-PRF-39006/22 Failure rate level M & Failure rate level P
Operating temperature	−55°C +125°C
Capacitance range	1.7µF ⇨ 1200µF
Tolerance	±10% - ±20%
Voltage range	6V ⇨ 125V
Max. capacitance change	see table
Maximum DF	4% to 50%
Max. impedance	20Ω to 275Ω
Max. leakage current	At +25°C = 1µA to 8µA At +85°C and +125°C = 2µA to 32µA
Max. ripple current	640mA to 2360mA
Max. Reverse voltage at +85°C	3 volts
Max. Reverse voltage at +125°C	2 volts
Max. surge voltage at +85°C	1.15 x U_R

Full details and most up to date information found at government website.

DIMENSIONS (mm)

Case code	Without insulating sleeve				With insulating sleeve		Lead length	
	D ±0.016 (±0.41)		L +0.031 −0.016 (+0.79 −0.41)		D max.		E ±0.250 (±6.35)	
T1	0.188	(4.78)	0.453	11.51	0.219	(5.56)	1.500	(38.10)
T2	0.281	(7.14)	0.641	16.28	0.312	(7.92)	2.250	(57.15)
T3	0.375	(9.52)	0.766	19.46	0.406	(10.31)	2.250	(57.15)
T4	0.375	(9.52)	1.062	26.97	0.406	(10.31)	2.250	(57.15)



HOW TO ORDER

EXXELIA PN	Model code	Dash Number	Vibration and shock (optional)
	M39006/22	-0220	H

- = Without
H = With

MIL Qualified - CLR79

MIL 39006/22

STANDARD RATINGS - ELECTRICAL CHARACTERISTICS

Capacitance 120Hz +25°C (µF)	Case (code)	Dash Number Failure Rate Level M			Dash Number Failure Rate Level P			Dash Number Failure Rate Level R			Capacitance maximum change			Max. DF +25°C (%)	Max. Impedance 120Hz −55°C (Ω)	Max. I leak		Irms Max. 40kHz +85°C (mA)	Max. ESR 120Hz +25°C (Ω)
		±5%	±10%	±20%	±5%	±10%	±20%	±5%	±10%	±20%	−55°C (%)	+85°C (%)	+125°C (%)			+25°C (µA)	+85°C +125°C (µA)		
Rated voltage (+85°C) 6 V - Derated voltage (+125°C) 4 V																			
30	T1	0003	0002	0001	0223	0222	0221	0443	0442	0441	−40	+10.5	+12	9	100	1	2	820	3.98
68	T1	0006	0005	0004	0226	0225	0224	0446	0445	0444	−40	+14	+16	15	60	1	2	960	3.16
140	T2	0009	0008	0007	0229	0228	0227	0449	0448	0447	−40	+14	+16	21	40	1	3	1200	1.99
270	T2	0012	0011	0010	0232	0231	0230	0452	0451	0450	−44	+17.5	+20	45	25	1	6.5	1375	2.21
330	T3	0015	0014	0013	0235	0234	0233	0455	0454	0453	−44	+14	+16	36	20	2	7.9	1800	1.45
560	T3	0018	0017	0016	0238	0237	0236	0458	0457	0456	−64	+17.5	+20	55	25	2	13	1900	1.30
1200	T4	–	0020	0019	–	0240	0239	–	0460	0459	−80	+25	+25	90	20	3	14	2265	1.00
Rated voltage (+85°C) 8 V - Derated voltage (+125°C) 5 V																			
25	T1	0023	0022	0021	0243	0242	0241	0463	0462	0461	−40	+10.5	+12	7.5	100	1	2	820	3.98
56	T1	0026	0025	0024	0246	0245	0244	0466	0465	0464	−40	+14	+16	14	59	1	2	900	3.32
120	T2	0029	0028	0027	0249	0248	0247	0469	0468	0467	−44	+17.5	+20	20	50	1	2	1220	2.21
220	T2	0032	0031	0030	0252	0251	0250	0472	0471	0470	−44	+17.5	+20	37	30	1	7	1370	2.23
290	T3	0035	0034	0033	0255	0254	0253	0475	0474	0473	−64	+17.5	+20	34	25	2	6	1770	1.56
430	T3	0038	0037	0036	0258	0257	0256	0478	0477	0476	−64	+17.5	+20	46	25	2	14	1825	1.42
850	T4	–	0040	0039	–	0260	0259	–	0480	0479	−80	+25	+25	60	22	4	16	2330	0.94
Rated voltage (+85°C) 10 V - Derated voltage (+125°C) 7 V																			
20	T1	0043	0042	0041	0263	0262	0261	0483	0482	0481	−32	+10.5	+12	6	175	1	2	820	3.98
47	T1	0046	0045	0044	0266	0265	0264	0486	0485	0484	−36	+14	+16	13	100	1	2	855	3.67
100	T2	0049	0048	0047	0269	0268	0267	0489	0488	0487	−36	+14	+16	15	60	1	4	1200	1.99
180	T2	0052	0051	0050	0272	0271	0270	0492	0491	0490	−36	+14	+16	30	40	1	7	1365	2.21
250	T3	0055	0054	0053	0275	0274	0273	0495	0494	0493	−40	+14	+16	30	30	2	10	1720	1.59
390	T3	0058	0057	0056	0278	0277	0276	0498	0497	0496	−64	+17.5	+20	44	25	2	16	1800	1.50
750	T4	–	0060	0059	–	0280	0279	–	0500	0499	−80	+25	+25	50	23	4	16	2360	0.88
Rated voltage (+85°C) 15 V - Derated voltage (+125°C) 10 V																			
15	T1	0063	0062	0061	0283	0282	0281	0503	0502	0501	−24	+10.5	+12	5	155	1	2	780	4.42
33	T1	0066	0065	0064	0286	0285	0284	0506	0505	0504	−28	+14	+16	10	90	1	2	820	4.02
70	T2	0069	0068	0067	0289	0288	0287	0509	0508	0507	−28	+14	+16	13	75	1	4	1150	2.46
120	T2	0072	0071	0070	0292	0291	0290	0512	0511	0510	−28	+17.5	+20	18	50	1	7	1450	1.99
170	T3	0075	0074	0073	0295	0294	0293	0515	0514	0513	−32	+14	+16	25	35	2	10	1480	1.95
270	T3	0078	0077	0076	0298	0297	0296	0518	0517	0516	−56	+17.5	+20	32	30	2	16	1740	1.57
540	T4	–	0080	0079	–	0300	0299	–	0520	0519	−80	+25	+25	40	23	6	24	2330	0.98
Rated voltage (+85°C) 25 V - Derated voltage (+125°C) 15 V																			
10	T1	0083	0082	0081	0303	0302	0301	0523	0522	0521	−16	+8	+9	4	220	1	2	715	5.31
22	T1	0086	0085	0084	0306	0305	0304	0526	0525	0524	−20	+10.5	+12	6.6	140	1	2	825	3.98
50	T2	0089	0088	0087	0309	0308	0307	0529	0528	0527	−28	+13	+15	11	70	1	2	1130	2.92
100	T2	0092	0091	0090	0312	0311	0310	0532	0531	0530	−28	+13	+15	15	50	1	10	1435	1.99
120	T3	0095	0094	0093	0315	0314	0313	0535	0534	0533	−32	+13	+15	21	38	2	6	1450	2.32
180	T3	0098	0097	0096	0318	0317	0316	0538	0537	0536	−48	+13	+15	26	32	2	18	1525	1.92
350	T4	–	0100	0099	–	0320	0319	–	0540	0539	−70	+25	+25	35	24	7	28	1970	1.33
Rated voltage (+85°C) 30 V - Derated voltage (+125°C) 20 V																			
8	T1	0103	0102	0101	0323	0322	0321	0543	0542	0541	−16	+8	+12	4	275	1	2	640	6.64
15	T1	0106	0105	0104	0326	0325	0324	0546	0545	0544	−20	+10.5	+12	5	175	1	2	780	4.42
40	T2	0109	0108	0107	0329	0328	0327	0549	0548	0547	−24	+10.5	+12	10	65	1	5	1120	3.32
68	T2	0112	0111	0110	0332	0331	0330	0552	0551	0550	−24	+13	+15	13	60	1	8	1285	2.54
100	T3	0115	0114	0113	0335	0334	0333	0555	0554	0553	−28	+10.5	+12	17	40	2	12	1450	2.26
150	T3	0118	0117	0116	0338	0337	0336	0558	0557	0556	−48	+13	+15	23	35	2	18	1525	2.03
300	T4	–	0120	0119	–	0340	0339	–	0560	0559	−60	+25	+25	31	25	8	32	1950	1.37

MIL 39006/22

MIL Qualified - CLR79

STANDARD RATINGS - ELECTRICAL CHARACTERISTICS

Capacitance 120Hz +25°C (µF)	Case (code)	Dash Number Failure Rate Level M			Dash Number Failure Rate Level P			Dash Number Failure Rate Level R			Capacitance maximum change			Max. DF +25°C (%)	Max. Impedance 120Hz −55°C (Ω)	Max. I leak		Irms Max. 40kHz +85°C (mA)	Max. ESR 120Hz +25°C (Ω)
		±5%	±10%	±20%	±5%	±10%	±20%	±5%	±10%	±20%	−55°C (%)	+85°C (%)	+125°C (%)			+25°C (µA)	+85°C +125°C (µA)		
Rated voltage (+85°C) 50 V - Derated voltage (+125°C) 30 V																			
5	T1	0123	0122	0121	0343	0342	0341	0563	0562	0561	−16	+5	+6	3	400	1	2	580	7.96
10	T1	0126	0125	0124	0346	0345	0344	0566	0565	0564	−24	+8	+9	4	250	1	2	715	5.31
25	T2	0129	0128	0127	0349	0348	0347	0569	0568	0567	−20	+10.5	+12	8	95	1	5	1005	4.25
47	T2	0132	0131	0130	0352	0351	0350	0572	0571	0570	−28	+13	+15	11	70	1	9	1155	3.11
60	T3	0135	0134	0133	0355	0354	0353	0575	0574	0573	−16	+10.5	+12	12	45	2	12	1335	2.65
82	T3	0138	0137	0136	0358	0357	0356	0578	0577	0576	−32	+13	+15	15	45	2	16	1400	2.43
160	T4	–	0140	0139	–	0360	0359	–	0580	0579	−50	+25	+25	17	27	8	32	1900	1.41
Rated voltage (+85°C) 60 V - Derated voltage (+125°C) 40 V																			
4	T1	0143	0142	0141	0363	0362	0361	0583	0582	0581	−16	+5	+6	2.8	550	1	2	525	9.29
8.2	T1	0146	0145	0144	0366	0365	0364	0586	0585	0584	−24	+8	+9	4	275	1	2	625	6.47
20	T2	0149	0148	0147	0369	0368	0367	0589	0588	0587	−16	+10.5	+12	7	105	1	5	930	4.64
39	T2	0152	0151	0150	0372	0371	0370	0592	0591	0590	−28	+10.5	+12	10	90	1	9	1110	3.40
50	T3	0155	0154	0153	0375	0374	0373	0595	0594	0593	−16	+10.5	+12	10	50	2	12	1330	2.65
68	T3	0158	0157	0156	0378	0377	0376	0598	0597	0596	−32	+10.5	+12	13	50	2	16	1365	2.54
140	T4	–	0160	0159	–	0380	0379	–	0600	0599	−40	+20	+20	16	28	8	32	1850	1.52
Rated voltage (+85°C) 75 V - Derated voltage (+125°C) 50 V																			
3.5	T1	0163	0162	0161	0383	0382	0381	0603	0602	0601	−16	+5	+6	2.5	650	1	2	525	9.48
6.8	T1	0166	0165	0164	0386	0385	0384	0606	0605	0604	−20	+8	+9	3.5	300	1	2	610	6.83
15	T2	0169	0168	0167	0389	0388	0387	0609	0608	0607	−16	+8	+9	6	150	1	5	890	5.31
33	T2	0172	0171	0170	0392	0391	0390	0612	0611	0610	−24	+10.5	+15	10	90	1	10	1000	4.02
40	T3	0175	0174	0173	0395	0394	0393	0615	0614	0613	−16	+10.5	+12	9	60	2	12	1250	2.99
56	T3	0178	0177	0176	0398	0397	0396	0618	0617	0616	−28	+10.5	+15	11	60	2	17	1335	2.61
110	T4	–	0180	0179	–	0400	0399	–	0620	0619	−35	+20	+20	12	29	9	36	1850	1.45
Rated voltage (+85°C) 100 V - Derated voltage (+125°C) 65 V																			
2.5	T1	0183	0182	0181	0403	0402	0401	0623	0622	0621	−16	+7	+8	2	950	1	2	505	10.62
4.7	T1	0186	0185	0184	0406	0405	0404	0626	0625	0624	−16	+7	+8	3	500	1	2	565	8.47
11	T2	0189	0188	0187	0409	0408	0407	0629	0628	0627	−16	+8	+8	5	200	1	4	835	6.03
22	T2	0192	0191	0190	0412	0411	0410	0632	0631	0630	−16	+8	+8	7.5	100	1	9	965	4.52
30	T3	0195	0194	0193	0415	0414	0413	0635	0634	0633	−16	+8	+8	7	80	2	12	1240	3.10
43	T3	0198	0197	0196	0418	0417	0416	0638	0637	0636	−20	+8	+8	8.5	70	2	17	1335	2.62
86	T4	–	0200	0199	–	0420	0419	–	0640	0639	−25	+15	+15	10	30	9	36	1800	1.54
Rated voltage (+85°C) 125 V - Derated voltage (+125°C) 85 V																			
1.7	T1	0203	0202	0201	0423	0422	0421	0643	0642	0641	−16	+7	+8	2	1250	1	2	415	15.61
3.6	T1	0206	0205	0204	0426	0425	0424	0646	0645	0644	−16	+7	+8	2.7	600	1	2	520	9.95
9	T2	0209	0208	0207	0429	0428	0427	0649	0648	0647	−16	+7	+8	5	240	1	5	755	7.37
14	T2	0212	0211	0210	0432	0431	0430	0652	0651	0650	−16	+7	+8	6	167	1	7	860	5.69
18	T3	0215	0214	0213	0435	0434	0433	0655	0654	0653	−16	+7	+8	5	129	2	9	1130	3.69
25	T3	0218	0217	0216	0438	0437	0436	0658	0657	0656	−16	+7	+8	6	93	2	13	1200	3.18
56	T4	–	0220	0219	–	0440	0439	–	0660	0659	−25	+15	+15	6.5	32	10	40	1800	1.54

MIL Qualified - CLR81

MIL 39006/25

Wet tantalum capacitors
Hermetically sealed tantalum cases
High Capacitance
High ripple current
Axial leads
Polarized

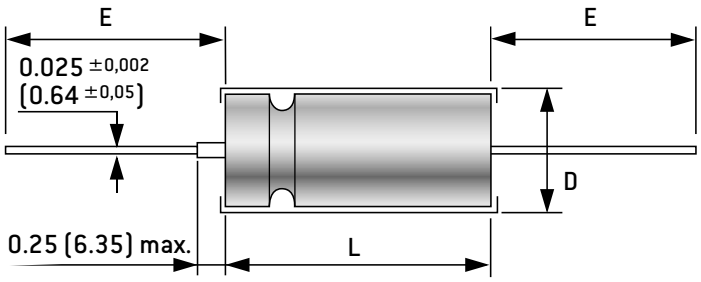
ELECTRICAL AND CLIMATIC CHARACTERISTICS

Detail specification	MIL-PRF-39006/25 Failure rate level M
Operating temperature	−55°C +125°C
Capacitance range	6,8µF ⇨ 680µF
Tolerance	±10% - ±20%
Voltage range	25V ⇨ 125V
Max. capacitance change	see table
Maximum DF	see table
Max. impedance	see table
Max. leakage current	see table
Max. ripple current	see table
Max. Reverse voltage at +85°C	3 volts
Max. Reverse voltage at +125°C	2 volts
Max. surge voltage at +85°C	1,15 x U_R

Full details and most up to date information found at government website.

DIMENSIONS (mm)

Case code	Without insulating sleeve				With insulating sleeve		Lead length	
	D ±0.016 (±0.41)		L +0.031 (+0.79) −0.016 (−0.41)		D max.		E ±0.250 (±6.35)	
T1	0.188	(4.78)	0.453	(11.51)	0.219	(5.56)	1.500	(38.10)
T2	0.281	(7.14)	0.641	(16.28)	0.312	(7.92)	2.250	(57.15)
T3	0.375	(9.52)	0.766	(19.46)	0.406	(10.31)	2.250	(57.15)
T4	0.375)	(9.52)	1.062	(26.97)	0.406	(10.31)	2.250	(57.15)



HOW TO ORDER

EXXELIA PN	Model code	Dash Number	Vibration and shock (optional)
	M39006/25	-0220	H

- = Without
H = With

MIL 39006/25

MIL Qualified - CLR81

STANDARD RATINGS - ELECTRICAL CHARACTERISTICS

Capacitance 120Hz +25°C (µF)	Case (code)	Dash Number Failure Rate Level M		Dash Number Failure Rate Level P		Dash Number Failure Rate Level R		Capacitance maximum change			Max. DF +25°C (%)	Max. Impedance 120Hz −55°C (Ω)	Max. I leak		Irms Max. 40kHz +85°C (mA)	Max. ESR 120Hz +25°C (Ω)
		±10%	±20%	±10%	±20%	±10%	±20%	−55°C (%)	+85°C (%)	+125°C (%)			+25°C (µA)	+85°C +125°C (µA)		
Rated voltage (+85°C) 25 V - Derated voltage (+125°C) 15 V																
68	T1	0034	0033	0122	0121	0210	0209	−40	+12	+15	22	90	2	9	850	4.29
270	T2	0036	0035	0124	0123	0212	0211	−62	+13	+16	55	33	3	16	1400	2.70
560	T3	0038	0037	0126	0125	0214	0213	−72	+20	+25	76	24	7	28	1750	1.80
Rated voltage (+85°C) 30 V - Derated voltage (+125°C) 20 V																
56	T1	0042	0041	0130	0129	0218	0217	−38	+12	+15	22	100	2	9	800	5.21
220	T2	0044	0043	0132	0131	0220	0219	−60	+13	+16	42	36	3	16	1200	2.53
470	T3	0046	0045	0134	0133	0222	0221	−65	+20	+25	64	25	8	32	1500	1.81
Rated voltage (+85°C) 50 V - Derated voltage (+125°C) 30 V																
33	T1	0050	0049	0138	0137	0226	0225	−29	+10	+12	12.3	135	2	9	700	4.95
120	T2	0052	0051	0140	0139	0228	0227	−42	+12	+15	22.5	49	4	24	1200	2.49
270	T3	0054	0053	0142	0141	0230	0229	−46	+20	+25	37	29	8	32	1450	1.82
Rated voltage (+85°C) 60 V - Derated voltage (+125°C) 40 V																
27	T1	0058	0057	0146	0145	0234	0233	−24	+10	+12	10.2	144	3	12	700	5.01
100	T2	0060	0059	0148	0147	0236	0235	−36	+12	+15	19	54	4	20	1100	2.52
220	T3	0062	0061	0150	0149	0238	0237	−40	+16	+20	30	29	8	32	1400	1.81
Rated voltage (+85°C) 75 V - Derated voltage (+125°C) 50 V																
22	T1	0066	0065	0154	0153	0242	0241	−19	+10	+12	8.5	157	3	12	600	5.13
82	T2	0068	0067	0156	0155	0244	0243	−30	+12	+15	15.2	63	4	24	1000	2.46
180	T3	0070	0069	0158	0157	0246	0245	−35	+16	+20	24.4	30	9	36	1300	2.23
Rated voltage (+85°C) 100 V - Derated voltage (+125°C) 65 V																
10	T1	0074	0073	0162	0161	0250	0249	−17	+10	+12	4.5	200	3	12	800	5.97
39	T2	0076	0075	0164	0163	0252	0251	−20	+12	+15	10.4	80	5	24	1300	3.54
68	T3	0078	0077	0166	0165	0254	0253	−30	+14	+16	11.3	40	10	40	1600	2.21
Rated voltage (+85°C) 125 V - Derated voltage (+125°C) 85 V																
6.8	T1	0082	0081	0170	0169	0258	0257	−14	+10	+12	6	300	3	12	700	11.71
27	T2	0084	0083	0172	0171	0260	0259	−18	+12	+15	7.2	90	5	24	1200	3.54
47	T3	0086	0085	0174	0173	0262	0261	−26	+14	+16	7.9	50	10	40	1500	2.23

FILM CAPACITORS

EXXELIA

Type 154P

MIL-C-25/4

CP53, CP54, CP55

Fixed,
Paper or Plastic dielectric,
Direct current,
Hermetically sealed in metal cases.

GENERAL CHARACTERISTICS

Dielectric material	Paper opr Plastic
Rated temperature	Characteristics E and F –55°C to +85°C Characteristic K –55°C to +125°C
Capacitance range	0.05 µF to 10 µF
Voltage range	100 V to 1000 V
Capacitance tolerance	**K** (±10%), **V** (+20%, –10%)

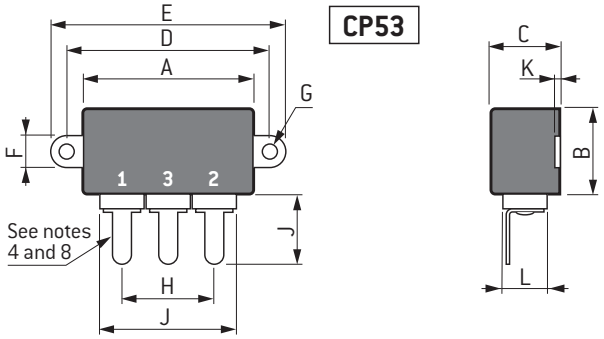
Full details and most up to date information found at government website.

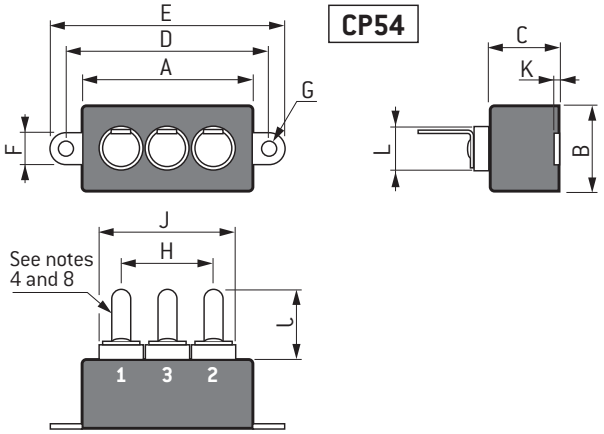
DIMENSIONS

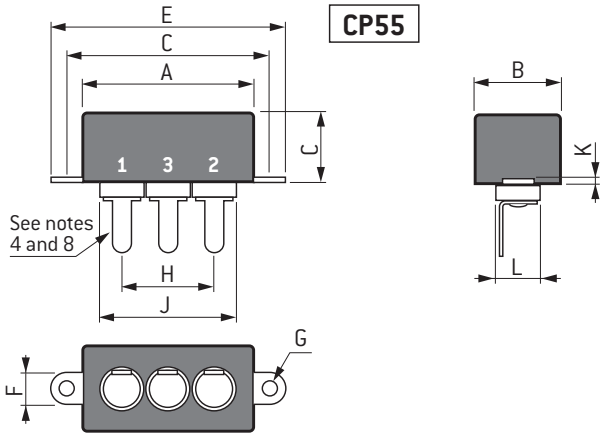
A	B	C	D	E
See tables on the next pages				

F		Ø G		H	
Inches	(mm)	Inches	(mm)	Inches	(mm)
$0.375^{\pm 0.031}$	$(9.53^{\pm 0.79})$	$0.188^{\pm 0.016}$	$(4.78^{\pm 0.41})$	$1.062^{\pm 0.094}$	$(26.97^{\pm 2.39})$

J		K		Ø L	
Inches	(mm)	Inches	(mm)	Inches	(mm)
1.687 max	(42.85 max)	$0.025^{+0.015}_{-0.005}$	$(0.64^{+0.38}_{-0.13})$	0.562 max	(14.27 max)







HOW TO ORDER

CP••	B	1	E	B	105	K	1
Style	Terminal	Circuit	Characteristic	Voltage in code	Capacitance in code	Capacitance tolerance in code	Vibration grade
CP53 **CP54** **CP55**	**B** (see page 6)	**1** = Circuit 1 **2** = Circuit 2 **4** = Circuit 4 **5** = Circuit 5 **6** = Circuit 6	**E, F, K** (see page 6)	**B, C, E, F, G** (see page 6)	Example: **105** = 1000pF	**K, V** (see page 6)	The only vibration grade still available is grade 1 (10 to 55Hz).

ELECTRICAL CHARACTERISTICS, DIMENSIONS, AND CHARACTERISTICS E, F, K

Type designation *	DC Voltage rating (Volts)	Capacitance (μf)	Capacitance tolerance**	Characteristics	Vibration grade	Case size		
						Characteristic E	Characteristic F	Characteristic K
CP5-B--B105K1	100	1	±10%	E, F	1	A2	A1	–
CP5-B-EB205K1	100	2	±10%	E	1	B1	–	–
CP5-B--B405K1	100	4	±10%	E, F	1	C2	C1	–
CP5-B-FB805K1	100	8	±10%	F	1	–	C1	–
CP5-B-FB106K1	100	10	±10%	F	1	–	C2	–
CP5-B-FC504K1	200	0.5	±10%	F	1	–	A1	–
CP5-B-EC105K1	200	1	±10%	E	1	B1	–	–
CP5-B-EC205K1	200	2	±10%	E	1	C1	–	–
CP5-B-KE503K1	400	0.05	±10%	K	1	–	–	A1
CP5-B-KE104K1	400	0.10	±10%	K	1	–	–	A1
CP5-B-KE254K1	400	0.25	±10%	K	1	–	–	A1
CP5-B-KE504K1	400	0.5	±10%	K	1	–	–	A2
CP5-B-KE105K1	400	1	±10%	K	1	–	–	B1
CP5-B-EF254K1	600	0.25	±10%	E	1	A1	–	–
CP5-B--F504K1	600	0.5	±10%	E, F	1	A3	A2	–
CP5-B--F105K1	600	1	±10%	E, F	1	B2	B1	–
CP5-B-EF205K1	600	2	±10%	E	1	C2	–	–
CP5-B-EG503K1	1,000	0.05	±10%	E	1	A1	–	–
CP5-B-EG104K1	1,000	0.1	±10%	E	1	A1	–	–
CP5-B--G254K1	1,000	0.25	±10%	E, F	1	A2	A1	–
CP5-B-EG504K1	1,000	0.5	±10%	E	1	B1	–	–
CP5-B-EG105K1	1,000	1	±10%	E	1	C2	–	–
CP5-B-EF503V1	600	0.05 –0.05**	+20% / –10%	E	1	A1	–	–
CP5-B-EF104V1	600	0.1 –0.1**	+20% / –10%	E	1	A1	–	–
CP5-B--F254V1	600	0.25 –0.25**	+20% / –10%	E, F	1	A3	A2	–
CP5-B--F504V1	600	0.5 –0.5**	+20% / –10%	E, F	1	B2	B1	–
CP5-B-EF105V1	600	1 –1**	+20% / –10%	E	1	C2	–	–
CP5-B-EG503V1	1,000	0.05 –0.05**	+20% / –10%	E	1	A1	–	–
CP5-B--G104V1	1,000	0.1 –0.1**	+20% / –10%	E,F	1	A2	A1	–
CP5-B-EG254V1	1,000	0.25 –0.25**	+20% / –10%	E	1	B1	–	–
CP5-B-EG504V1	1,000	0.5 –0.5**	+20% / –10%	E	1	C2	–	–
CP5-B5-E504V1	400	0.5 –0.5 –0.5**	+20% / –10%	E, F	1	C2	C1	–
CP5-B5-F104V1	600	0.1 –0.1 –0.1**	+20% / –10%	E, F	1	A2	A1	–
CP5-B5-EF254V1	600	0.25 –0.25 –0.25**	+20% / –10%	E	1	B1	–	–
CP5-B5-EF504V1	600	0.5 –0.5 –0.5**	+20% / –10%	E	1	C2	–	–
CP5-B5-EG503V1	1,000	0.05 –0.05 –0.05**	+20% / –10%	E	1	A1	–	–
CP5-B5-EG104V1	1,000	0.1 –0.1 –0.1**	+20% / –10%	E	1	B1	–	–
CP5-B5-EG254V1	1,000	0.25 –0.25 –0.25**	+20% / –10%	E	1	C2	–	–

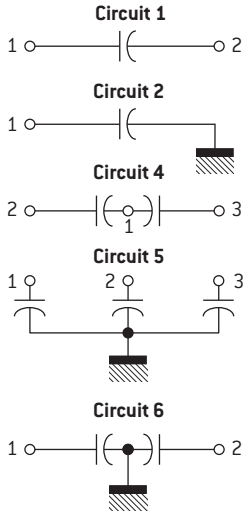
* Complete type designation shall include additional symbols to complete style designation, indicate circuit (where applicable) and characteristics (where applicable).

** For multiple-unit capacitors, the watt-second rating is the sum of the watt-second ratings of the component sections.

CASE DIMENSIONS ACCORDING TO CHARACTERISTICS E, F, K

Case size	Dimensions									
	A ±0.062 (±1.57)		B ±0.062 (±1.57)		C +0.062 –0.125 (+1,57 –3.18)		D ±0.031 (±0,79)		E ±0.062 (±1.57)	
	Inches	(mm)	Inches	(mm)	Inches	(mm)	Inches	(mm)	Inches	(mm)
A1	1,812	(46,02)	1,000	(25,40)	0,750	(19,05)	2,125	(53,98)	2,500	(63,50)
A2	1,812	(46,02)	1,000	(25,40)	0,875	(22,23)	2,125	(53,98)	2,500	(63,50)
A3	1,812	(46,02)	1,000	(25,40)	1,000	(25,40)	2,125	(53,98)	2,500	(63,50)
B1	2,000	(50,80)	1,750	(44,45)	0,875	(22,23)	2,375	(60,33)	2,750	(69,85)
B2	2,000	(50,80)	1,750	(44,45)	1,000	(25,40)	2,375	(60,33)	2,750	(69,85)
C1	2,000	(50,80)	2,000	(50,80)	1,000	(25,40)	2,375	(60,33)	2,750	(69,85)
C2	2,000	(50,80)	2,000	(50,80)	1,125	(28,58)	2,375	(60,33)	2,750	(69,85)

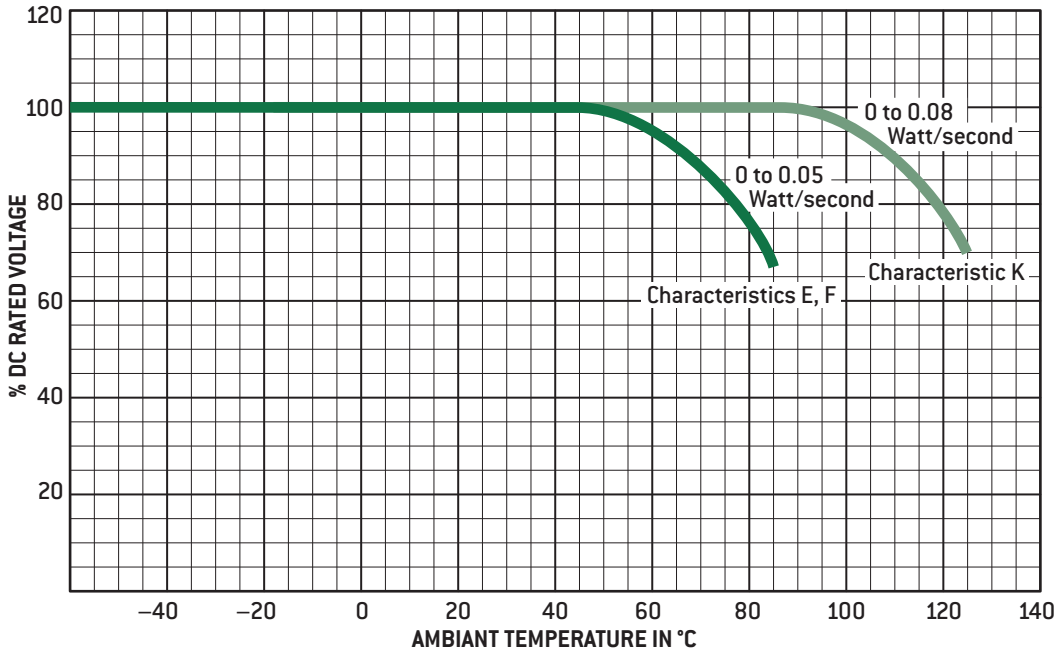
CIRCUIT DIAGRAM



NOTES

1. See tables for additional dimensions.
2. All dimensions in inches.
3. Metric equivalents are given for general information only.
4. Terminals need not be identified by numbers as shown. Shape of terminals and terminal lugs (drilled, punched, forked, or slotted) optional.
5. Mounting holes may be elongated.
6. For circuit 1, use terminals 1 and 2. For circuit 2, use terminal 1. For circuit 4, use terminal 1 for common connection and identify common terminal by the letter C on case adjacent to terminal. For circuit 6, use terminals 1 and 2.
7. Capacitors differ only in location of terminals. Style CP53, having the terminals on one side, contains certain values of capacitance in a smaller case than is possible with styles CP54 and CP55, the terminals of which are on top and bottom faces, respectively.
8. Terminal lugs shall be oriented as shown with respect to side of case bearing terminal identification numbers.

VOLTAGE DERATING FOR AMBIENT TEMPERATURE (CHARACTERISTICS E, F, AND K).



NOTE:

Permissible operating voltages, while based on incomplete data are the capacitor suppliers' best estimate to provide a life expectancy of 8,800 hours of continuous operation at higher ambient temperatures. Longer life can be expected by operation at voltages lower than indicated on the curve: For example, a life expectancy of 44,000 hours may be obtained by operation at 70 percent of the voltage determined by use of this curve. Also, a life longer than 8,800 hours may be expected at the voltage determined by use of this curve if the high ambient temperature prevails for only a portion of the whole operating time.

CZ23-24 / CZR 23-24

MIL-PRF-11693/7

Type 103P

Capacitor,
Feed through,
Radio-interference reduction,
Direct current,
Hermetically sealed in metal cases,
Established and non-established reliability.

GENERAL CHARACTERISTICS

Operating temperature	Characteristic E –55°C to +85°C. Characteristic K –55°C to +125°C
Capacitance range	4.7 nF to 2 µF
Voltage range	100 V to 400 V
Vibration, high frequency	MIL-STD-202-204, condition A (10G).

Full details and most up to date information found at government website.

DIMENSIONS

A	B
See table on the next page	

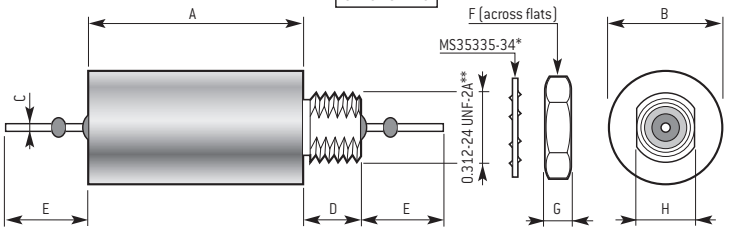
C		D		E	
Inches	(mm)	Inches	(mm)	Inches	(mm)
$0.040^{+0.005}_{-0.001}$	$(1.02^{+0.13}_{-0.03})$	0.312 ± 0.031	(7.92 ± 0.79)	1.625 to 2.625	(41.28) to (66.68)

F		G		H	
Inches	(mm)	Inches	(mm)	Inches	(mm)
0.438 ± 0.016	(11.13 ± 0.41)	0.125 ± 0.016	(3.18 ± 0.41)	0.250 to 0.255	(6.35) to (6.48)

J		K		L	
Inches	(mm)	Inches	(mm)	Inches	(mm)
0.109 ± 0.016	(2.77 ± 0.41)	0.062 ± 0.016	(1.57 ± 0.41)	0.281 ± 0.062	(7.14 ± 1.57)

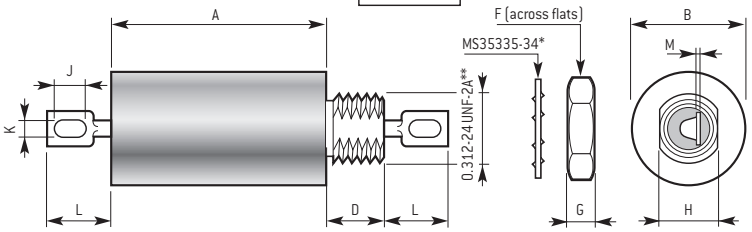
M	
Inches	(mm)
0.020 ± 0.002	(0.51 ± 0.05)

CZ 23 - CZR 23



* Lockwasher shall not be cadmium plated.
** Straddle milled flats on thread for locking on mounting chassis.

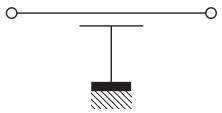
CZ 24 - CZR 24



NOTES

1. Dimensions are in Inches.
2. Metric equivalents are given for general information only.
3. Unless otherwise specified, tolerance is ±0.031" (0.79mm).
4. Threaded neck to mounting shoulder shall be perpendicular with ±3°.
5. Recommended mounting torque: 10 pound-Inches.
6. Lockwasher shall not be cadmium plated.

CIRCUIT DIAGRAM



HOW TO ORDER

CZ•23	B	K	B	473	M
ER Style	Current in code	Characteristic	Voltage in code	Capacitance in code	Failure rate level (only CZR••)
CZR = ER style **CZ** = Non ER style	**B** = 10 DC Amperes	**E** = –55°C to +85°C **K** = –55°C to +125°C (see page 6) Life-test voltage 140% U_R (V_{DC}) Capacitance tolerance ±10%	**B, C, E,** (see page 6)	Examples: **101** = 100pF **472** = 4.7nF **473** = 47nF	**M** = 1% per 1,000 hours based on operation at rated working voltage and maximum rated temperature

Type 103P

MIL-PRF-11693/7

CZ23-24 / CZR 23-24

ELECTRICAL CHARACTERISTICS

Part or Identifying Number (PIN)*	Nominal capacitance (µF)	Rated current (Amperes)	Characteristics	Dimensions			
				A ±0.05" (±1.27mm)		B ±0.015" (±0.38mm)	
				Inches	(mm)	Inches	(mm)
Rated voltage 100 V_{DC}							
CZ-2-B-B473-	0.047	10	K, E	0.75	(19.05)	0.400	(10.16)
CZ-2-B-B104-	0.1	10	K, E	0.88	(22.35)	0.400	(10.16)
CZ-2-B-B224-	0.22	10	K, E	1.38	(35.05)	0.400	(10.16)
CZ-2-B-B474-	0.47	10	K, E	1.38	(35.05)	0.562	(14.27)
CZ-2-B-B105-	1.0	10	K, E	1.88	(47.75)	0.670	(17.02)
CZ-2-B-B205-	2.0	10	K, E	2.12	(53.85)	10.00	(254)
Rated voltage 200 V_{DC}							
CZ-2-B-C473-	0.047	10	K, E	0.88	(22.35)	0.400	(10.16)
CZ-2-B-C104-	0.1	10	K, E	1.12	(28.45)	0.400	(10.16)
CZ-2-B-C224-	0.22	10	K, E	1.12	(28.45)	0.562	(14.27)
CZ-2-B-C474-	0.47	10	K, E	1.88	(47.75)	0.562	(14.27)
CZ-2-B-C105-	1.0	10	K, E	2.12	(53.85)	0.750	(19.05)
Rated voltage 400 V_{DC}							
CZ-2-B-E104-	0.1	10	K, E	1.12	(28.45)	0.562	(14.27)
CZ-2-B-E224-	0.22	10	K, E	1.88	(47.75)	0.562	(14.27)
CZ-2-B-E474-	0.47	10	K, E	2.12	(53.85)	0.750	(19.05)
Rated voltage 600 V_{DC}							
CZ-2-B-F472-	0.0047	10	K, E	0.75	(19.05)	0.400	(10.16)
CZ-2-B-F103-	0.01	10	K, E	0.75	(19.05)	0.400	(10.16)
CZ-2-B-F473-	0.047	10	K, E	1.38	(35.05)	0.400	(10.16)
CZ-2-B-F104-	0.1	10	K, E	1.38	(35.05)	0.562	(14.27)
CZ-2-B-F224-	0.22	10	K, E	1.88	(47.75)	0.670	(17.02)
CZ-2-B-F474-	0.47	10	K, E	2.38	(60.45)	0.750	(19.05)

* Complete PIN will include the following:
1st dash - Symbol "R" (for styles CZR23 and CZR24) or dash will be deleted (for styles CZ23 and CZ24).
2nd dash - Applicable style number.
3rd dash - Applicable characteristic (K or E).
4th dash - Applicable failure rate level symbol (CZR23 and CZR24 only) or dash will be deleted (for styles CZ23 and CZ24).

CQR09

MIL-PRF-19978/8

Type 131P

Capacitor,
Fixed,
Plastic or paper-plastic dielectric,
Axial-wire terminal,
Tubular (insulated),
Hermetically sealed in metal cases,
Nonmagnetic (end seal may be of magnetic material),
Established reliability.

GENERAL CHARACTERISTICS

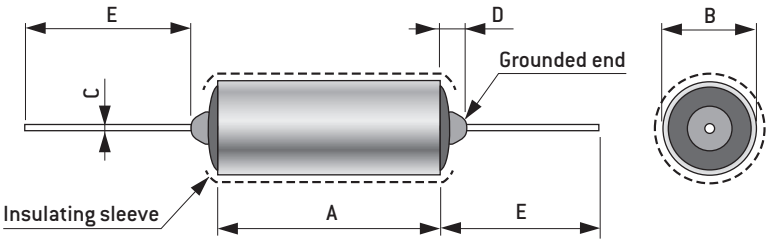
Rated temperature	–65°C to +125°C.	
Capacitance range	1 nF to 1 µF	
Voltage range	200 V to 1,000 V	
Capacitance tolerance	G, J, K	
Dissipation factor (DF)	1 % max.	
Failure rate level	In accordance with MIL-PRF-19978	
Dielectric withstanding voltage (DWV)	Sleeving and Barometric pressure: In accordance with MIL-PRF-19978	
	Test points: **Circuit diagram 1**: Between terminals and case. **Circuit diagram 3**: Between ungrounded terminal and case.	
Insulation resistance (IR)	Sleeving: In accordance with MIL-PRF-19978	
	Terminal to terminal: **At +25°C**: 0 to 0.6 µF = 25,000 MΩ / > 0.6 µF = 15,000 MΩ/µF **At +125°C**: 0 to 0.08 µF = 250 MΩ / > 0.08 µF = 20 MΩ/µF	Terminal to case: Greater than 10,000 MΩ

Full details and most up to date information found at government website.

DIMENSIONS

A	B
See tables on the next pages	

C		D		E	
Inches	(mm)	Inches	(mm)	Inches	(mm)
See note 3		0.172 max	(4.37 max)	1.625^{+1}_{-0}	$(41.28^{+25.4}_{-0})$

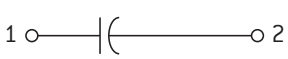


NOTES

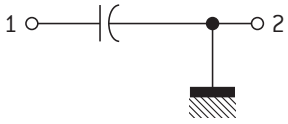
1. Dimensions are in Inches.
2. Metric equivalents are given for general information only.
3. Leads shall be of solder coated solid wire, 0.025" (0,64mm) (No. 22 AWG) for cases 0.235" (5,97mm) and 0.312" (7,92mm) in diameter; and 0.032" (0,81mm) (No. 20 AWG) for cases 0.400" (10,16mm) diameter and above. Tolerance on all lead wire diameters shall be +0.004" (0,10mm), –0.001" (0,03mm).
4. Capacitors with dimension A of 1.562" (39,67mm)or B of 0.562" (14,27mm) and larger, are not intended to be supported by their leads. These capacitors shall be supported with a supplementary means of mounting, such as a wrap-around band. The supporting device will not be supplied with the capacitor.
5. Lead length may be a minimum of 1" (25,4mm) long for use in tape and reel packaging when specified in the ordering data.

CIRCUIT DIAGRAM

Circuit 1



Circuit 3



HOW TO ORDER

CQR09	A	1	M	C	152	K	1	M
ER Style	Terminal	Circuit	Characteristic	Voltage in code	Capacitance in code	Capacitance tolerance in code	Vibration grade	Failure rate level
CQR = ER style	**A, B, C, D, H, E** (see page 6)	**1** = Circuit 1 **3** = Circuit 3	**K** (see page 6)	**C, E, F** (see page 6)	Examples: **101** = 100pF **472** = 4.7nF **473** = 47nF	**G** = ±2% **J** = ±5% **K** = ±10%	**1** = 10 to 55 Hz inclusive **3** = 10 to 2,000 Hz inclusive (acceleration 15 G)	**M** = 1% /1,000 hours **P** = 0.1% /1,000 hours **R** = 0.01% /1,000 hours

Type 131P

MIL-PRF-19978/8

CQR09

ELECTRICAL CHARACTERISTICS

Part or Identifying Number (PIN)*	Nominal capacitance (µF)	Capacitance Tolerance (in code)	Failure rate Level (in code)	Dimensions**							
				Circuit 1				Circuit 3			
				A ±0.031 (±0.79mm)		B +0.015/–0.005 (+0.38/–0.13mm)		A ±0.031 (±0.79mm)		B +0.015/–0.005 (+0.38/–0.13mm)	
				Inches	(mm)	Inches	(mm)	Inches	(mm)	Inches	(mm)
Rated voltage 200 V_{DC}											
CQR09A-KC392-3-	0.0039	G, J, K	M, P, R	0.750	(19,05)	0.235	(5.97)	0.688	(17.48)	0.235	(5.97)
CQR09A-KC472-3-	0.0047	G, J, K	M, P, R	0.750	(19,05)	0.235	(5.97)	0.688	(17.48)	0.235	(5.97)
CQR09A-KC562-3-	0.0056	G, J, K	M, P, R	0.750	(19,05)	0.235	(5.97)	0.688	(17.48)	0.235	(5.97)
CQR09A-KC682-3-	0.0068	G, J, K	M, P, R	0.750	(19,05)	0.235	(5.97)	0.688	(17.48)	0.235	(5.97)
CQR09A-KC183-3-	0.018	G, J, K	M, P, R	0.875	(22,23)	0.312	(7.92)	0.812	(20.62)	0.312	(7.92)
CQR09A-KC223-3-	0.022	G, J, K	M, P, R	0.875	(22,23)	0.312	(7.92)	0.812	(20.62)	0.312	(7.92)
CQR09A-KC273-3-	0.027	G, J, K	M, P, R	0.875	(22,23)	0.312	(7.92)	0.812	(20.62)	0.312	(7.92)
CQR09A-KC333-3-	0.033	G, J, K	M, P, R	0.875	(22,23)	0.312	(7.92)	0.812	(20.62)	0.312	(7.92)
CQR09A-KC393-3-	0.039	G, J, K	M, P, R	0.875	(22,23)	0.400	(10.16)	0.812	(20.62)	0.400	(10.16)
CQR09A-KC473-3-	0.047	G, J, K	M, P, R	0.875	(22,23)	0.400	(10.16)	0.812	(20.62)	0.400	(10.16)
CQR09A-KC563-3-	0.056	G, J, K	M, P, R	0.875	(22,23)	0.400	(10.16)	0.812	(20.62)	0.400	(10.16)
CQR09A-KC683-3-	0.068	G, J, K	M, P, R	0.875	(22,23)	0.400	(10.16)	0.812	(20.62)	0.400	(10.16)
CQR09A-KC823-3-	0.082	G, J, K	M, P, R	1.125	(28,58)	0.400	(10.16)	1.062	(26.97)	0.400	(10.16)
CQR09A-KC104-3-	0.10	G, J, K	M, P, R	1.125	(28,58)	0.400	(10.16)	1.062	(26.97)	0.400	(10.16)
CQR09A-KC124-3-	0.12	G, J, K	M, P, R	1.375	(34,93)	0.400	(10.16)	1.312	(33.32)	0.400	(10.16)
CQR09A-KC154-3-	0.15	G, J, K	M, P, R	1.375	(34,93)	0.400	(10.16)	1.312	(33.32)	0.400	(10.16)
CQR09A-KC184-3-	0.18	G, J, K	M, P, R	1.125	(28,58)	0.562	(14.27)	1.062	(26.97)	0.562	(14.27)
CQR09A-KC224-3-	0.22	G, J, K	M, P, R	1.125	(28,58)	0.562	(14.27)	1.062	(26.97)	0.562	(14.27)
CQR09A-KC274-3-	0.27	G, J, K	M, P, R	1.375	(34,93)	0.562	(14.27)	1.312	(33.32)	0.562	(14.27)
CQR09A-KC334-3-	0.33	G, J, K	M, P, R	1.375	(34,93)	0.562	(14.27)	1.312	(33.32)	0.562	(14.27)
CQR09A-KC394-3-	0.39	G, J, K	M, P, R	1.625	(41,28)	0.562	(14.27)	1.562	(39.67)	0.562	(14.27)
CQR09A-KC474-3-	0.47	G, J, K	M, P, R	1.625	(41,28)	0.562	(14.27)	1.562	(39.67)	0.562	(14.27)
CQR09A-KC564-3-	0.56	G, J, K	M, P, R	1.625	(41,28)	0.670	(17.02)	1.562	(39.67)	0.670	(17.02)
CQR09A-KC684-3-	0.68	G, J, K	M, P, R	1.625	(41,28)	0.670	(17.02)	1.562	(39.67)	0.670	(17.02)
CQR09A-KC824-3-	0.82	G, J, K	M, P, R	2.125	(53,98)	0.750	(19.05)	2.062	(52.37)	0.750	(19.05)
CQR09A-KC105-3-	1.00	G, J, K	M, P, R	2.125	(53,98)	0.750	(19.05)	2.062	(52.37)	0.750	(19.05)
Rated voltage 400 V_{DC}											
CQR09A-KE272-3-	0.0027	G, J, K	M, P, R	0.750	(19,05)	0.235	(5.97)	0.688	(17.48)	0.235	(5.97)
CQR09A-KE332-3-	0.0033	G, J, K	M, P, R	0.750	(19,05)	0.235	(5.97)	0.688	(17.48)	0.235	(5.97)
CQR09A-KE123-3-	0.012	G, J, K	M, P, R	0.875	(22,23)	0.312	(7.92)	0.812	(20.62)	0.312	(7.92)
CQR09A-KE153-3-	0.015	G, J, K	M, P, R	0.875	(22,23)	0.312	(7.92)	0.812	(20.62)	0.312	(7.92)
CQR09A-KE273-3-	0.027	G, J, K	M, P, R	0.875	(22,23)	0.400	(10.16)	0.812	(20.62)	0.400	(10.16)
CQR09A-KE333-3-	0.033	G, J, K	M, P, R	0.875	(22,23)	0.400	(10.16)	0.812	(20.62)	0.400	(10.16)
CQR09A-KE393-3-	0.039	G, J, K	M, P, R	1.125	(28,58)	0.400	(10.16)	1.062	(26.97)	0.400	(10.16)
CQR09A-KE473-3-	0.047	G, J, K	M, P, R	1.125	(28,58)	0.400	(10.16)	1.062	(26.97)	0.400	(10.16)
CQR09A-KE563-3-	0.056	G, J, K	M, P, R	1.375	(34,93)	0.400	(10.16)	1.312	(33.32)	0.400	(10.16)
CQR09A-KE683-3-	0.068	G, J, K	M, P, R	1.375	(34,93)	0.400	(10.16)	1.312	(33.32)	0.400	(10.16)
CQR09A-KE823-3-	0.082	G, J, K	M, P, R	1.125	(28.58)	0.562	(14.27)	1.062	(26.97)	0.562	0.562
CQR09A-KE104-3-	0.10	G, J, K	M, P, R	1.125	(28.58)	0.562	(14.27)	1.062	(26.97)	0.562	0.562
CQR09A-KE124-3-	0.12	G, J, K	M, P, R	1.375	(34.93)	0.562	(14.27)	1.312	(33.32)	0.562	0.562
CQR09A-KE154-3-	0.15	G, J, K	M, P, R	1.375	(34.93)	0.562	(14.27)	1.312	(33.32)	0.562	0.562
CQR09A-KE184-3-	0.18	G, J, K	M, P, R	1.625	(41.28)	0.562	(14.27)	1.562	(39.67)	0.562	0.562
CQR09A-KE224-3-	0.22	G, J, K	M, P, R	1.625	(41.28)	0.562	(14.27)	1.562	(39.67)	0.562	0.562
CQR09A-KE274-3-	0.27	G, J, K	M, P, R	1.625	(41.28)	0.670	(17.02)	1.562	(39.67)	0.670	0.670
CQR09A-KE334-3-	0.33	G, J, K	M, P, R	1.625	(41.28)	0.670	(17.02)	1.562	(39.67)	0.670	0.670
CQR09A-KE394-3-	0.39	G, J, K	M, P, R	2.125	(53.98)	0.750	(19.05)	2.062	(52.37)	0.750	0.750
CQR09A-KE474-3-	0.47	G, J, K	M, P, R	2.125	(53.98)	0.750	(19.05)	2.062	(52.37)	0.750	0.750

* Complete part number shall include additional symbols to indicate circuit, capacitance tolerance and failure rate level as applicable.

** Dimensions are for basic case; sleeving shall extend 0.016" (0.41mm) minimum and 0.062" (1.57mm) maximum, beyond each end of the capacitor body; however, if a shrink-fitted insulation is used for the sleeving, it shall lap over the ends of the capacitor body. Add 0.047" (1.19mm) maximum to the nominal for capacitor diameter.

ELECTRICAL CHARACTERISTICS

Part or Identifying Number (PIN)*	Nominal capacitance (µF)	Capacitance Tolerance (in code)	Failure rate Level (in code)	Dimensions**							
				Circuit 1				Circuit 3			
				A ±0.031 (±0.79mm)		B +0.015/–0.005 (+0.38/–0.13mm)		A ±0.031 (±0.79mm)		B +0.015/–0.005 (+0.38/–0.13mm)	
				Inches	(mm)	Inches	(mm)	Inches	(mm)	Inches	(mm)
Rated voltage 600 V_{DC}											
CQR09A-KF102-3-	0.0010	G, J, K	M, P, R	0.750	(19.05)	0.235	(5.97)	0.688	(17.48)	0.235	(5.97)
CQR09A-KF122-3-	0.0012	G, J, K	M, P, R	0.750	(19.05)	0.235	(5.97)	0.688	(17.48)	0.235	(5.97)
CQR09A-KF152-3-	0.0015	G, J, K	M, P, R	0.750	(19.05)	0.235	(5.97)	0.688	(17.48)	0.235	(5.97)
CQR09A-KF182-3-	0.0018	G, J, K	M, P, R	0.750	(19.05)	0.235	(5.97)	0.688	(17.48)	0.235	(5.97)
CQR09A-KF222-3-	0.0022	G, J, K	M, P, R	0.750	(19.05)	0.235	(5.97)	0.688	(17.48)	0.235	(5.97)
CQR09A-KF272-3-	0.0027	G, J, K	M, P, R	0.875	(22.23)	0.312	(7.92)	0.812	(20.62)	0.312	(7.92)
CQR09A-KF332-3-	0.0033	G, J, K	M, P, R	0.875	(22.23)	0.312	(7.92)	0.812	(20.62)	0.312	(7.92)
CQR09A-KF392-3-	0.0039	G, J, K	M, P, R	0.875	(22.23)	0.312	(7.92)	0.812	(20.62)	0.312	(7.92)
CQR09A-KF472-3-	0.0047	G, J, K	M, P, R	0.875	(22.23)	0.312	(7.92)	0.812	(20.62)	0.312	(7.92)
CQR09A-KF562-3-	0.0056	G, J, K	M, P, R	0.875	(22.23)	0.312	(7.92)	0.812	(20.62)	0.312	(7.92)
CQR09A-KF682-3-	0.0068	G, J, K	M, P, R	0.875	(22.23)	0.312	(7.92)	0.812	(20.62)	0.312	(7.92)
CQR09A-KF822-3-	0.0082	G, J, K	M, P, R	0.875	(22.23)	0.312	(7.92)	0.812	(20.62)	0.312	(7.92)
CQR09A-KF103-3-	0.010	G, J, K	M, P, R	0.875	(22.23)	0.312	(7.92)	0.812	(20.62)	0.312	(7.92)
CQR09A-KF123-3-	0.012	G, J, K	M, P, R	0.875	(22.23)	0.400	(10.16)	0.812	(20.62)	0.400	(10.16)
CQR09A-KF153-3-	0.015	G, J, K	M, P, R	0.875	(22.23)	0.400	(10.16)	0.812	(20.62)	0.400	(10.16)
CQR09A-KF183-3-	0.018	G, J, K	M, P, R	0.875	(22.23)	0.400	(10.16)	0.812	(20.62)	0.400	(10.16)
CQR09A-KF223-3-	0.022	G, J, K	M, P, R	0.875	(22.23)	0.400	(10.16)	0.812	(20.62)	0.400	(10.16)
CQR09A-KF273-3-	0.027	G, J, K	M, P, R	1.125	(28.58)	0.400	(10.16)	1.062	(26.97)	0.400	(10.16)
CQR09A-KF333-3-	0.033	G, J, K	M, P, R	1.125	(28.58)	0.400	(10.16)	1.062	(26.97)	0.400	(10.16)
CQR09A-KF393-3-	0.039	G, J, K	M, P, R	1.375	(34.93)	0.400	(10.16)	1.312	(33.32)	0.400	(10.16)
CQR09A-KF473-3-	0.047	G, J, K	M, P, R	1.375	(34.93)	0.400	(10.16)	1.312	(33.32)	0.400	(10.16)
CQR09A-KF563-3-	0.056	G, J, K	M, P, R	1.125	(28.58)	0.562	(14.27)	1.062	(26.97)	0.562	(14.27)
CQR09A-KF683-3-	0.068	G, J, K	M, P, R	1.125	(28.58)	0.562	(14.27)	1.062	(26.97)	0.562	(14.27)
CQR09A-KF823-3-	0.082	G, J, K	M, P, R	1.375	(34.93)	0.562	(14.27)	1.312	(33.32)	0.562	(14.27)
QR09A-KF104-3-	0.10	G, J, K	M, P, R	1.375	(34.93)	0.562	(14.27)	1.312	(33.32)	0.562	(14.27)
QR09A-KF124-3-	0.12	G, J, K	M, P, R	1.625	(41.28)	0.562	(14.27)	1.562	(39.67)	0.562	(14.27)
QR09A-KF154-3-	0.15	G, J, K	M, P, R	1.625	(41.28)	0.562	(14.27)	1.562	(39.67)	0.562	(14.27)
QR09A-KF184-3-	0.18	G, J, K	M, P, R	1.625	(41.28)	0.670	(17.02)	1.562	(39.67)	0.670	(17.02)
QR09A-KF224-3-	0.22	G, J, K	M, P, R	1.625	(41.28)	0.670	(17.02)	1.562	(39.67)	0.670	(17.02)
QR09A-KF274-3-	0.27	G, J, K	M, P, R	2.125	(53.98)	0.750	(19.05)	2.062	(52.37)	0.750	(19.05)
QR09A-KF334-3-	0.33	G, J, K	M, P, R	2.125	(53.98)	0.750	(19.05)	2.062	(52.37)	0.750	(19.05)
QR09A-KF394-3-	0.39	G, J, K	M, P, R	2.375	(60.33)	0.750	(19.05)	2.312	(58.72)	0.750	(19.05)
QR09A-KF474-3-	0.47	G, J, K	M, P, R	2.375	(60.33)	0.750	(19.05)	2.312	(58.72)	0.750	(19.05)

* Complete part number shall include additional symbols to indicate circuit, capacitance tolerance and failure rate level as applicable.

** Dimensions are for basic case; sleeving shall extend 0.016" (0.41mm) minimum and 0.062" (1.57mm) maximum, beyond each end of the capacitor body; however, if a shrink-fitted insulation is used for the sleeving, it shall lap over the ends of the capacitor body. Add 0.047" (1.19mm) maximum to the nominal for capacitor diameter.

Type 131P

MIL-PRF-19978/8

CQR09

ELECTRICAL CHARACTERISTICS

Part or Identifying Number (PIN)*	Nominal capacitance (µF)	Capacitance Tolerance (in code)	Failure rate Level (in code)	Dimensions**							
				Circuit 1				Circuit 3			
				A ±0.031 (±0.79mm)		B +0.015/–0.005 (+0.38/–0.13mm)		A ±0.031 (±0.79mm)		B +0.015/–0.005 (+0.38/–0.13mm)	
				Inches	(mm)	Inches	(mm)	Inches	(mm)	Inches	(mm)
Rated voltage 1000 V_{DC}											
CQR09A-KG102-3-	0.0010	G, J, K	M, P, R	0.875	(22.23)	0.400	(10.16)	0.812	(20.62)	0.400	(10.16)
CQR09A-KG122-3-	0.0012	G, J, K	M, P, R	0.875	(22.23)	0.400	(10.16)	0.812	(20.62)	0.400	(10.16)
CQR09A-KG152-3-	0.0015	G, J, K	M, P, R	0.875	(22.23)	0.400	(10.16)	0.812	(20.62)	0.400	(10.16)
CQR09A-KG182-3-	0.0018	G, J, K	M, P, R	0.875	(22.23)	0.400	(10.16)	0.812	(20.62)	0.400	(10.16)
CQR09A-KG222-3-	0.0022	G, J, K	M, P, R	0.875	(22.23)	0.400	(10.16)	0.812	(20.62)	0.400	(10.16)
CQR09A-KG272-3-	0.0027	G, J, K	M, P, R	0.875	(22.23)	0.400	(10.16)	0.812	(20.62)	0.400	(10.16)
CQR09A-KG332-3-	0.0033	G, J, K	M, P, R	0.875	(22.23)	0.400	(10.16)	0.812	(20.62)	0.400	(10.16)
CQR09A-KG392-3-	0.0039	G, J, K	M, P, R	0.875	(22.23)	0.400	(10.16)	0.812	(20.62)	0.400	(10.16)
CQR09A-KG472-3-	0.0047	G, J, K	M, P, R	0.875	(22.23)	0.400	(10.16)	0.812	(20.62)	0.400	(10.16)
CQR09A-KG562-3-	0.0056	G, J, K	M, P, R	0.875	(22.23)	0.400	(10.16)	0.812	(20.62)	0.400	(10.16)
CQR09A-KG682-3-	0.0068	G, J, K	M, P, R	0.875	(22.23)	0.400	(10.16)	0.812	(20.62)	0.400	(10.16)
CQR09A-KG822-3-	0.0082	G, J, K	M, P, R	0.875	(22.23)	0.400	(10.16)	0.812	(20.62)	0.400	(10.16)
CQR09A-KG103-3-	0.010	G, J, K	M, P, R	0.875	(22.23)	0.400	(10.16)	0.812	(20.62)	0.400	(10.16)
CQR09A-KG123-3-	0.012	G, J, K	M, P, R	1.125	(28.58)	0.400	(10.16)	1.062	(26.97)	0.400	(10.16)
CQR09A-KG153-3-	0.015	G, J, K	M, P, R	1.125	(28.58)	0.400	(10.16)	1.062	(26.97)	0.400	(10.16)
CQR09A-KG183-3-	0.018	G, J, K	M, P, R	1.375	(34.93)	0.400	(10.16)	1.312	(33.32)	0.400	(10.16)
CQR09A-KG223-3-	0.022	G, J, K	M, P, R	1.375	(34.93)	0.400	(10.16)	1.312	(33.32)	0.400	(10.16)
CQR09A-KG273-3-	0.027	G, J, K	M, P, R	1.125	(28.58)	0.562	(14.27)	1.062	(26.97)	0.562	(14.27)
CQR09A-KG333-3-	0.033	G, J, K	M, P, R	1.125	(28.58)	0.562	(14.27)	1.062	(26.97)	0.562	(14.27)
CQR09A-KG393-3-	0.039	G, J, K	M, P, R	1.375	(34.93)	0.562	(14.27)	1.312	(33.32)	0.562	(14.27)
CQR09A-KG473-3-	0.047	G, J, K	M, P, R	1.375	(34.93)	0.562	(14.27)	1.312	(33.32)	0.562	(14.27)
CQR09A-KG563-3-	0.056	G, J, K	M, P, R	1.625	(41.28)	0.562	(14.27)	1.562	(39.67)	0.562	(14.27)
CQR09A-KG683-3-	0.068	G, J, K	M, P, R	1.625	(41.28)	0.562	(14.27)	1.562	(39.67)	0.562	(14.27)
CQR09A-KG823-3-	0.082	G, J, K	M, P, R	1.625	(41.28)	0.670	(17.02)	1.562	(39.67)	0.670	(17.02)
CQR09A-KG104-3-	0.10	G, J, K	M, P, R	1.625	(41.28)	0.670	(17.02)	1.562	(39.67)	0.670	(17.02)
CQR09A-KG124-3-	0.12	G, J, K	M, P, R	1.875	(47.63)	0.670	(17.02)	1.812	(46.02)	0.670	(17.02)
CQR09A-KG154-3-	0.15	G, J, K	M, P, R	1.875	(47.63)	0.670	(17.02)	1.812	(46.02)	0.670	(17.02)
CQR09A-KG184-3-	0.18	G, J, K	M, P, R	2.125	(53.98)	0.750	(19.05)	2.062	(52.37)	0.750	(19.05)
CQR09A-KG224-3-	0.22	G, J, K	M, P, R	2.125	(53.98)	0.750	(19.05)	2.062	(52.37)	0.750	(19.05)
CQR09A-KG274-3-	0.27	G, J, K	M, P, R	2.125	(53.98)	1.000	(25.40)	2.062	(52.37)	1.000	(25.40)
CQR09A-KG334-3-	0.33	G, J, K	M, P, R	2.125	(53.98)	1.000	(25.40)	2.062	(52.37)	1.000	(25.40)
CQR09A-KG394-3-	0.39	G, J, K	M, P, R	2.375	(60.33)	1.000	(25.40)	2.312	(58.72)	1.000	(25.40)
CQR09A-KG474-3-	0.47	G, J, K	M, P, R	2.375	(60.33)	1.000	(25.40)	2.312	(58.72)	1.000	(25.40)

* Complete part number shall include additional symbols to indicate circuit, capacitance tolerance and failure rate level as applicable.

** Dimensions are for basic case; sleeving shall extend 0.016" (0.41mm) minimum and 0.062" (1.57mm) maximum, beyond each end of the capacitor body; however, if a shrink-fitted insulation is used for the sleeving, it shall lap over the ends of the capacitor body. Add 0.047" (1.19mm) maximum to the nominal for capacitor diameter.

CQR12

MIL-PRF-19978/10

Type 131P

Capacitor,
Fixed,
Plastic (or paper-plastic) dielectric,
Axial-wire terminal,
Tangential retainer,
Tubular (uninsulated),
Hermetically sealed in metal cases,
Established reliability.

GENERAL CHARACTERISTICS

Rated temperature	–65°C to +125°C.
Capacitance range	1 nF to 1 µF
Voltage range	200 V to 1,000 V
Capacitance tolerance	G, J, K
Dissipation factor (DF)	1 % max.
Failure rate level	In accordance with MIL-PRF-19978
Barometric pressure	In accordance with MIL-PRF-19978 Test points: **Circuit diagram 1**: Between terminals and case. **Circuit diagram 3**: Between ungrounded terminal and case.
Insulation resistance (IR)	Terminal to terminal: **At +25°C**: 0 to 0.6 µF = 25,000 MΩ / > 0.6 µF = 15,000 MΩ/µF **At +125°C**: 0 to 0.08 µF = 250 MΩ / > 0.08 µF = 20 MΩ/µF Terminal to case: Greater than 10,000 MΩ
Vibration, high frequency	Method 204 of MIL-STD-202, test condition B, with the following exception: Direction and duration of motion: 4 hours in each of two mutually perpendicular directions (total of 8 hours), one parallel and the other perpendicular to the cylindrical axis.

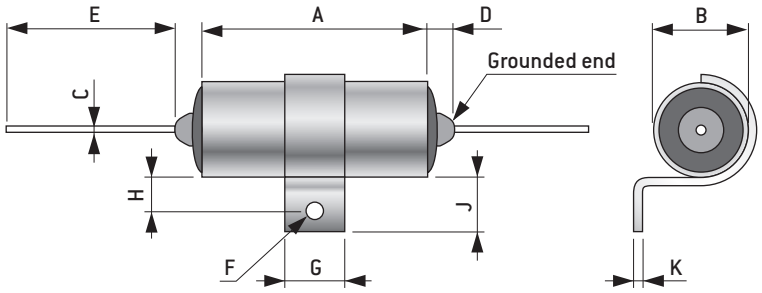
Full details and most up to date information found at government website.

DIMENSIONS

A	B
See tables on the next pages	

Dim. B Inches (mm)	C		D max.		E +1/–0 (+25.4/–0)		F ±0.005 (0.13)	
	Inches	(mm)	Inches	(mm)	Inches	(mm)	Inches	(mm)
B > 0.5 (12.7)	See note 3		0.172	(4.37)	1.625	(41.28)	0.144	(3.66)
B ≤ 0.5 (12.7)	See note 3		0.172	(4.37)	1.625	(41.28)	0.156	(3.96)

Dim. B Inches (mm)	G ±0.062 (1.57)		H ±0.031 (0.79)		J ±0.062 (1.57)		K max.	
	Inches	(mm)	Inches	(mm)	Inches	(mm)	Inches	(mm)
B > 0.5 (12.7)	0.250	(6.35)	0.188	(4.78)	0.312	(7.92)	0.063	(1.59)
B ≤ 0.5 (12.7)	0.500	(12.70)	0.250	(6.35)	0.438	(11.13)	0.063	(1.59)

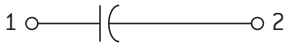


NOTES

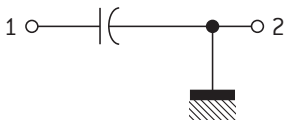
1. Dimensions are in Inches.
2. Metric equivalents are given for general information only.
3. Leads shall be of solder coated solid wire, 0.025" (0,64mm) (No. 22AWG) for cases 0.235" (5,97mm) and 0.312" (7,92mm) in diameter; and 0.032" (0,81mm) (No. 20 AWG) for cases 0.400" (10,16mm) diameter and above. Tolerance on all lead wire diameters shall be +0.004" (0,10mm), –0.001" (0,03mm).

CIRCUIT DIAGRAM

Circuit 1



Circuit 3



HOW TO ORDER

CQR12	A	1	M	C	152	K	1	M
ER Style	Terminal	Circuit	Characteristic	Voltage in code	Capacitance in code	Capacitance tolerance in code	Vibration grade	Failure rate level
CQR = ER style	**A, B, C, D, H, E** (see page 6)	**1** = Circuit 1 **3** = Circuit 3	**K** (see page 6)	**C** = 200V **E** = 400V **F** = 600V	Examples: **101** = 100pF **472** = 4.7nF **473** = 47nF	**G** = ±2% **J** = ±5% **K** = ±10%	**1** = 10 to 55 Hz inclusive **3** = 10 to 2,000 Hz inclusive (acceleration 15 G)	**M** = 1% /1,000 hours **P** = 0.1% /1,000 hours **R** = 0.01% /1,000 hours

Type 131P

MIL-PRF-19978/10

CQR12

ELECTRICAL CHARACTERISTICS

Part or Identifying Number (PIN)*	Nominal capacitance (µF)	Capacitance Tolerance (in code)	Failure rate Level (in code)	Dimensions							
				Circuit 1				Circuit 3			
				A ±0.031 (±0.79mm)		B +0.015/–0.005 (+0.38/–0.13mm)		A ±0.031 (±0.79mm)		B +0.015/–0.005 (+0.38/–0.13mm)	
				Inches	(mm)	Inches	(mm)	Inches	(mm)	Inches	(mm)
Rated voltage 200 V_{DC}											
CQR12A-KC392-3-	0.0039	G, J, K	M, P, R	0.750	(19,05)	0.235	(5.97)	0.688	(17.48)	0.235	(5.97)
CQR12A-KC472-3-	0.0047	G, J, K	M, P, R	0.750	(19,05)	0.235	(5.97)	0.688	(17.48)	0.235	(5.97)
CQR12A-KC562-3-	0.0056	G, J, K	M, P, R	0.750	(19,05)	0.235	(5.97)	0.688	(17.48)	0.235	(5.97)
CQR12A-KC682-3-	0.0068	G, J, K	M, P, R	0.750	(19,05)	0.235	(5.97)	0.688	(17.48)	0.235	(5.97)
CQR12A-KC183-3-	0.018	G, J, K	M, P, R	0.875	(22,23)	0.312	(7.92)	0.812	(20.62)	0.312	(7.92)
CQR12A-KC223-3-	0.022	G, J, K	M, P, R	0.875	(22,23)	0.312	(7.92)	0.812	(20.62)	0.312	(7.92)
CQR12A-KC273-3-	0.027	G, J, K	M, P, R	0.875	(22,23)	0.312	(7.92)	0.812	(20.62)	0.312	(7.92)
CQR12A-KC333-3-	0.033	G, J, K	M, P, R	0.875	(22,23)	0.312	(7.92)	0.812	(20.62)	0.312	(7.92)
CQR12A-KC393-3-	0.039	G, J, K	M, P, R	0.875	(22,23)	0.400	(10.16)	0.812	(20.62)	0.400	(10.16)
CQR12A-KC473-3-	0.047	G, J, K	M, P, R	0.875	(22,23)	0.400	(10.16)	0.812	(20.62)	0.400	(10.16)
CQR12A-KC563-3-	0.056	G, J, K	M, P, R	0.875	(22,23)	0.400	(10.16)	0.812	(20.62)	0.400	(10.16)
CQR12A-KC683-3-	0.068	G, J, K	M, P, R	0.875	(22,23)	0.400	(10.16)	0.812	(20.62)	0.400	(10.16)
CQR12A-KC823-3-	0.082	G, J, K	M, P, R	1.125	(28,58)	0.400	(10.16)	1.062	(26.97)	0.400	(10.16)
CQR12A-KC104-3-	0.10	G, J, K	M, P, R	1.125	(28,58)	0.400	(10.16)	1.062	(26.97)	0.400	(10.16)
CQR12A-KC124-3-	0.12	G, J, K	M, P, R	1.375	(34,93)	0.400	(10.16)	1.312	(33.32)	0.400	(10.16)
CQR12A-KC154-3-	0.15	G, J, K	M, P, R	1.375	(34,93)	0.400	(10.16)	1.312	(33.32)	0.400	(10.16)
CQR12A-KC184-3-	0.18	G, J, K	M, P, R	1.125	(28,58)	0.562	(14.27)	1.062	(26.97)	0.562	(14.27)
CQR12A-KC224-3-	0.22	G, J, K	M, P, R	1.125	(28,58)	0.562	(14.27)	1.062	(26.97)	0.562	(14.27)
CQR12A-KC274-3-	0.27	G, J, K	M, P, R	1.375	(34,93)	0.562	(14.27)	1.312	(33.32)	0.562	(14.27)
CQR12A-KC334-3-	0.33	G, J, K	M, P, R	1.375	(34,93)	0.562	(14.27)	1.312	(33.32)	0.562	(14.27)
CQR12A-KC394-3-	0.39	G, J, K	M, P, R	1.625	(41,28)	0.562	(14.27)	1.562	(39.67)	0.562	(14.27)
CQR12A-KC474-3-	0.47	G, J, K	M, P, R	1.625	(41,28)	0.562	(14.27)	1.562	(39.67)	0.562	(14.27)
CQR12A-KC564-3-	0.56	G, J, K	M, P, R	1.625	(41,28)	0.670	(17.02)	1.562	(39.67)	0.670	(17.02)
CQR12A-KC684-3-	0.68	G, J, K	M, P, R	1.625	(41,28)	0.670	(17.02)	1.562	(39.67)	0.670	(17.02)
CQR12A-KC824-3-	0.82	G, J, K	M, P, R	2.125	(53,98)	0.750	(19.05)	2.062	(52.37)	0.750	(19.05)
CQR12A-KC105-3-	1.00	G, J, K	M, P, R	2.125	(53,98)	0.750	(19.05)	2.062	(52.37)	0.750	(19.05)
Rated voltage 400 V_{DC}											
CQR12A-KE272-3-	0.0027	G, J, K	M, P, R	0.750	(19,05)	0.235	(5.97)	0.688	(17.48)	0.235	(5.97)
CQR12A-KE332-3-	0.0033	G, J, K	M, P, R	0.750	(19,05)	0.235	(5.97)	0.688	(17.48)	0.235	(5.97)
CQR12A-KE123-3-	0.012	G, J, K	M, P, R	0.875	(22,23)	0.312	(7.92)	0.812	(20.62)	0.312	(7.92)
CQR12A-KE153-3-	0.015	G, J, K	M, P, R	0.875	(22,23)	0.312	(7.92)	0.812	(20.62)	0.312	(7.92)
CQR12A-KE273-3-	0.027	G, J, K	M, P, R	0.875	(22,23)	0.400	(10.16)	0.812	(20.62)	0.400	(10.16)
CQR12A-KE333-3-	0.033	G, J, K	M, P, R	0.875	(22,23)	0.400	(10.16)	0.812	(20.62)	0.400	(10.16)
CQR12A-KE393-3-	0.039	G, J, K	M, P, R	1.125	(28,58)	0.400	(10.16)	1.062	(26.97)	0.400	(10.16)
CQR12A-KE473-3-	0.047	G, J, K	M, P, R	1.125	(28,58)	0.400	(10.16)	1.062	(26.97)	0.400	(10.16)
CQR12A-KE563-3-	0.056	G, J, K	M, P, R	1.375	(34,93)	0.400	(10.16)	1.312	(33.32)	0.400	(10.16)
CQR12A-KE683-3-	0.068	G, J, K	M, P, R	1.375	(34,93)	0.400	(10.16)	1.312	(33.32)	0.400	(10.16)
CQR12A-KE823-3-	0.082	G, J, K	M, P, R	1.125	(28.58)	0.562	(14.27)	1.062	(26.97)	0.562	0.562
CQR12A-KE104-3-	0.10	G, J, K	M, P, R	1.125	(28.58)	0.562	(14.27)	1.062	(26.97)	0.562	0.562
CQR12A-KE124-3-	0.12	G, J, K	M, P, R	1.375	(34.93)	0.562	(14.27)	1.312	(33.32)	0.562	0.562
CQR12A-KE154-3-	0.15	G, J, K	M, P, R	1.375	(34.93)	0.562	(14.27)	1.312	(33.32)	0.562	0.562
CQR12A-KE184-3-	0.18	G, J, K	M, P, R	1.625	(41.28)	0.562	(14.27)	1.562	(39.67)	0.562	0.562
CQR12A-KE224-3-	0.22	G, J, K	M, P, R	1.625	(41.28)	0.562	(14.27)	1.562	(39.67)	0.562	0.562
CQR12A-KE274-3-	0.27	G, J, K	M, P, R	1.625	(41.28)	0.670	(17.02)	1.562	(39.67)	0.670	0.670
CQR12A-KE334-3-	0.33	G, J, K	M, P, R	1.625	(41.28)	0.670	(17.02)	1.562	(39.67)	0.670	0.670
CQR12A-KE394-3-	0.39	G, J, K	M, P, R	2.125	(53.98)	0.750	(19.05)	2.062	(52.37)	0.750	0.750
CQR12A-KE474-3-	0.47	G, J, K	M, P, R	2.125	(53.98)	0.750	(19.05)	2.062	(52.37)	0.750	0.750

* Complete part number shall include additional symbols to indicate circuit, capacitance tolerance and failure rate level as applicable.

ELECTRICAL CHARACTERISTICS

Part or Identifying Number (PIN)*	Nominal capacitance (µF)	Capacitance Tolerance (in code)	Failure rate Level (in code)	Dimensions							
				Circuit 1				Circuit 3			
				A ±0.031" (±0.79mm)		B +0.015/–0.005" (+0.38/–0.13mm)		A ±0.031" (±0.79mm)		B +0.015/–0.005" (+0.38/–0.13mm)	
				Inches	(mm)	Inches	(mm)	Inches	(mm)	Inches	(mm)
Rated voltage 600 V_{DC}											
CQR12A-KF102-3-	0.0010	G, J, K	M, P, R	0.750	(19.05)	0.235	(5.97)	0.688	(17.48)	0.235	(5.97)
CQR12A-KF122-3-	0.0012	G, J, K	M, P, R	0.750	(19.05)	0.235	(5.97)	0.688	(17.48)	0.235	(5.97)
CQR12A-KF152-3-	0.0015	G, J, K	M, P, R	0.750	(19.05)	0.235	(5.97)	0.688	(17.48)	0.235	(5.97)
CQR12A-KF182-3-	0.0018	G, J, K	M, P, R	0.750	(19.05)	0.235	(5.97)	0.688	(17.48)	0.235	(5.97)
CQR12A-KF222-3-	0.0022	G, J, K	M, P, R	0.750	(19.05)	0.235	(5.97)	0.688	(17.48)	0.235	(5.97)
CQR12A-KF272-3-	0.0027	G, J, K	M, P, R	0.875	(22.23)	0.312	(7.92)	0.812	(20.62)	0.312	(7.92)
CQR12A-KF332-3-	0.0033	G, J, K	M, P, R	0.875	(22.23)	0.312	(7.92)	0.812	(20.62)	0.312	(7.92)
CQR12A-KF392-3-	0.0039	G, J, K	M, P, R	0.875	(22.23)	0.312	(7.92)	0.812	(20.62)	0.312	(7.92)
CQR12A-KF472-3-	0.0047	G, J, K	M, P, R	0.875	(22.23)	0.312	(7.92)	0.812	(20.62)	0.312	(7.92)
CQR12A-KF562-3-	0.0056	G, J, K	M, P, R	0.875	(22.23)	0.312	(7.92)	0.812	(20.62)	0.312	(7.92)
CQR12A-KF682-3-	0.0068	G, J, K	M, P, R	0.875	(22.23)	0.312	(7.92)	0.812	(20.62)	0.312	(7.92)
CQR12A-KF822-3-	0.0082	G, J, K	M, P, R	0.875	(22.23)	0.312	(7.92)	0.812	(20.62)	0.312	(7.92)
CQR12A-KF103-3-	0.010	G, J, K	M, P, R	0.875	(22.23)	0.312	(7.92)	0.812	(20.62)	0.312	(7.92)
CQR12A-KF123-3-	0.012	G, J, K	M, P, R	0.875	(22.23)	0.400	(10.16)	0.812	(20.62)	0.400	(10.16)
CQR12A-KF153-3-	0.015	G, J, K	M, P, R	0.875	(22.23)	0.400	(10.16)	0.812	(20.62)	0.400	(10.16)
CQR12A-KF183-3-	0.018	G, J, K	M, P, R	0.875	(22.23)	0.400	(10.16)	0.812	(20.62)	0.400	(10.16)
CQR12A-KF223-3-	0.022	G, J, K	M, P, R	0.875	(22.23)	0.400	(10.16)	0.812	(20.62)	0.400	(10.16)
CQR12A-KF273-3-	0.027	G, J, K	M, P, R	1.125	(28.58)	0.400	(10.16)	1.062	(26.97)	0.400	(10.16)
CQR12A-KF333-3-	0.033	G, J, K	M, P, R	1.125	(28.58)	0.400	(10.16)	1.062	(26.97)	0.400	(10.16)
CQR12A-KF393-3-	0.039	G, J, K	M, P, R	1.375	(34.93)	0.400	(10.16)	1.312	(33.32)	0.400	(10.16)
CQR12A-KF473-3-	0.047	G, J, K	M, P, R	1.375	(34.93)	0.400	(10.16)	1.312	(33.32)	0.400	(10.16)
CQR12A-KF563-3-	0.056	G, J, K	M, P, R	1.125	(28.58)	0.562	(14.27)	1.062	(26.97)	0.562	(14.27)
CQR12A-KF683-3-	0.068	G, J, K	M, P, R	1.125	(28.58)	0.562	(14.27)	1.062	(26.97)	0.562	(14.27)
CQR12A-KF823-3-	0.082	G, J, K	M, P, R	1.375	(34.93)	0.562	(14.27)	1.312	(33.32)	0.562	(14.27)
QR09A-KF104-3-	0.10	G, J, K	M, P, R	1.375	(34.93)	0.562	(14.27)	1.312	(33.32)	0.562	(14.27)
QR09A-KF124-3-	0.12	G, J, K	M, P, R	1.625	(41.28)	0.562	(14.27)	1.562	(39.67)	0.562	(14.27)
QR09A-KF154-3-	0.15	G, J, K	M, P, R	1.625	(41.28)	0.562	(14.27)	1.562	(39.67)	0.562	(14.27)
QR09A-KF184-3-	0.18	G, J, K	M, P, R	1.625	(41.28)	0.670	(17.02)	1.562	(39.67)	0.670	(17.02)
QR09A-KF224-3-	0.22	G, J, K	M, P, R	1.625	(41.28)	0.670	(17.02)	1.562	(39.67)	0.670	(17.02)
QR09A-KF274-3-	0.27	G, J, K	M, P, R	2.125	(53.98)	0.750	(19.05)	2.062	(52.37)	0.750	(19.05)
QR09A-KF334-3-	0.33	G, J, K	M, P, R	2.125	(53.98)	0.750	(19.05)	2.062	(52.37)	0.750	(19.05)
QR09A-KF394-3-	0.39	G, J, K	M, P, R	2.375	(60.33)	0.750	(19.05)	2.312	(58.72)	0.750	(19.05)
QR09A-KF474-3-	0.47	G, J, K	M, P, R	2.375	(60.33)	0.750	(19.05)	2.312	(58.72)	0.750	(19.05)

* Complete part number shall include additional symbols to indicate circuit, capacitance tolerance and failure rate level as applicable.

Type 131P

MIL-PRF-19978/10

CQR12

ELECTRICAL CHARACTERISTICS

Part or Identifying Number (PIN)*	Nominal capacitance (µF)	Capacitance Tolerance (in code)	Failure rate Level (in code)	Dimensions							
				Circuit 1				Circuit 3			
				A ±0.031 (±0.79mm)		B +0.015/–0.005 (+0.38/–0.13mm)		A ±0.031 (±0.79mm)		B +0.015/–0.005 (+0.38/–0.13mm)	
				Inches	(mm)	Inches	(mm)	Inches	(mm)	Inches	(mm)
Rated voltage 1000 V_{DC}											
CQR12A-KG102-3-	0.0010	G, J, K	M, P, R	0.875	(22.23)	0.400	(10.16)	0.812	(20.62)	0.400	(10.16)
CQR12A-KG122-3-	0.0012	G, J, K	M, P, R	0.875	(22.23)	0.400	(10.16)	0.812	(20.62)	0.400	(10.16)
CQR12A-KG152-3-	0.0015	G, J, K	M, P, R	0.875	(22.23)	0.400	(10.16)	0.812	(20.62)	0.400	(10.16)
CQR12A-KG182-3-	0.0018	G, J, K	M, P, R	0.875	(22.23)	0.400	(10.16)	0.812	(20.62)	0.400	(10.16)
CQR12A-KG222-3-	0.0022	G, J, K	M, P, R	0.875	(22.23)	0.400	(10.16)	0.812	(20.62)	0.400	(10.16)
CQR12A-KG272-3-	0.0027	G, J, K	M, P, R	0.875	(22.23)	0.400	(10.16)	0.812	(20.62)	0.400	(10.16)
CQR12A-KG332-3-	0.0033	G, J, K	M, P, R	0.875	(22.23)	0.400	(10.16)	0.812	(20.62)	0.400	(10.16)
CQR12A-KG392-3-	0.0039	G, J, K	M, P, R	0.875	(22.23)	0.400	(10.16)	0.812	(20.62)	0.400	(10.16)
CQR12A-KG472-3-	0.0047	G, J, K	M, P, R	0.875	(22.23)	0.400	(10.16)	0.812	(20.62)	0.400	(10.16)
CQR12A-KG562-3-	0.0056	G, J, K	M, P, R	0.875	(22.23)	0.400	(10.16)	0.812	(20.62)	0.400	(10.16)
CQR12A-KG682-3-	0.0068	G, J, K	M, P, R	0.875	(22.23)	0.400	(10.16)	0.812	(20.62)	0.400	(10.16)
CQR12A-KG822-3-	0.0082	G, J, K	M, P, R	0.875	(22.23)	0.400	(10.16)	0.812	(20.62)	0.400	(10.16)
CQR12A-KG103-3-	0.010	G, J, K	M, P, R	0.875	(22.23)	0.400	(10.16)	0.812	(20.62)	0.400	(10.16)
CQR12A-KG123-3-	0.012	G, J, K	M, P, R	1.125	(28.58)	0.400	(10.16)	1.062	(26.97)	0.400	(10.16)
CQR12A-KG153-3-	0.015	G, J, K	M, P, R	1.125	(28.58)	0.400	(10.16)	1.062	(26.97)	0.400	(10.16)
CQR12A-KG183-3-	0.018	G, J, K	M, P, R	1.375	(34.93)	0.400	(10.16)	1.312	(33.32)	0.400	(10.16)
CQR12A-KG223-3-	0.022	G, J, K	M, P, R	1.375	(34.93)	0.400	(10.16)	1.312	(33.32)	0.400	(10.16)
CQR12A-KG273-3-	0.027	G, J, K	M, P, R	1.125	(28.58)	0.562	(14.27)	1.062	(26.97)	0.562	(14.27)
CQR12A-KG333-3-	0.033	G, J, K	M, P, R	1.125	(28.58)	0.562	(14.27)	1.062	(26.97)	0.562	(14.27)
CQR12A-KG393-3-	0.039	G, J, K	M, P, R	1.375	(34.93)	0.562	(14.27)	1.312	(33.32)	0.562	(14.27)
CQR12A-KG473-3-	0.047	G, J, K	M, P, R	1.375	(34.93)	0.562	(14.27)	1.312	(33.32)	0.562	(14.27)
CQR12A-KG563-3-	0.056	G, J, K	M, P, R	1.625	(41.28)	0.562	(14.27)	1.562	(39.67)	0.562	(14.27)
CQR12A-KG683-3-	0.068	G, J, K	M, P, R	1.625	(41.28)	0.562	(14.27)	1.562	(39.67)	0.562	(14.27)
CQR12A-KG823-3-	0.082	G, J, K	M, P, R	1.625	(41.28)	0.670	(17.02)	1.562	(39.67)	0.670	(17.02)
CQR12A-KG104-3-	0.10	G, J, K	M, P, R	1.625	(41.28)	0.670	(17.02)	1.562	(39.67)	0.670	(17.02)
CQR12A-KG124-3-	0.12	G, J, K	M, P, R	1.875	(47.63)	0.670	(17.02)	1.812	(46.02)	0.670	(17.02)
CQR12A-KG154-3-	0.15	G, J, K	M, P, R	1.875	(47.63)	0.670	(17.02)	1.812	(46.02)	0.670	(17.02)
CQR12A-KG184-3-	0.18	G, J, K	M, P, R	2.125	(53.98)	0.750	(19.05)	2.062	(52.37)	0.750	(19.05)
CQR12A-KG224-3-	0.22	G, J, K	M, P, R	2.125	(53.98)	0.750	(19.05)	2.062	(52.37)	0.750	(19.05)
CQR12A-KG274-3-	0.27	G, J, K	M, P, R	2.125	(53.98)	1.000	(25.40)	2.062	(52.37)	1.000	(25.40)
CQR12A-KG334-3-	0.33	G, J, K	M, P, R	2.125	(53.98)	1.000	(25.40)	2.062	(52.37)	1.000	(25.40)
CQR12A-KG394-3-	0.39	G, J, K	M, P, R	2.375	(60.33)	1.000	(25.40)	2.312	(58.72)	1.000	(25.40)
CQR12A-KG474-3-	0.47	G, J, K	M, P, R	2.375	(60.33)	1.000	(25.40)	2.312	(58.72)	1.000	(25.40)

* Complete part number shall include additional symbols to indicate circuit, capacitance tolerance and failure rate level as applicable.

CQR13

MIL-PRF-19978/11

Type 131P

Capacitor,
Fixed,
Plastic (or paper-plastic) dielectric,
Axial-wire terminal.
Threaded-stud retainer,
Tubular (uninsulated),
Hermetically sealed in metal cases,
Established reliability.

GENERAL CHARACTERISTICS

Rated temperature	–65°C to +125°C.
Capacitance range	1 nF to 1 µF
Voltage range	200 V to 1,000 V
Capacitance tolerance	G, J, K
Dissipation factor (DF)	1 % max.
Failure rate level Reliability	In accordance with MIL-PRF-19978
Barometric pressure	In accordance with MIL-PRF-19978 Test points: **Circuit diagram 1**: Between terminals and case. **Circuit diagram 3**: Between ungrounded terminal and case.
Insulation resistance (IR)	Terminal to terminal: **At +25°C**: 0 to 0.6 µF = 25,000 MΩ / > 0.6 µF = 15,000 MΩ/µF **At +125°C**: 0 to 0.08 µF = 250 MΩ / > 0.08 µF = 20 MΩ/µF Terminal to case: Greater than 10,000 MΩ
Vibration, high frequency	Method 204 of MIL-STD-202, test condition B, with the following exception: Direction and duration of motion: 4 hours in each of two mutually perpendicular directions (total of 8 hours), one parallel and the other perpendicular to the cylindrical axis.

Full details and most up to date information found at government website.

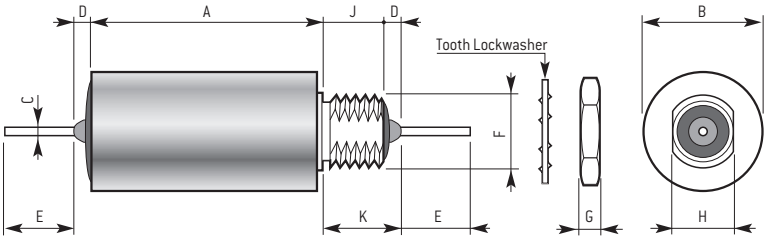
DIMENSIONS

A	B
See tables on the next pages	

Case dimension B		F		H	
Inches	(mm)	–	–	Inches	(mm)
≤ 0.562	≤ (14,27)	5/16-24UNF-2A		$0.250^{\pm 0.005}$	$(6.35^{\pm 0.13})$
0.670	(17,02)	7/16-28UNEF-2A		$0.375^{\pm 0.005}$	$(9.53^{\pm 0.13})$
≥ 0.750	≥ (19,05)	1/2-28UNEF-2A		$0.437^{\pm 0.005}$	$(11.10^{\pm 0.13})$

C		D		E	
Inches	(mm)	Inches	(mm)	Inches	(mm)
See note 3		0.172 max.	(4,37 max.)	1.625^{+1}_{-0}	$(41.28^{+25.4}_{-0})$

G		J		K	
Inches	(mm)	Inches	(mm)	Inches	(mm)
$0.125^{\pm 0.031}$	$(3.18^{\pm 0.79})$	$0.312^{\pm 0.031}$	$(7.92^{\pm 0.79})$	$0.375^{+0.188}_{-0.125}$	$(9.53^{+4.78}_{-3.18})$

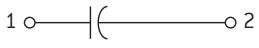


NOTES

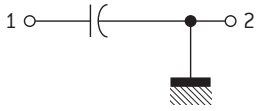
1. Dimensions are in Inches.
2. Metric equivalents are given for general information only.
3. Leads shall be of solder coated solid wire, 0.032" +0.004 / –0.001 ($0,81^{+0,10}_{-0,03}$ mm) (No. 20 AWG).
4. Mounting nuts and lockwashers shall be supplied.

CIRCUIT DIAGRAM

Circuit 1



Circuit 3



HOW TO ORDER

CQR13	A	1	M	C	152	K	1	M
ER Style	Terminal	Circuit	Characteristic	Voltage in code	Capacitance in code	Capacitance tolerance in code	Vibration grade	Failure rate level
CQR = ER style	**A**, **B**, **C**, **D**, **H**, **E** (see page 6)	**1** = Circuit 1 **3** = Circuit 3	**K** (see page 6)	**C** = 200V **E** = 400V **F** = 600V **G** = 1,000V	Examples: **101** = 100pF **472** = 4.7nF **473** = 47nF	**G** = ±2% **J** = ±5% **K** = ±10%	**1** = 10 to 55 Hz inclusive **3** = 10 to 2,000 Hz inclusive (acceleration 15 G)	**M** = 1% /1,000 hours **P** = 0.1% /1,000 hours **R** = 0.01% /1,000 hours

Type 131P

MIL-PRF-19978/11

CQR13

ELECTRICAL CHARACTERISTICS

Part or Identifying Number (PIN)*	Nominal capacitance (µF)	Capacitance Tolerance (in code)	Failure rate Level (in code)	Dimensions							
				Circuit 1				Circuit 3			
				A ±0.031 (±0.79mm)		B +0.015/–0.005 (+0.38/–0.13mm)		A ±0.031 (±0.79mm)		B +0.015/–0.005 (+0.38/–0.13mm)	
				Inches	(mm)	Inches	(mm)	Inches	(mm)	Inches	(mm)
Rated voltage 200 V_{DC}											
CQR13A-KC392-3-	0.0039	G, J, K	M, P, R	0.750	(19.05)	0.400	(10.16)	0.688	(17.48)	0.400	(10.16)
CQR13A-KC472-3-	0.0047	G, J, K	M, P, R	0.750	(19.05)	0.400	(10.16)	0.688	(17.48)	0.400	(10.16)
CQR13A-KC562-3-	0.0056	G, J, K	M, P, R	0.750	(19.05)	0.400	(10.16)	0.688	(17.48)	0.400	(10.16)
CQR13A-KC682-3-	0.0068	G, J, K	M, P, R	0.750	(19.05)	0.400	(10.16)	0.688	(17.48)	0.400	(10.16)
CQR13A-KC183-3-	0.018	G, J, K	M, P, R	0.875	(22.23)	0.400	(10.16)	0.812	(20.62)	0.400	(10.16)
CQR13A-KC223-3-	0.022	G, J, K	M, P, R	0.875	(22.23)	0.400	(10.16)	0.812	(20.62)	0.400	(10.16)
CQR13A-KC273-3-	0.027	G, J, K	M, P, R	0.875	(22.23)	0.400	(10.16)	0.812	(20.62)	0.400	(10.16)
CQR13A-KC333-3-	0.033	G, J, K	M, P, R	0.875	(22.23)	0.400	(10.16)	0.812	(20.62)	0.400	(10.16)
CQR13A-KC393-3-	0.039	G, J, K	M, P, R	0.875	(22.23)	0.400	(10.16)	0.812	(20.62)	0.400	(10.16)
CQR13A-KC473-3-	0.047	G, J, K	M, P, R	0.875	(22.23)	0.400	(10.16)	0.812	(20.62)	0.400	(10.16)
CQR13A-KC563-3-	0.056	G, J, K	M, P, R	0.875	(22.23)	0.400	(10.16)	0.812	(20.62)	0.400	(10.16)
CQR13A-KC683-3-	0.068	G, J, K	M, P, R	0.875	(22.23)	0.400	(10.16)	0.812	(20.62)	0.400	(10.16)
CQR13A-KC823-3-	0.082	G, J, K	M, P, R	1.125	(28.58)	0.400	(10.16)	1.062	(26.97)	0.400	(10.16)
CQR13A-KC104-3-	0.10	G, J, K	M, P, R	1.125	(28.58)	0.400	(10.16)	1.062	(26.97)	0.400	(10.16)
CQR13A-KC124-3-	0.12	G, J, K	M, P, R	1.375	(34.93)	0.400	(10.16)	1.312	(33.32)	0.400	(10.16)
CQR13A-KC154-3-	0.15	G, J, K	M, P, R	1.375	(34.93)	0.400	(10.16)	1.312	(33.32)	0.400	(10.16)
CQR13A-KC184-3-	0.18	G, J, K	M, P, R	1.125	(28.58)	0.562	(14.27)	1.062	(26.97)	0.562	(14.27)
CQR13A-KC224-3-	0.22	G, J, K	M, P, R	1.125	(28.58)	0.562	(14.27)	1.062	(26.97)	0.562	(14.27)
CQR13A-KC274-3-	0.27	G, J, K	M, P, R	1.375	(34.93)	0.562	(14.27)	1.312	(33.32)	0.562	(14.27)
CQR13A-KC334-3-	0.33	G, J, K	M, P, R	1.375	(34.93)	0.562	(14.27)	1.312	(33.32)	0.562	(14.27)
CQR13A-KC394-3-	0.39	G, J, K	M, P, R	1.625	(41.28)	0.562	(14.27)	1.562	(39.67)	0.562	(14.27)
CQR13A-KC474-3-	0.47	G, J, K	M, P, R	1.625	(41.28)	0.562	(14.27)	1.562	(39.67)	0.562	(14.27)
CQR13A-KC564-3-	0.56	G, J, K	M, P, R	1.625	(41.28)	0.670	(17.02)	1.562	(39.67)	0.670	(17.02)
CQR13A-KC684-3-	0.68	G, J, K	M, P, R	1.625	(41.28)	0.670	(17.02)	1.562	(39.67)	0.670	(17.02)
CQR13A-KC824-3-	0.82	G, J, K	M, P, R	2.125	(53.98)	0.750	(19.05)	2.062	(52.37)	0.750	(19.05)
CQR13A-KC105-3-	1.00	G, J, K	M, P, R	2.125	(53.98)	0.750	(19.05)	2.062	(52.37)	0.750	(19.05)
Rated voltage 400 V_{DC}											
CQR13A-KE272-3-	0.0027	G, J, K	M, P, R	0.750	(19.05)	0.400	(10.16)	.688	(17.48)	0.400	(10.16)
CQR13A-KE332-3-	0.0033	G, J, K	M, P, R	0.750	(19.05)	0.400	(10.16)	.688	(17.48)	0.400	(10.16)
CQR13A-KE123-3-	0.012	G, J, K	M, P, R	0.875	(22.23)	0.400	(10.16)	.812	(20.62)	0.400	(10.16)
CQR13A-KE153-3-	0.015	G, J, K	M, P, R	0.875	(22.23)	0.400	(10.16)	.812	(20.62)	0.400	(10.16)
CQR13A-KE273-3-	0.027	G, J, K	M, P, R	0.875	(22.23)	0.400	(10.16)	.812	(20.62)	0.400	(10.16)
CQR13A-KE333-3-	0.033	G, J, K	M, P, R	0.875	(22.23)	0.400	(10.16)	.812	(20.62)	0.400	(10.16)
CQR13A-KE393-3-	0.039	G, J, K	M, P, R	1.125	(28.58)	0.400	(10.16)	1.062	(26.97)	0.400	(10.16)
CQR13A-KE473-3-	0.047	G, J, K	M, P, R	1.125	(28.58)	0.400	(10.16)	1.062	(26.97)	0.400	(10.16)
CQR13A-KE563-3-	0.056	G, J, K	M, P, R	1.375	(34.93)	0.400	(10.16)	1.312	(33.32)	0.400	(10.16)
CQR13A-KE683-3-	0.068	G, J, K	M, P, R	1.375	(34.93)	0.400	(10.16)	1.312	(33.32)	0.400	(10.16)
CQR13A-KE823-3-	0.082	G, J, K	M, P, R	1.125	(28.58)	0.562	(14.27)	1.062	(26.97)	0.562	(14.27)
CQR13A-KE104-3-	0.10	G, J, K	M, P, R	1.125	(28.58)	0.562	(14.27)	1.062	(26.97)	0.562	(14.27)
CQR13A-KE124-3-	0.12	G, J, K	M, P, R	1.375	(34.93)	0.562	(14.27)	1.312	(33.32)	0.562	(14.27)
CQR13A-KE154-3-	0.15	G, J, K	M, P, R	1.375	(34.93)	0.562	(14.27)	1.312	(33.32)	0.562	(14.27)
CQR13A-KE184-3-	0.18	G, J, K	M, P, R	1.625	(41.28)	0.562	(14.27)	1.562	(39.67)	0.562	(14.27)
CQR13A-KE224-3-	0.22	G, J, K	M, P, R	1.625	(41.28)	0.562	(14.27)	1.562	(39.67)	0.562	(14.27)
CQR13A-KE274-3-	0.27	G, J, K	M, P, R	1.625	(41.28)	0.670	(17.02)	1.562	(39.67)	0.670	(17.02)
CQR13A-KE334-3-	0.33	G, J, K	M, P, R	1.625	(41.28)	0.670	(17.02)	1.562	(39.67)	0.670	(17.02)
CQR13A-KE394-3-	0.39	G, J, K	M, P, R	2.125	(53.98)	0.750	(19.05)	2.062	(52.37)	0.750	(19.05)
CQR13A-KE474-3-	0.47	G, J, K	M, P, R	2.125	(53.98)	0.750	(19.05)	2.062	(52.37)	0.750	(19.05)

* Complete part number shall include additional symbols to indicate circuit, capacitance tolerance and failure rate level as applicable.

ELECTRICAL CHARACTERISTICS

Part or Identifying Number (PIN)*	Nominal capacitance (µF)	Capacitance Tolerance (in code)	Failure rate Level (in code)	Dimensions							
				Circuit 1				Circuit 3			
				A ±0.031 (±0.79mm)		B +0.015/–0.005 (+0.38/–0.13mm)		A ±0.031 (±0.79mm)		B +0.015/–0.005 (+0.38/–0.13mm)	
				Inches	(mm)	Inches	(mm)	Inches	(mm)	Inches	(mm)
Rated voltage 600 V_{DC}											
CQR13A-KF102-3-	0.0010	G, J, K	M, P, R	0.750	(19.05)	0.400	(10.16)	0.688	(17.48)	0.400	(10.16)
CQR13A-KF122-3-	0.0012	G, J, K	M, P, R	0.750	(19.05)	0.400	(10.16)	0.688	(17.48)	0.400	(10.16)
CQR13A-KF152-3-	0.0015	G, J, K	M, P, R	0.750	(19.05)	0.400	(10.16)	0.688	(17.48)	0.400	(10.16)
CQR13A-KF182-3-	0.0018	G, J, K	M, P, R	0.750	(19.05)	0.400	(10.16)	0.688	(17.48)	0.400	(10.16)
CQR13A-KF222-3-	0.0022	G, J, K	M, P, R	0.750	(19.05)	0.400	(10.16)	0.688	(17.48)	0.400	(10.16)
CQR13A-KF272-3-	0.0027	G, J, K	M, P, R	0.875	(22.23)	0.400	(10.16)	0.812	(20.62)	0.400	(10.16)
CQR13A-KF332-3-	0.0033	G, J, K	M, P, R	0.875	(22.23)	0.400	(10.16)	0.812	(20.62)	0.400	(10.16)
CQR13A-KF392-3-	0.0039	G, J, K	M, P, R	0.875	(22.23)	0.400	(10.16)	0.812	(20.62)	0.400	(10.16)
CQR13A-KF472-3-	0.0047	G, J, K	M, P, R	0.875	(22.23)	0.400	(10.16)	0.812	(20.62)	0.400	(10.16)
CQR13A-KF562-3-	0.0056	G, J, K	M, P, R	0.875	(22.23)	0.400	(10.16)	0.812	(20.62)	0.400	(10.16)
CQR13A-KF682-3-	0.0068	G, J, K	M, P, R	0.875	(22.23)	0.400	(10.16)	0.812	(20.62)	0.400	(10.16)
CQR13A-KF822-3-	0.0082	G, J, K	M, P, R	0.875	(22.23)	0.400	(10.16)	0.812	(20.62)	0.400	(10.16)
CQR13A-KF103-3-	0.010	G, J, K	M, P, R	0.875	(22.23)	0.400	(10.16)	0.812	(20.62)	0.400	(10.16)
CQR13A-KF123-3-	0.012	G, J, K	M, P, R	0.875	(22.23)	0.400	(10.16)	0.812	(20.62)	0.400	(10.16)
CQR13A-KF153-3-	0.015	G, J, K	M, P, R	0.875	(22.23)	0.400	(10.16)	0.812	(20.62)	0.400	(10.16)
CQR13A-KF183-3-	0.018	G, J, K	M, P, R	0.875	(22.23)	0.400	(10.16)	0.812	(20.62)	0.400	(10.16)
CQR13A-KF223-3-	0.022	G, J, K	M, P, R	0.875	(22.23)	0.400	(10.16)	0.812	(20.62)	0.400	(10.16)
CQR13A-KF273-3-	0.027	G, J, K	M, P, R	1.125	(28.58)	0.400	(10.16)	1.062	(26.97)	0.400	(10.16)
CQR13A-KF333-3-	0.033	G, J, K	M, P, R	1.125	(28.58)	0.400	(10.16)	1.062	(26.97)	0.400	(10.16)
CQR13A-KF393-3-	0.039	G, J, K	M, P, R	1.375	(34.93)	0.400	(10.16)	1.312	(33.32)	0.400	(10.16)
CQR13A-KF473-3-	0.047	G, J, K	M, P, R	1.375	(34.93)	0.400	(10.16)	1.312	(33.32)	0.400	(10.16)
CQR13A-KF563-3-	0.056	G, J, K	M, P, R	1.125	(28.58)	0.562	(14.27)	1.062	(26.97)	0.562	(14.27)
CQR13A-KF683-3-	0.068	G, J, K	M, P, R	1.125	(28.58)	0.562	(14.27)	1.062	(26.97)	0.562	(14.27)
CQR13A-KF823-3-	0.082	G, J, K	M, P, R	1.375	(34.93)	0.562	(14.27)	1.312	(33.32)	0.562	(14.27)
CQR13A-KF104-3-	0.10	G, J, K	M, P, R	1.375	(34.93)	0.562	(14.27)	1.312	(33.32)	0.562	(14.27)
CQR13A-KF124-3-	0.12	G, J, K	M, P, R	1.625	(41.28)	0.562	(14.27)	1.562	(39.67)	0.562	(14.27)
CQR13A-KF154-3-	0.15	G, J, K	M, P, R	1.625	(41.28)	0.562	(14.27)	1.562	(39.67)	0.562	(14.27)
CQR13A-KF184-3-	0.18	G, J, K	M, P, R	1.625	(41.28)	0.670	(17.02)	1.562	(39.67)	0.670	(17.02)
CQR13A-KF224-3-	0.22	G, J, K	M, P, R	1.625	(41.28)	0.670	(17.02)	1.562	(39.67)	0.670	(17.02)
CQR13A-KF274-3-	0.27	G, J, K	M, P, R	2.125	(53.98)	0.750	(19.05)	2.062	(52.37)	0.750	(19.05)
CQR13A-KF334-3-	0.33	G, J, K	M, P, R	2.125	(53.98)	0.750	(19.05)	2.062	(52.37)	0.750	(19.05)
CQR13A-KF394-3-	0.39	G, J, K	M, P, R	2.375	(60.33)	0.750	(19.05)	2.312	(58.72)	0.750	(19.05)
CQR13A-KF474-3-	0.47	G, J, K	M, P, R	2.375	(60.33)	0.750	(19.05)	2.312	(58.72)	0.750	(19.05)
Rated voltage 1,000 V_{DC}											
CQR13A-KG184-3-	0.18	G, J, K	M, P, R	2.125	(53.98)	0.750	(19.05)	2.062	(52.37)	0.750	(19.05)
CQR13A-KG224-3-	0.22	G, J, K	M, P, R	2.125	(53.98)	0.750	(19.05)	2.062	(52.37)	0.750	(19.05)
CQR13A-KG274-3-	0.27	G, J, K	M, P, R	2.125	(53.98)	1.0	(25.40)	2.062	(52.37)	1.000	(25.40)
CQR13A-KG334-3-	0.33	G, J, K	M, P, R	2.125	(53.98)	1.0	(25.40)	2.062	(52.37)	1.000	(25.40)
CQR13A-KG394-3-	0.39	G, J, K	M, P, R	2.375	(60.33)	1.0	(25.40)	2.312	(58.72)	1.000	(25.40)
CQR13A-KG474-3-	0.47	G, J, K	M, P, R	2.375	(60.33)	1.0	(25.40)	2.312	(58.72)	1.000	(25.40)

* Complete part number shall include additional symbols to indicate circuit, capacitance tolerance and failure rate level as applicable.

Type 127P

MIL-PRF-19978/13

CQR29

Capacitor,
Fixed,
Plastic dielectric,
Axial-wire terminal,
Tubular (insulated),
Hermetically sealed in metal cases,
Established reliability.

GENERAL CHARACTERISTICS

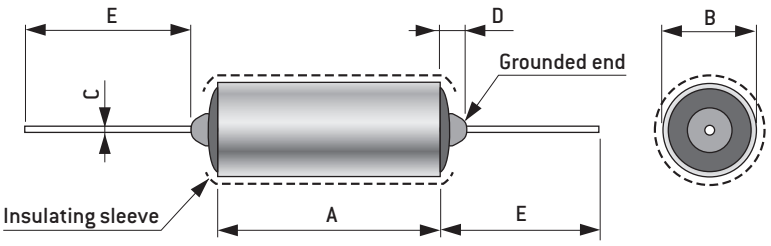
Rated temperature	–65°C to +85°C.
Capacitance range	1 nF to 10 µF
Voltage range	100 V to 1,000 V
Capacitance tolerance	G, J, K
Dissipation factor (DF)	0.6 % max.
Dielectric withstanding voltage (DWV)	Sleeving and Barometric pressure: In accordance with MIL-PRF-19978 Test points: **Circuit diagram 1**: Between terminals and case. **Circuit diagram 3**: Between ungrounded terminal and case.
Insulation resistance (IR)	Sleeving: In accordance with MIL-PRF-19978 Terminal to terminal: **At +25°C**: 0 to 0.68 µF = 100,000 MΩ / >0.68 µF = 68,000 MΩ/µF **At +85°C**: 0 to 0.2 µF = 25,000 MΩ / >0.2 µF = 5,000 MΩ/µF

Full details and most up to date information found at government website.

DIMENSIONS

A	B
See tables on the next pages	

C		D		E	
Inches	(mm)	Inches	(mm)	Inches	(mm)
See note 3		0.172 max	(4.37 max)	1.625 $^{+1}_{-0}$	(41.28 $^{+25.4}_{-0}$)

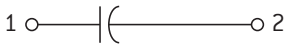


NOTES

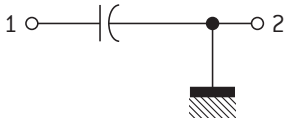
1. Dimensions are in Inches.
2. Metric equivalents are given for general information only.
3. Leads shall be of solder coated solid wire, 0.020" (0,51mm) (No. 24AWG) for cases 0.175" (4,45mm) and 0.312" (7,92mm) in diameter; and 0.032" (0,81mm) (No. 20AWG) for cases 0.400" (10,16mm) diameter and above. Tolerance on all lead wire diameters shall be +0.004" (0,10mm), –0.001" (0,03mm).
4. Capacitors with dimension A of 1.562" (39.67mm) or B of 0.562" (14,27mm) and larger, are not intended to be supported by their leads. These capacitors shall be supported with a supplementary means of mounting, such as a wrap-around band. The supporting device will not be supplied with the capacitor.
5. Lead length may be a minimum of 1" (24,4mm) long for use in tape and reel packaging when specified in the ordering data.

CIRCUIT DIAGRAM

Circuit 1



Circuit 3



HOW TO ORDER

CQR29	A	1	M	C	152	K	1	M
ER Style	Terminal	Circuit	Characteristic	Voltage in code	Capacitance in code	Capacitance tolerance in code	Vibration grade	Failure rate level
CQR = ER style	**A**, **B**, **C**, **D**, **H**, **E** (see page 6)	**1** = Circuit 1 **3** = Circuit 3	**M** (see page 6)	**B** = 100 V **C** = 200 V **E** = 400 V **F** = 600 V **G** = 1,000 V	Examples: **101** = 100pF **472** = 4.7nF **473** = 47nF	**G** = ±2% **J** = ±5% **K** = ±10%	**1** = 10 to 55 Hz inclusive **3** = 10 to 2,000 Hz inclusive (acceleration 15 G)	**M** = 1% /1,000 hours **P** = 0.1% /1,000 hours **R** = 0.01% /1,000 hours

ELECTRICAL CHARACTERISTICS

Part or Identifying Number (PIN)*	Nominal capacitance (µF)	Capacitance Tolerance (in code)	Failure rate Level (in code)	Dimensions							
				Circuit 1				Circuit 3			
				A ±0.031 (±0.79mm)		B +0.015/–0.005 (+0.38/–0.13mm)		A ±0.031 (±0.79mm)		B +0.015/–0.005 (+0.38/–0.13mm)	
				Inches	(mm)	Inches	(mm)	Inches	(mm)	Inches	(mm)
Rated voltage 100 V_{DC}											
CQR29A-MB185-3-	1.8	G, J, K	M, P, R	1.625	(41.28)	0.670	(17.02)	1.531	(38.89)	0.670	(17.02)
CQR29A-MB225-3-	2.2	G, J, K	M, P, R	1.875	(47.63)	0.750	(19.05)	1.781	(45.24)	0.750	(19.05)
CQR29A-MB275-3-	2.7	G, J, K	M, P, R	2.125	(53.98)	0.750	(19.05)	2.031	(51.59)	0.750	(19.05)
CQR29A-MB335-3-	3.3	G, J, K	M, P, R	2.375	(60.33)	0.750	(19.05)	2.281	(57.94)	0.750	(19.05)
CQR29A-MB395-3-	3.9	G, J, K	M, P, R	1.875	(47.63)	1.000	(25.40)	1.781	(45.24)	1.000	(25.40)
CQR29A-MB475-3-	4.7	G, J, K	M, P, R	2.125	(53.98)	1.000	(25.40)	2.031	(51.59)	1.000	(25.40)
CQR29A-MB565-3-	5.6	G, J, K	M, P, R	2.375	(60.33)	1.000	(25.40)	2.281	(57.94)	1.000	(25.40)
CQR29A-MB685-3-	6.8	G, J, K	M, P, R	2.625	(66.68)	1.000	(25.40)	2.531	(64.29)	1.000	(25.40)
Rated voltage 200 V_{DC}											
CQR29A-MC102-3-	0.0010	G, J, K	M, P, R	0.750	(19.05)	0.175	(4.45)	0.656	(16.66)	0.175	(4.45)
CQR29A-MC122-3-	0.0012	G, J, K	M, P, R	0.750	(19.05)	0.175	(4.45)	0.656	(16.66)	0.175	(4.45)
CQR29A-MC152-3-	0.0015	G, J, K	M, P, R	0.750	(19.05)	0.175	(4.45)	0.656	(16.66)	0.175	(4.45)
CQR29A-MC182-3-	0.0018	G, J, K	M, P, R	0.750	(19.05)	0.175	(4.45)	0.656	(16.66)	0.175	(4.45)
CQR29A-MC222-3-	0.0022	G, J, K	M, P, R	0.750	(19.05)	0.175	(4.45)	0.656	(16.66)	0.175	(4.45)
CQR29A-MC272-3-	0.0027	G, J, K	M, P, R	0.750	(19.05)	0.175	(4.45)	0.656	(16.66)	0.175	(4.45)
CQR29A-MC332-3-	0.0033	G, J, K	M, P, R	0.750	(19.05)	0.175	(4.45)	0.656	(16.66)	0.175	(4.45)
CQR29A-MC392-3-	0.0039	G, J, K	M, P, R	0.750	(19.05)	0.175	(4.45)	0.656	(16.66)	0.175	(4.45)
CQR29A-MC472-3-	0.0047	G, J, K	M, P, R	0.750	(19.05)	0.175	(4.45)	0.656	(16.66)	0.175	(4.45)
CQR29A-MC562-3-	0.0056	G, J, K	M, P, R	0.750	(19.05)	0.175	(4.45)	0.656	(16.66)	0.175	(4.45)
CQR29A-MC682-3-	0.0068	G, J, K	M, P, R	0.750	(19.05)	0.175	(4.45)	0.656	(16.66)	0.175	(4.45)
CQR29A-MC822-3-	0.0082	G, J, K	M, P, R	0.750	(19.05)	0.175	(4.45)	0.656	(16.66)	0.175	(4.45)
CQR29A-MC103-3-	0.010	G, J, K	M, P, R	0.750	(19.05)	0.175	(4.45)	0.656	(16.66)	0.175	(4.45)
CQR29A-MC123-3-	0.012	G, J, K	M, P, R	0.719	(18.26)	0.195	(4.95)	0.625	(15.88)	0.195	(4.95)
CQR29A-MC153-3-	0.015	G, J, K	M, P, R	0.719	(18.26)	0.195	(4.95)	0.625	(15.88)	0.195	(4.95)
CQR29A-MC183-3-	0.018	G, J, K	M, P, R	0.719	(18.26)	0.235	(5.97)	0.625	(15.88)	0.235	(5.97)
CQR29A-MC223-3-	0.022	G, J, K	M, P, R	0.719	(18.26)	0.235	(5.97)	0.625	(15.88)	0.235	(5.97)
CQR29A-MC273-3-	0.027	G, J, K	M, P, R	0.719	(18.26)	0.235	(5.97)	0.625	(15.88)	0.235	(5.97)
CQR29A-MC333-3-	0.033	G, J, K	M, P, R	0.719	(18.26)	0.235	(5.97)	0.625	(15.88)	0.235	(5.97)
CQR29A-MC393-3-	0.039	G, J, K	M, P, R	0.719	(18.26)	0.312	(7.92)	0.625	(15.88)	0.312	(7.92)
CQR29A-MC473-3-	0.047	G, J, K	M, P, R	0.719	(18.26)	0.312	(7.92)	0.625	(15.88)	0.312	(7.92)
CQR29A-MC563-3-	0.056	G, J, K	M, P, R	0.844	(21.44)	0.312	(7.92)	0.750	(19.05)	0.312	(7.92)
CQR29A-MC683-3-	0.068	G, J, K	M, P, R	0.844	(21.44)	0.312	(7.92)	0.750	(19.05)	0.312	(7.92)
CQR29A-MC823-3-	0.082	G, J, K	M, P, R	0.844	(21.44)	0.312	(7.92)	0.750	(19.05)	0.312	(7.92)
CQR29A-MC104-3-	0.10	G, J, K	M, P, R	0.844	(21.44)	0.312	(7.92)	0.750	(19.05)	0.312	(7.92)
CQR29A-MC124-3-	0.12	G, J, K	M, P, R	0.812	(20.62)	0.400	(10.16)	0.718	(18.24)	0.400	(10.16)
CQR29A-MC154-3-	0.15	G, J, K	M, P, R	0.812	(20.62)	0.400	(10.16)	0.718	(18.24)	0.400	(10.16)
CQR29A-MC184-3-	0.18	G, J, K	M, P, R	1.062	(26.97)	0.400	(10.16)	0.969	(24.61)	0.400	(10.16)
CQR29A-MC224-3-	0.22	G, J, K	M, P, R	1.062	(26.97)	0.400	(10.16)	0.969	(24.61)	0.400	(10.16)
CQR29A-MC274-3-	0.27	G, J, K	M, P, R	1.250	(31.75)	0.400	(10.16)	1.156	(29.36)	0.400	(10.16)
CQR29A-MC334-3-	0.33	G, J, K	M, P, R	1.250	(31.75)	0.400	(10.16)	1.156	(29.36)	0.400	(10.16)
CQR29A-MC394-3-	0.39	G, J, K	M, P, R	1.188	(30.18)	0.500	(12.70)	1.094	(27.79)	0.500	(12.70)
CQR29A-MC474-3-	0.47	G, J, K	M, P, R	1.188	(30.18)	0.500	(12.70)	1.094	(27.79)	0.500	(12.70)
CQR29A-MC564-3-	0.56	G, J, K	M, P, R	1.375	(34.93)	0.562	(14.27)	1.281	(32.54)	0.562	(14.27)
CQR29A-MC684-3-	0.68	G, J, K	M, P, R	1.375	(34.93)	0.562	(14.27)	1.281	(32.54)	0.562	(14.27)
CQR29A-MC824-3-	0.82	G, J, K	M, P, R	1.875	(47.63)	0.562	(14.27)	1.781	(45.24)	0.562	(14.27)
CQR29A-MC105-3-	10.0	G, J, K	M, P, R	1.875	(47.63)	0.562	(14.27)	1.781	(45.24)	0.562	(14.27)
Rated voltage 400 V_{DC}											
CQR29A-ME102-3-	0.0010	G, J, K	M, P, R	0.812	(20.62)	0.235	(5.97)	0.718	(18.24)	0.235	(5.97)
CQR29A-ME122-3-	0.0012	G, J, K	M, P, R	0.812	(20.62)	0.235	(5.97)	0.718	(18.24)	0.235	(5.97)
CQR29A-ME152-3-	0.0015	G, J, K	M, P, R	0.812	(20.62)	0.235	(5.97)	0.718	(18.24)	0.235	(5.97)
CQR29A-ME182-3-	0.0018	G, J, K	M, P, R	0.812	(20.62)	0.235	(5.97)	0.718	(18.24)	0.235	(5.97)
CQR29A-ME222-3-	0.0022	G, J, K	M, P, R	0.812	(20.62)	0.235	(5.97)	0.718	(18.24)	0.235	(5.97)
CQR29A-ME272-3-	0.0027	G, J, K	M, P, R	0.812	(20.62)	0.235	(5.97)	0.718	(18.24)	0.235	(5.97)
CQR29A-ME332-3-	0.0033	G, J, K	M, P, R	0.812	(20.62)	0.235	(5.97)	0.718	(18.24)	0.235	(5.97)
CQR29A-ME392-3-	0.0039	G, J, K	M, P, R	0.812	(20.62)	0.235	(5.97)	0.718	(18.24)	0.235	(5.97)
CQR29A-ME472-3-	0.0047	G, J, K	M, P, R	0.812	(20.62)	0.235	(5.97)	0.718	(18.24)	0.235	(5.97)
CQR29A-ME562-3-	0.0056	G, J, K	M, P, R	0.938	(23.83)	0.312	(7.92)	0.844	(21.44)	0.312	(7.92)
CQR29A-ME682-3-	0.0068	G, J, K	M, P, R	0.938	(23.83)	0.312	(7.92)	0.844	(21.44)	0.312	(7.92)
CQR29A-ME822-3-	0.0082	G, J, K	M, P, R	0.938	(23.83)	0.312	(7.92)	0.844	(21.44)	0.312	(7.92)
CQR29A-ME103-3-	0.010	G, J, K	M, P, R	0.938	(23.83)	0.312	(7.92)	0.844	(21.44)	0.312	(7.92)

* Complete part number shall include additional symbols to indicate circuit, capacitance tolerance and failure rate level as applicable.

** Dimensions are for basic case; sleeving shall extend 0.016" (0.41mm) minimum and 0.062" (1,57mm) maximum, beyond each end of the capacitor body; however, if a shrink-fitted insulation is used for the sleeving, it shall lap over the ends of the capacitor body. Add 0.047" (1,19mm) maximum to the nominal for capacitance diameter.

Type 127P

MIL-PRF-19978/13

CQR29

ELECTRICAL CHARACTERISTICS

Part or Identifying Number (PIN)*	Nominal capacitance (µF)	Capacitance Tolerance (in code)	Failure rate Level (in code)	Dimensions							
				Circuit 1				Circuit 3			
				A ±0.031 (±0.79mm)		B +0.015/–0.005 (+0.38/–0.13mm)		A ±0.031 (±0.79mm)		B +0.015/–0.005 (+0.38/–0.13mm)	
				Inches	(mm)	Inches	(mm)	Inches	(mm)	Inches	(mm)
Rated voltage 400 V_{DC}											
CQR29A-ME123-3-	0.012	G, J, K	M, P, R	0.938	(23.83)	0.312	(7.92)	0.844	(21.44)	0.312	(7.92)
CQR29A-ME153-3-	0.015	G, J, K	M, P, R	0.938	(23.83)	0.312	(7.92)	0.844	(21.44)	0.312	(7.92)
CQR29A-ME183-3-	0.018	G, J, K	M, P, R	1.062	(26.97)	0.312	(7.92)	0.969	(24.61)	0.312	(7.92)
CQR29A-ME223-3-	0.022	G, J, K	M, P, R	1.062	(26.97)	0.312	(7.92)	0.969	(24.61)	0.312	(7.92)
CQR29A-ME273-3-	0.027	G, J, K	M, P, R	0.938	(23.83)	0.400	(10.16)	0.844	(21.44)	0.400	(10.16)
CQR29A-ME333-3-	0.033	G, J, K	M, P, R	0.938	(23.83)	0.400	(10.16)	0.844	(21.44)	0.400	(10.16)
CQR29A-ME393-3-	0.039	G, J, K	M, P, R	1.062	(26.97)	0.400	(10.16)	0.969	(24.61)	0.400	(10.16)
CQR29A-ME473-3-	0.047	G, J, K	M, P, R	1.062	(26.97)	0.400	(10.16)	0.969	(24.61)	0.400	(10.16)
CQR29A-ME563-3-	0.056	G, J, K	M, P, R	1.250	(31.75)	0.400	(10.16)	1.156	(29.36)	0.400	(10.16)
CQR29A-ME683-3-	0.068	G, J, K	M, P, R	1.250	(31.75)	0.400	(10.16)	1.156	(29.36)	0.400	(10.16)
CQR29A-ME823-3-	0.082	G, J, K	M, P, R	1.562	(39.67)	0.400	(10.16)	1.469	(37.31)	0.400	(10.16)
CQR29A-ME104-3-	0.10	G, J, K	M, P, R	1.562	(39.67)	0.400	(10.16)	1.469	(37.31)	0.400	(10.16)
CQR29A-ME124-3-	0.12	G, J, K	M, P, R	1.281	(32.54)	0.562	(14.27)	1.188	(30.18)	0.562	(14.27)
CQR29A-ME154-3-	0.15	G, J, K	M, P, R	1.281	(32.54)	0.562	(14.27)	1.188	(30.18)	0.562	(14.27)
CQR29A-ME184-3-	0.18	G, J, K	M, P, R	1.531	(38.89)	0.562	(14.27)	1.438	(36.53)	0.562	(14.27)
CQR29A-ME224-3-	0.22	G, J, K	M, P, R	1.531	(38.89)	0.562	(14.27)	1.438	(36.53)	0.562	(14.27)
CQR29A-ME274-3-	0.27	G, J, K	M, P, R	1.906	(48.41)	0.562	(14.27)	1.812	(46.02)	0.562	(14.27)
CQR29A-ME334-3-	0.33	G, J, K	M, P, R	1.906	(48.41)	0.562	(14.27)	1.812	(46.02)	0.562	(14.27)
CQR29A-ME394-3-	0.39	G, J, K	M, P, R	1.906	(48.41)	0.670	(17.02)	1.812	(46.02)	0.670	(17.02)
CQR29A-ME474-3-	0.47	G, J, K	M, P, R	1.906	(48.41)	0.670	(17.02)	1.812	(46.02)	0.670	(17.02)
CQR29A-ME564-3-	0.56	G, J, K	M, P, R	2.156	(54.76)	0.750	(19.05)	2.062	(52.37)	0.750	(19.05)
CQR29A-ME684-3-	0.68	G, J, K	M, P, R	2.156	(54.76)	0.750	(19.05)	2.062	(52.37)	0.750	(19.05)
CQR29A-ME824-3-	0.82	G, J, K	M, P, R	2.656	(67.46)	0.750	(19.05)	2.562	(65.07)	0.750	(19.05)
CQR29A-ME105-3-	10.0	G, J, K	M, P, R	2.656	(67.46)	0.750	(19.05)	2.562	(65.07)	0.750	(19.05)
Rated voltage 600 V_{DC}											
CQR29A-MF102-3-	0.0010	G, J, K	M, P, R	0.812	(20.62)	0.235	(5.97)	0.718	(18.24)	0.235	(5.97)
CQR29A-MF122-3-	0.0012	G, J, K	M, P, R	0.812	(20.62)	0.235	(5.97)	0.718	(18.24)	0.235	(5.97)
CQR29A-MF152-3-	0.0015	G, J, K	M, P, R	0.812	(20.62)	0.235	(5.97)	0.718	(18.24)	0.235	(5.97)
CQR29A-MF182-3-	0.0018	G, J, K	M, P, R	0.812	(20.62)	0.235	(5.97)	0.718	(18.24)	0.235	(5.97)
CQR29A-MF222-3-	0.0022	G, J, K	M, P, R	0.812	(20.62)	0.235	(5.97)	0.718	(18.24)	0.235	(5.97)
CQR29A-MF272-3-	0.0027	G, J, K	M, P, R	0.812	(20.62)	0.235	(5.97)	0.718	(18.24)	0.235	(5.97)
CQR29A-MF332-3-	0.0033	G, J, K	M, P, R	0.938	(23.83)	0.312	(7.92)	0.844	(21.44)	0.312	(7.92)
CQR29A-MF392-3-	0.0039	G, J, K	M, P, R	0.938	(23.83)	0.312	(7.92)	0.844	(21.44)	0.312	(7.92)
CQR29A-MF472-3-	0.0047	G, J, K	M, P, R	0.938	(23.83)	0.312	(7.92)	0.844	(21.44)	0.312	(7.92)
CQR29A-MF562-3-	0.0056	G, J, K	M, P, R	0.938	(23.83)	0.312	(7.92)	0.844	(21.44)	0.312	(7.92)
CQR29A-MF682-3-	0.0068	G, J, K	M, P, R	0.938	(23.83)	0.312	(7.92)	0.844	(21.44)	0.312	(7.92)
CQR29A-MF822-3-	0.0082	G, J, K	M, P, R	1.062	(26.97)	0.312	(7.92)	0.969	(24.61)	0.312	(7.92)
CQR29A-MF103-3-	0.010	G, J, K	M, P, R	1.062	(26.97)	0.312	(7.92)	0.969	(24.61)	0.312	(7.92)
CQR29A-MF123-3-	0.012	G, J, K	M, P, R	0.938	(23.83)	0.400	(10.16)	0.844	(21.44)	0.400	(10.16)
CQR29A-MF153-3-	0.015	G, J, K	M, P, R	0.938	(23.83)	0.400	(10.16)	0.844	(21.44)	0.400	(10.16)
CQR29A-MF183-3-	0.018	G, J, K	M, P, R	1.062	(26.97)	0.400	(10.16)	0.969	(24.61)	0.400	(10.16)
CQR29A-MF223-3-	0.022	G, J, K	M, P, R	1.062	(26.97)	0.400	(10.16)	0.969	(24.61)	0.400	(10.16)
CQR29A-MF273-3-	0.027	G, J, K	M, P, R	1.312	(33.32)	0.400	(10.16)	1.219	(30.96)	0.400	(10.16)
CQR29A-MF333-3-	0.033	G, J, K	M, P, R	1.312	(33.32)	0.400	(10.16)	1.219	(30.96)	0.400	(10.16)
CQR29A-MF393-3-	0.039	G, J, K	M, P, R	1.562	(39.67)	0.400	(10.16)	1.469	(37.31)	0.400	(10.16)
CQR29A-MF473-3-	0.047	G, J, K	M, P, R	1.562	(39.67)	0.400	(10.16)	1.469	(37.31)	0.400	(10.16)
CQR29A-MF563-3-	0.056	G, J, K	M, P, R	1.250	(31.75)	0.562	(14.27)	1.156	(29.36)	0.562	(14.27)
CQR29A-MF683-3-	0.068	G, J, K	M, P, R	1.250	(31.75)	0.562	(14.27)	1.156	(29.36)	0.562	(14.27)
CQR29A-MF823-3-	0.082	G, J, K	M, P, R	1.500	(38.10)	0.562	(14.27)	1.406	(35.71)	0.562	(14.27)
CQR29A-MF104-3-	0.10	G, J, K	M, P, R	1.500	(38.10)	0.562	(14.27)	1.406	(35.71)	0.562	(14.27)
CQR29A-MF124-3-	0.12	G, J, K	M, P, R	1.875	(47.63)	0.562	(14.27)	1.781	(45.24)	0.562	(14.27)
CQR29A-MF154-3-	0.15	G, J, K	M, P, R	1.875	(47.63)	0.562	(14.27)	1.781	(45.24)	0.562	(14.27)
CQR29A-MF184-3-	0.18	G, J, K	M, P, R	1.875	(47.63)	0.670	(17.02)	1.781	(45.24)	0.670	(17.02)
CQR29A-MF224-3-	0.22	G, J, K	M, P, R	1.875	(47.63)	0.670	(17.02)	1.781	(45.24)	0.670	(17.02)
CQR29A-MF274-3-	0.27	G, J, K	M, P, R	2.125	(53.98)	0.750	(19.05)	2.031	(51.59)	0.750	(19.05)
CQR29A-MF334-3-	0.33	G, J, K	M, P, R	2.125	(53.98)	0.750	(19.05)	2.031	(51.59)	0.750	(19.05)
CQR29A-MF394-3-	0.39	G, J, K	M, P, R	2.625	(66.68)	0.750	(19.05)	2.531	(64.29)	0.750	(19.05)
CQR29A-MF474-3-	0.47	G, J, K	M, P, R	2.625	(66.68)	0.750	(19.05)	2.531	(64.29)	0.750	(19.05)
CQR29A-MF564-3-	0.56	G, J, K	M, P, R	2.125	(53.98)	1.000	(25.40)	2.031	(51.59)	1.000	(25.40)
CQR29A-MF684-3-	0.68	G, J, K	M, P, R	2.125	(53.98)	1.000	(25.40)	2.031	(51.59)	1.000	(25.40)

* Complete part number shall include additional symbols to indicate circuit, capacitance tolerance and failure rate level as applicable.

** Dimensions are for basic case; sleeving shall extend 0.016" (0.41mm) minimum and 0.062" (1,57mm) maximum, beyond each end of the capacitor body; however, if a shrink-fitted insulation is used for the sleeving, it shall lap over the ends of the capacitor body. Add 0.047" (1,19mm) maximum to the nominal for capacitance diameter.

ELECTRICAL CHARACTERISTICS

Part or Identifying Number (PIN)*	Nominal capacitance (µF)	Capacitance Tolerance (in code)	Failure rate Level (in code)	Dimensions **							
				Circuit 1				Circuit 3			
				A ±0.031 (±0.79mm)		B +0.015/–0.005 (+0.38/–0.13mm)		A ±0.031 (±0.79mm)		B +0.015/–0.005 (+0.38/–0.13mm)	
				Inches	(mm)	Inches	(mm)	Inches	(mm)	Inches	(mm)
Rated voltage 1,000 V_{DC}											
CQR29A-MG102-3-	0.0010	G, J, K	M, P, R	0.938	(23.83)	0.312	(7.92)	0.844	(21.44)	0.312	(7.92)
CQR29A-MG122-3-	0.0012	G, J, K	M, P, R	0.938	(23.83)	0.312	(7.92)	0.844	(21.44)	0.312	(7.92)
CQR29A-MG152-3-	0.0015	G, J, K	M, P, R	0.938	(23.83)	0.312	(7.92)	0.844	(21.44)	0.312	(7.92)
CQR29A-MG182-3-	0.0018	G, J, K	M, P, R	0.938	(23.83)	0.312	(7.92)	0.844	(21.44)	0.312	(7.92)
CQR29A-MG222-3-	0.0022	G, J, K	M, P, R	0.938	(23.83)	0.312	(7.92)	0.844	(21.44)	0.312	(7.92)
CQR29A-MG272-3-	0.0027	G, J, K	M, P, R	0.938	(23.83)	0.312	(7.92)	0.844	(21.44)	0.312	(7.92)
CQR29A-MG332-3-	0.0033	G, J, K	M, P, R	0.938	(23.83)	0.312	(7.92)	0.844	(21.44)	0.312	(7.92)
CQR29A-MG392-3-	0.0039	G, J, K	M, P, R	0.938	(23.83)	0.400	(10.16)	0.844	(21.44)	0.400	(10.16)
CQR29A-MG472-3-	0.0047	G, J, K	M, P, R	0.938	(23.83)	0.400	(10.16)	0.844	(21.44)	0.400	(10.16)
CQR29A-MG562-3-	0.0056	G, J, K	M, P, R	1.062	(26.97)	0.400	(10.16)	0.969	(24.61)	0.400	(10.16)
CQR29A-MG682-3-	0.0068	G, J, K	M, P, R	1.062	(26.97)	0.400	(10.16)	0.969	(24.61)	0.400	(10.16)
CQR29A-MG822-3-	0.0082	G, J, K	M, P, R	1.312	(33.32)	0.400	(10.16)	1.219	(30.96)	0.400	(10.16)
CQR29A-MG103-3-	0.010	G, J, K	M, P, R	1.312	(33.32)	0.400	(10.16)	1.219	(30.96)	0.400	(10.16)
CQR29A-MG123-3-	0.012	G, J, K	M, P, R	1.562	(39.67)	0.400	(10.16)	1.469	(37.31)	0.400	(10.16)
CQR29A-MG183-3-	0.018	G, J, K	M, P, R	1.250	(31.75)	0.562	(14.27)	1.156	(29.36)	0.562	(14.27)
CQR29A-MG223-3-	0.022	G, J, K	M, P, R	1.250	(31.75)	0.562	(14.27)	1.156	(29.36)	0.562	(14.27)
CQR29A-MG273-3-	0.027	G, J, K	M, P, R	1.250	(31.75)	0.562	(14.27)	1.156	(29.36)	0.562	(14.27)
CQR29A-MG333-3-	0.033	G, J, K	M, P, R	1.500	(38.10)	0.562	(14.27)	1.406	(35.71)	0.562	(14.27)
CQR29A-MG393-3-	0.039	G, J, K	M, P, R	1.875	(47.63)	0.562	(14.27)	1.781	(45.24)	0.562	(14.27)
CQR29A-MG473-3-	0.047	G, J, K	M, P, R	1.875	(47.63)	0.562	(14.27)	1.781	(45.24)	0.562	(14.27)
CQR29A-MG563-3-	0.056	G, J, K	M, P, R	1.875	(47.63)	0.670	(17.02)	1.781	(45.24)	0.670	(17.02)
CQR29A-MG683-3-	0.068	G, J, K	M, P, R	1.875	(47.63)	0.670	(17.02)	1.781	(45.24)	0.670	(17.02)
CQR29A-MG823-3-	0.082	G, J, K	M, P, R	2.125	(53.98)	0.750	(19.05)	2.031	(51.59)	0.750	(19.05)
CQR29A-MG104-3-	0.10	G, J, K	M, P, R	2.125	(53.98)	0.750	(19.05)	2.031	(51.59)	0.750	(19.05)
CQR29A-MG124-3-	0.12	G, J, K	M, P, R	1.875	(47.63)	1.000	(25.40)	1.781	(45.24)	1.000	(25.40)
CQR29A-MG154-3-	0.15	G, J, K	M, P, R	1.875	(47.63)	1.000	(25.40)	1.781	(45.24)	1.000	(25.40)
CQR29A-MG184-3-	0.18	G, J, K	M, P, R	2.375	(60.33)	1.000	(25.40)	2.281	(57.94)	1.000	(25.40)
CQR29A-MG224-3-	0.22	G, J, K	M, P, R	2.375	(60.33)	1.000	(25.40)	2.281	(57.94)	1.000	(25.40)

* Complete part number shall include additional symbols to indicate circuit, capacitance tolerance and failure rate level as applicable.

** Dimensions are for basic case; sleeving shall extend 0.016" (0.41mm) minimum and 0.062" (1,57mm) maximum, beyond each end of the capacitor body; however, if a shrink-fitted insulation is used for the sleeving, it shall lap over the ends of the capacitor body. Add 0.047" (1,19mm) maximum to the nominal for capacitance diameter.

Type 127P

MIL-PRF-19978/14

CQR32

Capacitor,
Fixed,
Plastic dielectric,
Axial-wire Terminal,
Tangential retainer,
Tubular (uninsulated),
Hermetically sealed in metal cases,
Established reliability.

GENERAL CHARACTERISTICS

Rated temperature	–65°C to +85°C.
Capacitance range	1 nF to 6.8 µF
Voltage range	30 V to 1,000 V
Capacitance tolerance	G, J, K
Dissipation factor (DF)	0.6 % max.
Barometric pressure	In accordance with MIL-PRF-19978 Test points: **Circuit diagram 1**: Between terminals and case. **Circuit diagram 3**: Between ungrounded terminal and case.
Insulation resistance (IR)	Terminal to terminal: **At +25°C**: 0 to 0.68 µF = 100,000 MΩ / >0.68 µF = 68,000 MΩ/µF **At +85°C**: 0 to 0.2 µF = 25,000 MΩ / >0.2 µF = 5,000 MΩ/µF
Vibration, high frequency	Method 204 of MIL-STD-202, test condition B, with the following exception: Direction and duration of motion: 4 hours in each of two mutually perpendicular directions (total of 8 hours), one parallel and the other perpendicular to the cylindrical axis.

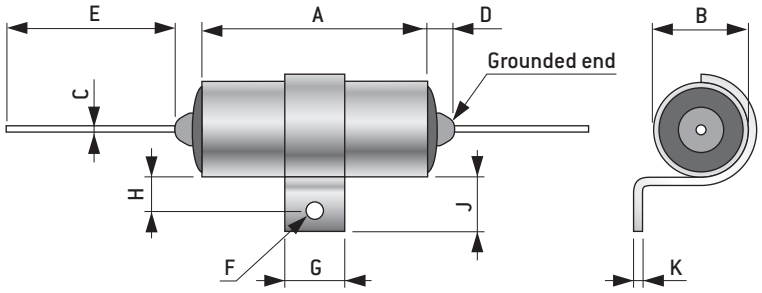
Full details and most up to date information found at government website.

DIMENSIONS

A	B
See tables on the next pages	

Dim. B Inches (mm)	C		D max.		E +1/–0 (+25.4/–0)		F ±0.005 (0.13)	
	Inches	(mm)	Inches	(mm)	Inches	(mm)	Inches	(mm)
B > 0.5 (12.7)	See note 3		0.172	(4.37)	1.625	(41.28)	0.144	(3.66)
B ≤ 0.5 (12.7)	See note 3		0.172	(4.37)	1.625	(41.28)	0.156	(3.96)

Dim. B Inches (mm)	G ±0.062 (1.57)		H ±0.031 (0.79)		J ±0.062 (1.57)		K max.	
	Inches	(mm)	Inches	(mm)	Inches	(mm)	Inches	(mm)
B > 0.5 (12.7)	0.250	(6.35)	0.188	(4,78)	0.312	(7.92)	0.063	(1.59)
B ≤ 0.5 (12.7)	0.500	(12.70)	0.250	(6,35)	0.438	(11.13)	0.063	(1.59)



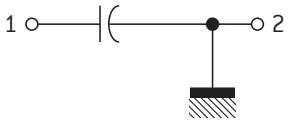
NOTES

1. Dimensions are in Inches.
2. Metric equivalents are given for general information only.
3. Leads shall be of solder coated solid wire, 0.020" (0,51mm) (No. 24AWG) for cases 0.175" (4,45mm) and 0.195" (4,95mm) in diameter; 0.025" (0,64mm) (No. 22AWG) for cases 0.235" (5,97mm) through 0.312" (7,92mm) diameter; and 0.032" (0,81mm) (No. 20AWG) for cases 0.400" (10,16mm) diameter and above. Tolerance on all lead wire diameters shall be + 0.004" (0,10mm), –0.001" (0,03mm).

CIRCUIT DIAGRAM

Circuit 1

Circuit 3



HOW TO ORDER

CQR32	A	1	M	C	152	K	1	M
ER Style	Terminal	Circuit	Characteristic	Voltage in code	Capacitance in code	Capacitance tolerance in code	Vibration grade	Failure rate level
CQR = ER style	**A, B, C, D, H, E** (see page 6)	**1** = Circuit 1 **3** = Circuit 3	**M** (see page 6)	**Z, A, B, C, E, F, G** (see page 6)	Examples: **101** = 100pF **472** = 4.7nF **473** = 47nF	**G** = ±2% **J** = ±5% **K** = ±10%	**1** = 10 to 55 Hz inclusive **3** = 10 to 2,000 Hz inclusive (acceleration 15 G)	**M** = 1% /1,000 hours **P** = 0.1% /1,000 hours **R** = 0.01% /1,000 hours

ELECTRICAL CHARACTERISTICS

Part or Identifying Number (PIN)*	Nominal capacitance (µF)	Capacitance Tolerance (in code)	Failure rate Level (in code)	Dimensions							
				Circuit 1				Circuit 3			
				A ±0.031 (±0.79mm)		B +0.015/–0.005 (+0.38/–0.13mm)		A ±0.031 (±0.79mm)		B +0.015/–0.005 (+0.38/–0.13mm)	
				Inches	(mm)	Inches	(mm)	Inches	(mm)	Inches	(mm)
Rated voltage 30 V_{DC}											
CQR32A-MZ155-3-	1.5	G, J, K	M, P, R	1.625	(41.28)	0.562	(14.27)	1.531	(38.89)	0.562	(14.27)
CQR32A-MZ225-3-	2.2	G, J, K	M, P, R	1.875	(47.63)	0.670	(17.02)	1.781	(45.24)	0.670	(17.02)
CQR32A-MZ335-3-	3.3	G, J, K	M, P, R	1.875	(47.63)	0.750	(19.05)	1.781	(45.24)	0.750	(19.05)
CQR32A-MZ475-3-	4.7	G, J, K	M, P, R	2.625	(66.68)	0.750	(19.05)	2.531	(64.29)	0.750	(19.05)
CQR32A-MZ685-3-	6.8	G, J, K	M, P, R	2.125	(53.98)	1.000	(25.40)	2.031	(51.59)	1.000	(25.40)
CQR32A-MZ106-3-	10.0	G, J, K	M, P, R	2.375	(60.33)	1.000	(25.40)	2.281	(57.94)	1.000	(25.40)
Rated voltage 50 V_{DC}											
CQR32A-MA102-3-	0.0010	G, J, K	M, P, R	0.500	(12.70)	0.175	(4.45)	0.406	(10.31)	0.175	(4.45)
CQR32A-MA122-3-	0.0012	G, J, K	M, P, R	0.500	(12.70)	0.175	(4.45)	0.406	(10.31)	0.175	(4.45)
CQR32A-MA152-3-	0.0015	G, J, K	M, P, R	0.500	(12.70)	0.175	(4.45)	0.406	(10.31)	0.175	(4.45)
CQR32A-MA182-3-	0.0018	G, J, K	M, P, R	0.500	(12.70)	0.175	(4.45)	0.406	(10.31)	0.175	(4.45)
CQR32A-MA222-3-	0.0022	G, J, K	M, P, R	0.500	(12.70)	0.175	(4.45)	0.406	(10.31)	0.175	(4.45)
CQR32A-MA272-3-	0.0027	G, J, K	M, P, R	0.500	(12.70)	0.175	(4.45)	0.406	(10.31)	0.175	(4.45)
CQR32A-MA332-3-	0.0033	G, J, K	M, P, R	0.500	(12.70)	0.175	(4.45)	0.406	(10.31)	0.175	(4.45)
CQR32A-MA392-3-	0.0039	G, J, K	M, P, R	0.500	(12.70)	0.175	(4.45)	0.406	(10.31)	0.175	(4.45)
CQR32A-MA472-3-	0.0047	G, J, K	M, P, R	0.500	(12.70)	0.175	(4.45)	0.406	(10.31)	0.175	(4.45)
CQR32A-MA562-3-	0.0056	G, J, K	M, P, R	0.500	(12.70)	0.175	(4.45)	0.406	(10.31)	0.175	(4.45)
CQR32A-MA682-3-	0.0068	G, J, K	M, P, R	0.500	(12.70)	0.175	(4.45)	0.406	(10.31)	0.175	(4.45)
CQR32A-MA822-3-	0.0082	G, J, K	M, P, R	0.500	(12.70)	0.175	(4.45)	0.406	(10.31)	0.175	(4.45)
CQR32A-MA103-3-	0.010	G, J, K	M, P, R	0.500	(12.70)	0.175	(4.45)	0.406	(10.31)	0.175	(4.45)
CQR32A-MA123-3-	0.012	G, J, K	M, P, R	0.500	(12.70)	0.235	(5.97)	0.406	(10.31)	0.235	(5.97)
CQR32A-MA153-3-	0.015	G, J, K	M, P, R	0.500	(12.70)	0.235	(5.97)	0.406	(10.31)	0.235	(5.97)
CQR32A-MA183-3-	0.018	G, J, K	M, P, R	0.500	(12.70)	0.235	(5.97)	0.406	(10.31)	0.235	(5.97)
CQR32A-MA223-3-	0.022	G, J, K	M, P, R	0.500	(12.70)	0.235	(5.97)	0.406	(10.31)	0.235	(5.97)
CQR32A-MA273-3-	0.027	G, J, K	M, P, R	0.500	(12.70)	0.312	(7.92)	0.406	(10.31)	0.312	(7.92)
CQR32A-MA333-3-	0.033	G, J, K	M, P, R	0.500	(12.70)	0.312	(7.92)	0.406	(10.31)	0.312	(7.92)
CQR32A-MA393-3-	0.039	G, J, K	M, P, R	0.500	(12.70)	0.312	(7.92)	0.406	(10.31)	0.312	(7.92)
CQR32A-MA473-3-	0.047	G, J, K	M, P, R	0.500	(12.70)	0.312	(7.92)	0.406	(10.31)	0.312	(7.92)
CQR32A-MA563-3-	0.056	G, J, K	M, P, R	0.562	(14.27)	0.312	(7.92)	0.468	(11.89)	0.312	(7.92)
CQR32A-MA683-3-	0.068	G, J, K	M, P, R	0.562	(14.27)	0.312	(7.92)	0.468	(11.89)	0.312	(7.92)
CQR32A-MA124-3-	0.12	G, J, K	M, P, R	0.875	(22.23)	0.312	(7.92)	0.781	(19.84)	0.312	(7.92)
CQR32A-MA154-3-	0.15	G, J, K	M, P, R	0.875	(22.23)	0.312	(7.92)	0.781	(19.84)	0.312	(7.92)
CQR32A-MA184-3-	0.18	G, J, K	M, P, R	0.875	(22.23)	0.400	(10.16)	0.781	(19.84)	0.400	(10.16)
CQR32A-MA224-3-	0.22	G, J, K	M, P, R	0.875	(22.23)	0.400	(10.16)	0.781	(19.84)	0.400	(10.16)
CQR32A-MA274-3-	0.27	G, J, K	M, P, R	0.875	(22.23)	0.400	(10.16)	0.781	(19.84)	0.400	(10.16)
CQR32A-MA334-3-	0.33	G, J, K	M, P, R	1.000	(25.40)	0.400	(10.16)	0.906	(23.01)	0.400	(10.16)
CQR32A-MA394-3-	0.39	G, J, K	M, P, R	1.125	(28.58)	0.400	(10.16)	1.031	(26.19)	0.400	(10.16)
CQR32A-MA474-3-	0.47	G, J, K	M, P, R	1.125	(28.58)	0.400	(10.16)	1.031	(26.19)	0.400	(10.16)
CQR32A-MA564-3-	0.56	G, J, K	M, P, R	1.375	(34.93)	0.400	(10.16)	1.281	(32.54)	0.400	(10.16)
CQR32A-MA684-3-	0.68	G, J, K	M, P, R	1.375	(34.93)	0.400	(10.16)	1.281	(32.54)	0.400	(10.16)
CQR32A-MA824-3-	0.82	G, J, K	M, P, R	1.125	(28.58)	0.562	(14.27)	1.031	(26.19)	0.562	(14.27)
CQR32A-MA105-3-	1.0	G, J, K	M, P, R	1.125	(28.58)	0.562	(14.27)	1.031	(26.19)	0.562	(14.27)
CQR32A-MA125-3-	1.2	G, J, K	M, P, R	1.375	(34.93)	0.562	(14.27)	1.281	(32.54)	0.562	(14.27)
Rated voltage 100 V_{DC}											
CQR32A-MB125-3-	1.2	G, J, K	M, P, R	1.625	(41.28)	0.670	(17.02)	1.531	(38.89)	0.670	(17.02)
CQR32A-MB155-3-	1.5	G, J, K	M, P, R	1.625	(41.28)	0.670	(17.02)	1.531	(38.89)	0.670	(17.02)
CQR32A-MB185-3-	1.8	G, J, K	M, P, R	1.625	(41.28)	0.670	(17.02)	1.531	(38.89)	0.670	(17.02)
CQR32A-MB225-3-	2.2	G, J, K	M, P, R	1.875	(47.63)	0.750	(19.05)	1.781	(45.24)	0.750	(19.05)
CQR32A-MB275-3-	2.7	G, J, K	M, P, R	2.125	(53.98)	0.750	(19.05)	2.031	(51.59)	0.750	(19.05)
CQR32A-MB335-3-	3.3	G, J, K	M, P, R	2.375	(60.33)	0.750	(19.05)	2.281	(57.94)	0.750	(19.05)
CQR32A-MB395-3-	3.9	G, J, K	M, P, R	1.875	(47.63)	1.000	(25.40)	1.781	(45.24)	1.000	(25.40)
CQR32A-MB475-3-	4.7	G, J, K	M, P, R	2.125	(53.98)	1.000	(25.40)	2.031	(51.59)	1.000	(25.40)
CQR32A-MB565-3-	5.6	G, J, K	M, P, R	2.375	(60.33)	1.000	(25.40)	2.281	(57.94)	1.000	(25.40)
CQR32A-MB685-3-	6.8	G, J, K	M, P, R	2.625	(66.68)	1.000	(25.40)	2.531	(64.29)	1.000	(25.40)
Rated voltage 200 V_{DC}											
CQR32A-MC102-3-	0.0010	G, J, K	M, P, R	0.750	(19.05)	0.175	(4.45)	0.656	(16.66)	0.175	(4.45)
CQR32A-MC122-3-	0.0012	G, J, K	M, P, R	0.750	(19.05)	0.175	(4.45)	0.656	(16.66)	0.175	(4.45)
CQR32A-MC152-3-	0.0015	G, J, K	M, P, R	0.750	(19.05)	0.175	(4.45)	0.656	(16.66)	0.175	(4.45)
CQR32A-MC182-3-	0.0018	G, J, K	M, P, R	0.750	(19.05)	0.175	(4.45)	0.656	(16.66)	0.175	(4.45)
CQR32A-MC222-3-	0.0022	G, J, K	M, P, R	0.750	(19.05)	0.175	(4.45)	0.656	(16.66)	0.175	(4.45)
CQR32A-MC272-3-	0.0027	G, J, K	M, P, R	0.750	(19.05)	0.175	(4.45)	0.656	(16.66)	0.175	(4.45)
CQR32A-MC332-3-	0.0033	G, J, K	M, P, R	0.750	(19.05)	0.175	(4.45)	0.656	(16.66)	0.175	(4.45)

* Part or Identifying Number (PIN) shall include additional symbols to indicate circuit symbol, capacitance tolerance, and failure rate level, as applicable

Type 127P

MIL-PRF-19978/14

CQR32

ELECTRICAL CHARACTERISTICS

Part or Identifying Number (PIN)*	Nominal capacitance (µF)	Capacitance Tolerance (in code)	Failure rate Level (in code)	Dimensions							
				Circuit 1				Circuit 3			
				A ±0.031 (±0.79mm)		B +0.015/–0.005 (+0.38/–0.13mm)		A ±0.031 (±0.79mm)		B +0.015/–0.005 (+0.38/–0.13mm)	
				Inches	(mm)	Inches	(mm)	Inches	(mm)	Inches	(mm)
Rated voltage 200 V_{DC}											
CQR32A-MC392-3-	0.0039	G, J, K	M, P, R	0.750	(19.05)	0.175	(4.45)	0.656	(16.66)	0.175	(4.45)
CQR32A-MC472-3-	0.0047	G, J, K	M, P, R	0.750	(19.05)	0.175	(4.45)	0.656	(16.66)	0.175	(4.45)
CQR32A-MC562-3-	0.0056	G, J, K	M, P, R	0.750	(19.05)	0.175	(4.45)	0.656	(16.66)	0.175	(4.45)
CQR32A-MC682-3-	0.0068	G, J, K	M, P, R	0.750	(19.05)	0.175	(4.45)	0.656	(16.66)	0.175	(4.45)
CQR32A-MC822-3-	0.0082	G, J, K	M, P, R	0.750	(19.05)	0.175	(4.45)	0.656	(16.66)	0.175	(4.45)
CQR32A-MC103-3-	0.010	G, J, K	M, P, R	0.750	(19.05)	0.175	(4.45)	0.656	(16.66)	0.175	(4.45)
CQR32A-MC123-3-	0.012	G, J, K	M, P, R	0.719	(18.26)	0.195	(4.95)	0.625	(15.88)	0.195	(4.95)
CQR32A-MC153-3-	0.015	G, J, K	M, P, R	0.719	(18.26)	0.195	(4.95)	0.625	(15.88)	0.195	(4.95)
CQR32A-MC183-3-	0.018	G, J, K	M, P, R	0.719	(18.26)	0.235	(5.97)	0.625	(15.88)	0.235	(5.97)
CQR32A-MC223-3-	0.022	G, J, K	M, P, R	0.719	(18.26)	0.235	(5.97)	0.625	(15.88)	0.235	(5.97)
CQR32A-MC273-3-	0.027	G, J, K	M, P, R	0.719	(18.26)	0.235	(5.97)	0.625	(15.88)	0.235	(5.97)
CQR32A-MC333-3-	0.033	G, J, K	M, P, R	0.719	(18.26)	0.235	(5.97)	0.625	(15.88)	0.235	(5.97)
CQR32A-MC393-3-	0.039	G, J, K	M, P, R	0.719	(18.26)	0.312	(7.92)	0.625	(15.88)	0.312	(7.92)
CQR32A-MC473-3-	0.047	G, J, K	M, P, R	0.719	(18.26)	0.312	(7.92)	0.625	(15.88)	0.312	(7.92)
CQR32A-MC563-3-	0.056	G, J, K	M, P, R	0.844	(21.44)	0.312	(7.92)	0.750	(19.05)	0.312	(7.92)
CQR32A-MC683-3-	0.068	G, J, K	M, P, R	0.844	(21.44)	0.312	(7.92)	0.750	(19.05)	0.312	(7.92)
CQR32A-MC823-3-	0.082	G, J, K	M, P, R	0.844	(21.44)	0.312	(7.92)	0.750	(19.05)	0.312	(7.92)
CQR32A-MC104-3-	0.10	G, J, K	M, P, R	0.844	(21.44)	0.312	(7.92)	0.750	(19.05)	0.312	(7.92)
CQR32A-MC124-3-	0.12	G, J, K	M, P, R	0.812	(20.62)	0.400	(10.16)	0.719	(18.26)	0.400	(10.16)
CQR32A-MC154-3-	0.15	G, J, K	M, P, R	0.812	(20.62)	0.400	(10.16)	0.719	(18.26)	0.400	(10.16)
CQR32A-MC184-3-	0.18	G, J, K	M, P, R	1.062	(26.97)	0.400	(10.16)	0.969	(24.61)	0.400	(10.16)
CQR32A-MC224-3-	0.22	G, J, K	M, P, R	1.062	(26.97)	0.400	(10.16)	0.969	(24.61)	0.400	(10.16)
CQR32A-MC274-3-	0.27	G, J, K	M, P, R	1.250	(31.75)	0.400	(10.16)	1.156	(29.36)	0.400	(10.16)
CQR32A-MC334-3-	0.33	G, J, K	M, P, R	1.250	(31.75)	0.400	(10.16)	1.156	(29.36)	0.400	(10.16)
CQR32A-MC394-3-	0.39	G, J, K	M, P, R	1.188	(30.18)	0.500	(12.70)	1.094	(27.79)	0.500	(12.70)
CQR32A-MC474-3-	0.47	G, J, K	M, P, R	1.188	(30.18)	0.500	(12.70)	1.094	(27.79)	0.500	(12.70)
CQR32A-MC564-3-	0.56	G, J, K	M, P, R	1.375	(34.93)	0.562	(14.27)	1.281	(32.54)	0.562	(14.27)
CQR32A-MC684-3-	0.68	G, J, K	M, P, R	1.375	(34.93)	0.562	(14.27)	1.281	(32.54)	0.562	(14.27)
CQR32A-MC824-3-	0.82	G, J, K	M, P, R	1.875	(47.63)	0.562	(14.27)	1.781	(45.24)	0.562	(14.27)
CQR32A-MC105-3-	1.0	G, J, K	M, P, R	1.875	(47.63)	0.562	(14.27)	1.781	(45.24)	0.562	(14.27)
Rated voltage 400 V_{DC}											
CQR32A-ME102-3-	0.0010	G, J, K	M, P, R	0.812	(20.62)	0.235	(5.97)	0.719	(18.26)	0.235	(5.97)
CQR32A-ME122-3-	0.0012	G, J, K	M, P, R	0.812	(20.62)	0.235	(5.97)	0.719	(18.26)	0.235	(5.97)
CQR32A-ME152-3-	0.0015	G, J, K	M, P, R	0.812	(20.62)	0.235	(5.97)	0.719	(18.26)	0.235	(5.97)
CQR32A-ME182-3-	0.0018	G, J, K	M, P, R	0.812	(20.62)	0.235	(5.97)	0.719	(18.26)	0.235	(5.97)
CQR32A-ME222-3-	0.0022	G, J, K	M, P, R	0.812	(20.62)	0.235	(5.97)	0.719	(18.26)	0.235	(5.97)
CQR32A-ME272-3-	0.0027	G, J, K	M, P, R	0.812	(20.62)	0.235	(5.97)	0.719	(18.26)	0.235	(5.97)
CQR32A-ME332-3-	0.0033	G, J, K	M, P, R	0.812	(20.62)	0.235	(5.97)	0.719	(18.26)	0.235	(5.97)
CQR32A-ME392-3-	0.0039	G, J, K	M, P, R	0.812	(20.62)	0.235	(5.97)	0.719	(18.26)	0.235	(5.97)
CQR32A-ME472-3-	0.0047	G, J, K	M, P, R	0.812	(20.62)	0.235	(5.97)	0.719	(18.26)	0.235	(5.97)
CQR32A-ME562-3-	0.0056	G, J, K	M, P, R	0.938	(23.83)	0.312	(7.92)	0.844	(21.44)	0.312	(7.92)
CQR32A-ME682-3-	0.0068	G, J, K	M, P, R	0.938	(23.83)	0.312	(7.92)	0.844	(21.44)	0.312	(7.92)
CQR32A-ME822-3-	0.0082	G, J, K	M, P, R	0.938	(23.83)	0.312	(7.92)	0.844	(21.44)	0.312	(7.92)
CQR32A-ME103-3-	0.010	G, J, K	M, P, R	0.938	(23.83)	0.312	(7.92)	0.844	(21.44)	0.312	(7.92)
CQR32A-ME123-3-	0.012	G, J, K	M, P, R	0.938	(23.83)	0.312	(7.92)	0.844	(21.44)	0.312	(7.92)
CQR32A-ME153-3-	0.015	G, J, K	M, P, R	0.938	(23.83)	0.312	(7.92)	0.844	(21.44)	0.312	(7.92)
CQR32A-ME183-3-	0.018	G, J, K	M, P, R	1.062	(26.97)	0.312	(7.92)	0.969	(24.61)	0.312	(7.92)
CQR32A-ME223-3-	0.022	G, J, K	M, P, R	1.062	(26.97)	0.312	(7.92)	0.969	(24.61)	0.312	(7.92)
CQR32A-ME273-3-	0.027	G, J, K	M, P, R	0.938	(23.83)	0.400	(10.16)	0.844	(21.44)	0.400	(10.16)
CQR32A-ME333-3-	0.033	G, J, K	M, P, R	0.938	(23.83)	0.400	(10.16)	0.844	(21.44)	0.400	(10.16)
CQR32A-ME393-3-	0.039	G, J, K	M, P, R	1.062	(26.97)	0.400	(10.16)	0.969	(24.61)	0.400	(10.16)
CQR32A-ME473-3-	0.047	G, J, K	M, P, R	1.062	(26.97)	0.400	(10.16)	0.969	(24.61)	0.400	(10.16)
CQR32A-ME563-3-	0.056	G, J, K	M, P, R	1.250	(31.75)	0.400	(10.16)	1.156	(29.36)	0.400	(10.16)
CQR32A-ME683-3-	0.068	G, J, K	M, P, R	1.250	(31.75)	0.400	(10.16)	1.156	(29.36)	0.400	(10.16)
CQR32A-ME823-3-	0.082	G, J, K	M, P, R	1.562	(39.67)	0.400	(10.16)	1.469	(37.31)	0.400	(10.16)
CQR32A-ME104-3-	0.10	G, J, K	M, P, R	1.562	(39.67)	0.400	(10.16)	1.469	(37.31)	0.400	(10.16)

* Part or Identifying Number (PIN) shall include additional symbols to indicate circuit symbol, capacitance tolerance, and failure rate level, as applicable

ELECTRICAL CHARACTERISTICS

Part or Identifying Number (PIN)*	Nominal capacitance (µF)	Capacitance Tolerance (in code)	Failure rate Level (in code)	Dimensions							
				Circuit 1				Circuit 3			
				A ±0.031 (±0.79mm)		B +0.015/–0.005 (+0.38/–0.13mm)		A ±0.031 (±0.79mm)		B +0.015/–0.005 (+0.38/–0.13mm)	
				Inches	(mm)	Inches	(mm)	Inches	(mm)	Inches	(mm)
Rated voltage 400 V_{DC}											
CQR32A-ME124-3-	0.12	G, J, K	M, P, R	1.281	(32.54)	0.562	(14.27)	1.188	(30.18)	0.562	(14.27)
CQR32A-ME154-3-	0.15	G, J, K	M, P, R	1.281	(32.54)	0.562	(14.27)	1.188	(30.18)	0.562	(14.27)
CQR32A-ME184-3-	0.18	G, J, K	M, P, R	1.531	(38.89)	0.562	(14.27)	1.438	(36.53)	0.562	(14.27)
CQR32A-ME224-3-	0.22	G, J, K	M, P, R	1.531	(38.89)	0.562	(14.27)	1.438	(36.53)	0.562	(14.27)
CQR32A-ME274-3-	0.27	G, J, K	M, P, R	1.906	(48.41)	0.562	(14.27)	1.812	(46.02)	0.562	(14.27)
CQR32A-ME334-3-	0.33	G, J, K	M, P, R	1.906	(48.41)	0.562	(14.27)	1.812	(46.02)	0.562	(14.27)
CQR32A-ME394-3-	0.39	G, J, K	M, P, R	1.906	(48.41)	0.670	(17.02)	1.812	(46.02)	0.670	(17.02)
CQR32A-ME474-3-	0.47	G, J, K	M, P, R	1.906	(48.41)	0.670	(17.02)	1.812	(46.02)	0.670	(17.02)
CQR32A-ME564-3-	0.56	G, J, K	M, P, R	2.156	(54.76)	0.750	(19.05)	2.062	(52.37)	0.750	(19.05)
CQR32A-ME684-3-	0.68	G, J, K	M, P, R	2.156	(54.76)	0.750	(19.05)	2.062	(52.37)	0.750	(19.05)
CQR32A-ME824-3-	0.82	G, J, K	M, P, R	2.656	(67.46)	0.750	(19.05)	2.562	(65.07)	0.750	(19.05)
CQR32A-ME105-3-	1.0	G, J, K	M, P, R	2.656	(67.46)	0.750	(19.05)	2.562	(65.07)	0.750	(19.05)
Rated voltage 600 V_{DC}											
CQR32A-MF102-3-	0.0010	G, J, K	M, P, R	0.812	(20.62)	0.235	(5.97)	0.719	(18.26)	0.235	(5.97)
CQR32A-MF122-3-	0.0012	G, J, K	M, P, R	0.812	(20.62)	0.235	(5.97)	0.719	(18.26)	0.235	(5.97)
CQR32A-MF152-3-	0.0015	G, J, K	M, P, R	0.812	(20.62)	0.235	(5.97)	0.719	(18.26)	0.235	(5.97)
CQR32A-MF182-3-	0.0018	G, J, K	M, P, R	0.812	(20.62)	0.235	(5.97)	0.719	(18.26)	0.235	(5.97)
CQR32A-MF222-3-	0.0022	G, J, K	M, P, R	0.812	(20.62)	0.235	(5.97)	0.719	(18.26)	0.235	(5.97)
CQR32A-MF272-3-	0.0027	G, J, K	M, P, R	0.812	(20.62)	0.235	(5.97)	0.719	(18.26)	0.235	(5.97)
CQR32A-MF332-3-	0.0033	G, J, K	M, P, R	0.938	(23.83)	0.312	(7.92)	0.844	(21.44)	0.312	(7.92)
CQR32A-MF392-3-	0.0039	G, J, K	M, P, R	0.938	(23.83)	0.312	(7.92)	0.844	(21.44)	0.312	(7.92)
CQR32A-MF472-3-	0.0047	G, J, K	M, P, R	0.938	(23.83)	0.312	(7.92)	0.844	(21.44)	0.312	(7.92)
CQR32A-MF562-3-	0.0056	G, J, K	M, P, R	0.938	(23.83)	0.312	(7.92)	0.844	(21.44)	0.312	(7.92)
CQR32A-MF682-3-	0.0068	G, J, K	M, P, R	0.938	(23.83)	0.312	(7.92)	0.844	(21.44)	0.312	(7.92)
CQR32A-MF822-3-	0.0082	G, J, K	M, P, R	1.062	(26.97)	0.312	(7.92)	0.969	(24.61)	0.312	(7.92)
CQR32A-MF103-3-	0.010	G, J, K	M, P, R	1.062	(26.97)	0.312	(7.92)	0.969	(24.61)	0.312	(7.92)
CQR32A-MF123-3-	0.012	G, J, K	M, P, R	0.938	(23.83)	0.400	(10.16)	0.844	(21.44)	0.400	(10.16)
CQR32A-MF153-3-	0.015	G, J, K	M, P, R	0.938	(23.83)	0.400	(10.16)	0.844	(21.44)	0.400	(10.16)
CQR32A-MF183-3-	0.018	G, J, K	M, P, R	1.062	(26.97)	0.400	(10.16)	0.969	(24.61)	0.400	(10.16)
CQR32A-MF223-3-	0.022	G, J, K	M, P, R	1.062	(26.97)	0.400	(10.16)	0.969	(24.61)	0.400	(10.16)
CQR32A-MF273-3-	0.027	G, J, K	M, P, R	1.312	(33.32)	0.400	(10.16)	1.219	(30.96)	0.400	(10.16)
CQR32A-MF333-3-	0.033	G, J, K	M, P, R	1.312	(33.32)	0.400	(10.16)	1.219	(30.96)	0.400	(10.16)
CQR32A-MF393-3-	0.039	G, J, K	M, P, R	1.562	(39.67)	0.400	(10.16)	1.469	(37.31)	0.400	(10.16)
CQR32A-MF473-3-	0.047	G, J, K	M, P, R	1.562	(39.67)	0.400	(10.16)	1.469	(37.31)	0.400	(10.16)
CQR32A-MF563-3-	0.056	G, J, K	M, P, R	1.250	(31.75)	0.562	(14.27)	1.156	(29.36)	0.562	(14.27)
CQR32A-MF683-3-	0.068	G, J, K	M, P, R	1.250	(31.75)	0.562	(14.27)	1.156	(29.36)	0.562	(14.27)
CQR32A-MF823-3-	0.082	G, J, K	M, P, R	1.500	(38.10)	0.562	(14.27)	1.406	(35.71)	0.562	(14.27)
CQR32A-MF104-3-	0.10	G, J, K	M, P, R	1.500	(38.10)	0.562	(14.27)	1.406	(35.71)	0.562	(14.27)
CQR32A-MF124-3-	0.12	G, J, K	M, P, R	1.875	(47.63)	0.562	(14.27)	1.781	(45.24)	0.562	(14.27)
CQR32A-MF154-3-	0.15	G, J, K	M, P, R	1.875	(47.63)	0.562	(14.27)	1.781	(45.24)	0.562	(14.27)
CQR32A-MF184-3-	0.18	G, J, K	M, P, R	1.875	(47.63)	0.670	(17.02)	1.781	(45.24)	0.670	(17.02)
CQR32A-MF224-3-	0.22	G, J, K	M, P, R	1.875	(47.63)	0.670	(17.02)	1.781	(45.24)	0.670	(17.02)
CQR32A-MF274-3-	0.27	G, J, K	M, P, R	2.125	(53.98)	0.750	(19.05)	2.031	(51.59)	0.750	(19.05)
CQR32A-MF334-3-	0.33	G, J, K	M, P, R	2.125	(53.98)	0.750	(19.05)	2.031	(51.59)	0.750	(19.05)
CQR32A-MF394-3-	0.39	G, J, K	M, P, R	2.625	(66.68)	0.750	(19.05)	2.531	(64.29)	0.750	(19.05)
CQR32A-MF474-3-	0.47	G, J, K	M, P, R	2.625	(66.68)	0.750	(19.05)	2.531	(64.29)	0.750	(19.05)
CQR32A-MF564-3-	0.56	G, J, K	M, P, R	2.125	(53.98)	1.000	(25.40)	2.031	(51.59)	1.000	(25.40)
CQR32A-MF684-3-	0.68	G, J, K	M, P, R	2.125	(53.98)	1.000	(25.40)	2.031	(51.59)	1.000	(25.40)

* Part or Identifying Number (PIN) shall include additional symbols to indicate circuit symbol, capacitance tolerance, and failure rate level, as applicable

Type 127P

MIL-PRF-19978/14

CQR32

ELECTRICAL CHARACTERISTICS

Part or Identifying Number (PIN)*	Nominal capacitance (µF)	Capacitance Tolerance (in code)	Failure rate Level (in code)	Dimensions							
				Circuit 1				Circuit 3			
				A ±0.031 (±0.79mm)		B +0.015/–0.005 (+0.38/–0.13mm)		A ±0.031 (±0.79mm)		B +0.015/–0.005 (+0.38/–0.13mm)	
				Inches	(mm)	Inches	(mm)	Inches	(mm)	Inches	(mm)
Rated voltage 1,000 V_{DC}											
CQR32A-MG102-3-	0.0010	G, J, K	M, P, R	0.938	(23.83)	0.312	(7.92)	0.844	(21.44)	0.312	(7.92)
CQR32A-MG122-3-	0.0012	G, J, K	M, P, R	0.938	(23.83)	0.312	(7.92)	0.844	(21.44)	0.312	(7.92)
CQR32A-MG152-3-	0.0015	G, J, K	M, P, R	0.938	(23.83)	0.312	(7.92)	0.844	(21.44)	0.312	(7.92)
CQR32A-MG182-3-	0.0018	G, J, K	M, P, R	0.938	(23.83)	0.312	(7.92)	0.844	(21.44)	0.312	(7.92)
CQR32A-MG222-3-	0.0022	G, J, K	M, P, R	0.938	(23.83)	0.312	(7.92)	0.844	(21.44)	0.312	(7.92)
CQR32A-MG272-3-	0.0027	G, J, K	M, P, R	0.938	(23.83)	0.312	(7.92)	0.844	(21.44)	0.312	(7.92)
CQR32A-MG332-3-	0.0033	G, J, K	M, P, R	0.938	(23.83)	0.312	(7.92)	0.844	(21.44)	0.312	(7.92)
CQR32A-MG392-3-	0.0039	G, J, K	M, P, R	0.938	(23.83)	0.400	(10.16)	0.844	(21.44)	0.400	(10.16)
CQR32A-MG472-3-	0.0047	G, J, K	M, P, R	0.938	(23.83)	0.400	(10.16)	0.844	(21.44)	0.400	(10.16)
CQR32A-MG562-3-	0.0056	G, J, K	M, P, R	1.062	(26.97)	0.400	(10.16)	0.969	(24.61)	0.400	(10.16)
CQR32A-MG682-3-	0.0068	G, J, K	M, P, R	1.062	(26.97)	0.400	(10.16)	0.969	(24.61)	0.400	(10.16)
CQR32A-MG822-3-	0.0082	G, J, K	M, P, R	1.312	(33.32)	0.400	(10.16)	1.219	(30.96)	0.400	(10.16)
CQR32A-MG103-3-	0.010	G, J, K	M, P, R	1.312	(33.32)	0.400	(10.16)	1.219	(30.96)	0.400	(10.16)
CQR32A-MG123-3-	0.012	G, J, K	M, P, R	1.562	(39.67)	0.400	(10.16)	1.469	(37.31)	0.400	(10.16)
CQR32A-MG183-3-	0.018	G, J, K	M, P, R	1.562	(39.67)	0.400	(10.16)	1.469	(37.31)	0.400	(10.16)
CQR32A-MG223-3-	0.022	G, J, K	M, P, R	1.250	(31.75)	0.562	(14.27)	1.156	(29.36)	0.562	(14.27)
CQR32A-MG273-3-	0.027	G, J, K	M, P, R	1.250	(31.75)	0.562	(14.27)	1.156	(29.36)	0.562	(14.27)
CQR32A-MG333-3-	0.033	G, J, K	M, P, R	1.500	(38.10)	0.562	(14.27)	1.406	(35.71)	0.562	(14.27)
CQR32A-MG393-3-	0.039	G, J, K	M, P, R	1.875	(47.63)	0.562	(14.27)	1.781	(45.24)	0.562	(14.27)

* Part or Identifying Number (PIN) shall include additional symbols to indicate circuit symbol, capacitance tolerance, and failure rate level, as applicable

CQR33

MIL-PRF-19978

Type 127P

Capacitor,
Fixed,
Plastic dielectric,
Axial-wire terminal.
Threaded-stud retainer,
Tubular (uninsulated),
Hermetically sealed in metal cases,
Established reliability.

GENERAL CHARACTERISTICS

Rated temperature	–65°C to +85°C.
Capacitance range	1 nF to 10 µF
Voltage range	50 V to 1,000 V
Capacitance tolerance	G, J, K
Dissipation factor (DF)	0.6 % max.
Barometric pressure	In accordance with MIL-PRF-19978 Test points: **Circuit diagram 1**: Between terminals and case. **Circuit diagram 3**: Between ungrounded terminal and case.
Insulation resistance (IR)	Terminal to terminal: **At +25°C**: 0 to 0.68 µF = 100,000 MΩ / >0.68 µF = 68,000 MΩ/µF **At +85°C**: 0 to 0.2 µF = 25,000 MΩ / >0.2 µF = 5,000 MΩ/µF
Vibration, high frequency	Method 204 of MIL-STD-202, test condition B, with the following exception: Direction and duration of motion: 4 hours in each of two mutually perpendicular directions (total of 8 hours), one parallel and the other perpendicular to the cylindrical axis.

Full details and most up to date information found at government website.

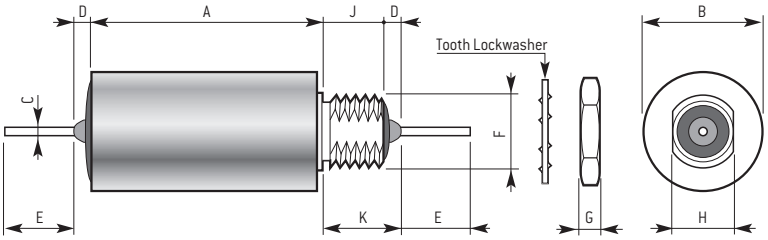
DIMENSIONS

A	B
See tables on the next pages	

Case dimension B		F		H	
Inches	(mm)	–	–	Inches	(mm)
≤ 0.562	≤ (14,27)	5/16-24UNF-2A		$0.250^{\pm 0.005}$	$(6.35^{\pm 0.13})$
0.670	(17,02)	7/16-28UNEF-2A		$0.375^{\pm 0.005}$	$(9.53^{\pm 0.13})$
≥ 0.750	≥ (19,05)	1/2-28UNEF-2A		$0.437^{\pm 0.005}$	$(11.10^{\pm 0.13})$

C		D		E	
Inches	(mm)	Inches	(mm)	Inches	(mm)
See note 3		0.172 max.	(4,37 max.)	1.625^{+1}_{-0}	$(41.28^{+25.4}_{-0})$

G		J		K	
Inches	(mm)	Inches	(mm)	Inches	(mm)
$0.125^{\pm 0.016}$	$(3.18^{\pm 0.41})$	$0.312^{\pm 0.031}$	$(7.92^{\pm 0.79})$	$0.375^{+0.188}_{-0.125}$	$(9.53^{+4.78}_{-3.18})$

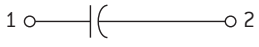


NOTES

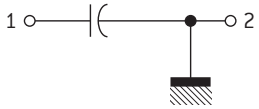
1. Dimensions are in Inches.
2. Metric equivalents are given for general information only.
3. Leads shall be of solder coated solid wire, 0.032" +0.004 / –0.001 ($0,81^{+0,10}_{-0,03}$ mm) (No. 20AWG).
4. Mounting nuts and lockwashers shall be supplied.

CIRCUIT DIAGRAM

Circuit 1



Circuit 3



HOW TO ORDER

CQR33	A	1	M	C	152	K	1	M
ER Style	Terminal	Circuit	Characteristic	Voltage in code	Capacitance in code	Capacitance tolerance in code	Vibration grade	Failure rate level
CQR = ER style	**A, B, C, D, H, E** (see page 6)	**1** = Circuit 1 **3** = Circuit 3	**M** (see page 6)	**Z, A, B, C,E, F, G** (see page 6)	Examples: **101** = 100pF **472** = 4.7nF **473** = 47nF	**G** = ±2% **J** = ±5% **K** = ±10%	**1** = 10 to 55 Hz inclusive **3** = 10 to 2,000 Hz inclusive (acceleration 15 G)	**M** = 1% /1,000 hours **P** = 0.1% /1,000 hours **R** = 0.01% /1,000 hours

Type 127P

MIL-PRF-19978/15

CQR33

ELECTRICAL CHARACTERISTICS

Part or Identifying Number (PIN)*	Nominal capacitance (µF)	Capacitance Tolerance (in code)	Failure rate Level (in code)	Dimensions							
				Circuit 1				Circuit 3			
				A ±0.031 (±0.79mm)		B +0.015/–0.005 (+0.38/–0.13mm)		A ±0.031 (±0.79mm)		B +0.015/–0.005 (+0.38/–0.13mm)	
				Inches	(mm)	Inches	(mm)	Inches	(mm)	Inches	(mm)
Rated voltage 30 V_{DC}											
CQR33A-MZ155-3-	1.5	G, J, K	M, P, R	1.625	(41.28)	0.562	(14.27)	1.531	(38.89)	0.562	(14.27)
CQR33A-MZ225-3-	2.2	G, J, K	M, P, R	1.875	(47.63)	0.670	(17.02)	1.781	(45.24)	0.670	(17.02)
CQR33A-MZ335-3-	3.3	G, J, K	M, P, R	1.875	(47.63)	0.750	(19.05)	1.781	(45.24)	0.750	(19.05)
CQR33A-MZ475-3-	4.7	G, J, K	M, P, R	2.625	(66.68)	0.750	(19.05)	2.531	(64.29)	0.750	(19.05)
CQR33A-MZ685-3-	6.8	G, J, K	M, P, R	2.125	(53.98)	1.000	(25.40)	2.031	(51.59)	1.000	(25.40)
CQR33A-MZ106-3-	10.0	G, J, K	M, P, R	2.375	(60.33)	1.000	(25.40)	2.281	(57.94)	1.000	(25.40)
Rated voltage 50 V_{DC}											
CQR33A-MA102-3-	0.0010	G, J, K	M, P, R	0.500	(12.70)	0.175	(4.45)	0.406	(10.31)	0.175	(4.45)
CQR33A-MA122-3-	0.0012	G, J, K	M, P, R	0.500	(12.70)	0.175	(4.45)	0.406	(10.31)	0.175	(4.45)
CQR33A-MA152-3-	0.0015	G, J, K	M, P, R	0.500	(12.70)	0.175	(4.45)	0.406	(10.31)	0.175	(4.45)
CQR33A-MA182-3-	0.0018	G, J, K	M, P, R	0.500	(12.70)	0.175	(4.45)	0.406	(10.31)	0.175	(4.45)
CQR33A-MA222-3-	0.0022	G, J, K	M, P, R	0.500	(12.70)	0.175	(4.45)	0.406	(10.31)	0.175	(4.45)
CQR33A-MA272-3-	0.0027	G, J, K	M, P, R	0.500	(12.70)	0.175	(4.45)	0.406	(10.31)	0.175	(4.45)
CQR33A-MA332-3-	0.0033	G, J, K	M, P, R	0.500	(12.70)	0.175	(4.45)	0.406	(10.31)	0.175	(4.45)
CQR33A-MA392-3-	0.0039	G, J, K	M, P, R	0.500	(12.70)	0.175	(4.45)	0.406	(10.31)	0.175	(4.45)
CQR33A-MA472-3-	0.0047	G, J, K	M, P, R	0.500	(12.70)	0.175	(4.45)	0.406	(10.31)	0.175	(4.45)
CQR33A-MA562-3-	0.0056	G, J, K	M, P, R	0.500	(12.70)	0.175	(4.45)	0.406	(10.31)	0.175	(4.45)
CQR33A-MA682-3-	0.0068	G, J, K	M, P, R	0.500	(12.70)	0.175	(4.45)	0.406	(10.31)	0.175	(4.45)
CQR33A-MA822-3-	0.0082	G, J, K	M, P, R	0.500	(12.70)	0.175	(4.45)	0.406	(10.31)	0.175	(4.45)
CQR33A-MA103-3-	0.010	G, J, K	M, P, R	0.500	(12.70)	0.175	(4.45)	0.406	(10.31)	0.175	(4.45)
CQR33A-MA123-3-	0.012	G, J, K	M, P, R	0.500	(12.70)	0.235	(5.97)	0.406	(10.31)	0.235	(5.97)
CQR33A-MA153-3-	0.015	G, J, K	M, P, R	0.500	(12.70)	0.235	(5.97)	0.406	(10.31)	0.235	(5.97)
CQR33A-MA183-3-	0.018	G, J, K	M, P, R	0.500	(12.70)	0.235	(5.97)	0.406	(10.31)	0.235	(5.97)
CQR33A-MA223-3-	0.022	G, J, K	M, P, R	0.500	(12.70)	0.235	(5.97)	0.406	(10.31)	0.235	(5.97)
CQR33A-MA273-3-	0.027	G, J, K	M, P, R	0.500	(12.70)	0.312	(7.92)	0.406	(10.31)	0.312	(7.92)
CQR33A-MA333-3-	0.033	G, J, K	M, P, R	0.500	(12.70)	0.312	(7.92)	0.406	(10.31)	0.312	(7.92)
CQR33A-MA393-3-	0.039	G, J, K	M, P, R	0.500	(12.70)	0.312	(7.92)	0.406	(10.31)	0.312	(7.92)
CQR33A-MA473-3-	0.047	G, J, K	M, P, R	0.500	(12.70)	0.312	(7.92)	0.406	(10.31)	0.312	(7.92)
CQR33A-MA563-3-	0.056	G, J, K	M, P, R	0.562	(14.27)	0.312	(7.92)	0.468	(11.89)	0.312	(7.92)
CQR33A-MA683-3-	0.068	G, J, K	M, P, R	0.562	(14.27)	0.312	(7.92)	0.468	(11.89)	0.312	(7.92)
CQR33A-MA124-3-	0.12	G, J, K	M, P, R	0.875	(22.23)	0.312	(7.92)	0.781	(19.84)	0.312	(7.92)
CQR33A-MA154-3-	0.15	G, J, K	M, P, R	0.875	(22.23)	0.312	(7.92)	0.781	(19.84)	0.312	(7.92)
CQR33A-MA184-3-	0.18	G, J, K	M, P, R	0.875	(22.23)	0.400	(10.16)	0.781	(19.84)	0.400	(10.16)
CQR33A-MA224-3-	0.22	G, J, K	M, P, R	0.875	(22.23)	0.400	(10.16)	0.781	(19.84)	0.400	(10.16)
CQR33A-MA274-3-	0.27	G, J, K	M, P, R	0.875	(22.23)	0.400	(10.16)	0.781	(19.84)	0.400	(10.16)
CQR33A-MA334-3-	0.33	G, J, K	M, P, R	1.000	(25.40)	0.400	(10.16)	0.906	(23.01)	0.400	(10.16)
CQR33A-MA394-3-	0.39	G, J, K	M, P, R	1.125	(28.58)	0.400	(10.16)	1.031	(26.19)	0.400	(10.16)
CQR33A-MA474-3-	0.47	G, J, K	M, P, R	1.125	(28.58)	0.400	(10.16)	1.031	(26.19)	0.400	(10.16)
CQR33A-MA564-3-	0.56	G, J, K	M, P, R	1.375	(34.93)	0.400	(10.16)	1.281	(32.54)	0.400	(10.16)
CQR33A-MA684-3-	0.68	G, J, K	M, P, R	1.375	(34.93)	0.400	(10.16)	1.281	(32.54)	0.400	(10.16)
CQR33A-MA824-3-	0.82	G, J, K	M, P, R	1.125	(28.58)	0.562	(14.27)	1.031	(26.19)	0.562	(14.27)
CQR33A-MA105-3-	1.0	G, J, K	M, P, R	1.125	(28.58)	0.562	(14.27)	1.031	(26.19)	0.562	(14.27)
CQR33A-MA125-3-	1.2	G, J, K	M, P, R	1.375	(34.93)	0.562	(14.27)	1.281	(32.54)	0.562	(14.27)
Rated voltage 100 V_{DC}											
CQR33A-MB125-3-	1.2	G, J, K	M, P, R	1.625	(41.28)	0.670	(17.02)	1.531	(38.89)	0.670	(17.02)
CQR33A-MB155-3-	1.5	G, J, K	M, P, R	1.625	(41.28)	0.670	(17.02)	1.531	(38.89)	0.670	(17.02)
CQR33A-MB185-3-	1.8	G, J, K	M, P, R	1.625	(41.28)	0.670	(17.02)	1.531	(38.89)	0.670	(17.02)
CQR33A-MB225-3-	2.2	G, J, K	M, P, R	1.875	(47.63)	0.750	(19.05)	1.781	(45.24)	0.750	(19.05)
CQR33A-MB275-3-	2.7	G, J, K	M, P, R	2.125	(53.98)	0.750	(19.05)	2.031	(51.59)	0.750	(19.05)
CQR33A-MB335-3-	3.3	G, J, K	M, P, R	2.375	(60.33)	0.750	(19.05)	2.281	(57.94)	0.750	(19.05)
CQR33A-MB395-3-	3.9	G, J, K	M, P, R	1.875	(47.63)	1.000	(25.40)	1.781	(45.24)	1.000	(25.40)
CQR33A-MB475-3-	4.7	G, J, K	M, P, R	2.125	(53.98)	1.000	(25.40)	2.031	(51.59)	1.000	(25.40)
CQR33A-MB565-3-	5.6	G, J, K	M, P, R	2.375	(60.33)	1.000	(25.40)	2.281	(57.94)	1.000	(25.40)
CQR33A-MB685-3-	6.8	G, J, K	M, P, R	2.625	(66.68)	1.000	(25.40)	2.531	(64.29)	1.000	(25.40)
Rated voltage 200 V_{DC}											
CQR33A-MC102-3-	0.0010	G, J, K	M, P, R	0.750	(19.05)	0.175	(4.45)	0.656	(16.66)	0.175	(4.45)
CQR33A-MC122-3-	0.0012	G, J, K	M, P, R	0.750	(19.05)	0.175	(4.45)	0.656	(16.66)	0.175	(4.45)
CQR33A-MC152-3-	0.0015	G, J, K	M, P, R	0.750	(19.05)	0.175	(4.45)	0.656	(16.66)	0.175	(4.45)
CQR33A-MC182-3-	0.0018	G, J, K	M, P, R	0.750	(19.05)	0.175	(4.45)	0.656	(16.66)	0.175	(4.45)
CQR33A-MC222-3-	0.0022	G, J, K	M, P, R	0.750	(19.05)	0.175	(4.45)	0.656	(16.66)	0.175	(4.45)
CQR33A-MC272-3-	0.0027	G, J, K	M, P, R	0.750	(19.05)	0.175	(4.45)	0.656	(16.66)	0.175	(4.45)
CQR33A-MC332-3-	0.0033	G, J, K	M, P, R	0.750	(19.05)	0.175	(4.45)	0.656	(16.66)	0.175	(4.45)

* Part or Identifying Number (PIN) shall include additional symbols to indicate circuit symbol, capacitance tolerance, and failure rate level, as applicable

ELECTRICAL CHARACTERISTICS

Part or Identifying Number (PIN)*	Nominal capacitance (µF)	Capacitance Tolerance (in code)	Failure rate Level (in code)	Dimensions							
				Circuit 1				Circuit 3			
				A ±0.031 (±0.79mm)		B +0.015/–0.005 (+0.38/–0.13mm)		A ±0.031 (±0.79mm)		B +0.015/–0.005 (+0.38/–0.13mm)	
				Inches	(mm)	Inches	(mm)	Inches	(mm)	Inches	(mm)
Rated voltage 200 V_{DC}											
CQR33A-MC392-3-	0.0039	G, J, K	M, P, R	0.750	(19.05)	0.175	(4.45)	0.656	(16.66)	0.175	(4.45)
CQR33A-MC472-3-	0.0047	G, J, K	M, P, R	0.750	(19.05)	0.175	(4.45)	0.656	(16.66)	0.175	(4.45)
CQR33A-MC562-3-	0.0056	G, J, K	M, P, R	0.750	(19.05)	0.175	(4.45)	0.656	(16.66)	0.175	(4.45)
CQR33A-MC682-3-	0.0068	G, J, K	M, P, R	0.750	(19.05)	0.175	(4.45)	0.656	(16.66)	0.175	(4.45)
CQR33A-MC822-3-	0.0082	G, J, K	M, P, R	0.750	(19.05)	0.175	(4.45)	0.656	(16.66)	0.175	(4.45)
CQR33A-MC103-3-	0.010	G, J, K	M, P, R	0.750	(19.05)	0.175	(4.45)	0.656	(16.66)	0.175	(4.45)
CQR33A-MC123-3-	0.012	G, J, K	M, P, R	0.719	(18.26)	0.195	(4.95)	0.625	(15.88)	0.195	(4.95)
CQR33A-MC153-3-	0.015	G, J, K	M, P, R	0.719	(18.26)	0.195	(4.95)	0.625	(15.88)	0.195	(4.95)
CQR33A-MC183-3-	0.018	G, J, K	M, P, R	0.719	(18.26)	0.235	(5.97)	0.625	(15.88)	0.235	(5.97)
CQR33A-MC223-3-	0.022	G, J, K	M, P, R	0.719	(18.26)	0.235	(5.97)	0.625	(15.88)	0.235	(5.97)
CQR33A-MC273-3-	0.027	G, J, K	M, P, R	0.719	(18.26)	0.235	(5.97)	0.625	(15.88)	0.235	(5.97)
CQR33A-MC333-3-	0.033	G, J, K	M, P, R	0.719	(18.26)	0.235	(5.97)	0.625	(15.88)	0.235	(5.97)
CQR33A-MC393-3-	0.039	G, J, K	M, P, R	0.719	(18.26)	0.312	(7.92)	0.625	(15.88)	0.312	(7.92)
CQR33A-MC473-3-	0.047	G, J, K	M, P, R	0.719	(18.26)	0.312	(7.92)	0.625	(15.88)	0.312	(7.92)
CQR33A-MC563-3-	0.056	G, J, K	M, P, R	0.844	(21.44)	0.312	(7.92)	0.750	(19.05)	0.312	(7.92)
CQR33A-MC683-3-	0.068	G, J, K	M, P, R	0.844	(21.44)	0.312	(7.92)	0.750	(19.05)	0.312	(7.92)
CQR33A-MC823-3-	0.082	G, J, K	M, P, R	0.844	(21.44)	0.312	(7.92)	0.750	(19.05)	0.312	(7.92)
CQR33A-MC104-3-	0.10	G, J, K	M, P, R	0.844	(21.44)	0.312	(7.92)	0.750	(19.05)	0.312	(7.92)
CQR33A-MC124-3-	0.12	G, J, K	M, P, R	0.812	(20.62)	0.400	(10.16)	0.719	(18.26)	0.400	(10.16)
CQR33A-MC154-3-	0.15	G, J, K	M, P, R	0.812	(20.62)	0.400	(10.16)	0.719	(18.26)	0.400	(10.16)
CQR33A-MC184-3-	0.18	G, J, K	M, P, R	1.062	(26.97)	0.400	(10.16)	0.969	(24.61)	0.400	(10.16)
CQR33A-MC224-3-	0.22	G, J, K	M, P, R	1.062	(26.97)	0.400	(10.16)	0.969	(24.61)	0.400	(10.16)
CQR33A-MC274-3-	0.27	G, J, K	M, P, R	1.250	(31.75)	0.400	(10.16)	1.156	(29.36)	0.400	(10.16)
CQR33A-MC334-3-	0.33	G, J, K	M, P, R	1.250	(31.75)	0.400	(10.16)	1.156	(29.36)	0.400	(10.16)
CQR33A-MC394-3-	0.39	G, J, K	M, P, R	1.188	(30.18)	0.500	(12.70)	1.094	(27.79)	0.500	(12.70)
CQR33A-MC474-3-	0.47	G, J, K	M, P, R	1.188	(30.18)	0.500	(12.70)	1.094	(27.79)	0.500	(12.70)
CQR33A-MC564-3-	0.56	G, J, K	M, P, R	1.375	(34.93)	0.562	(14.27)	1.281	(32.54)	0.562	(14.27)
CQR33A-MC684-3-	0.68	G, J, K	M, P, R	1.375	(34.93)	0.562	(14.27)	1.281	(32.54)	0.562	(14.27)
CQR33A-MC824-3-	0.82	G, J, K	M, P, R	1.875	(47.63)	0.562	(14.27)	1.781	(45.24)	0.562	(14.27)
CQR33A-MC105-3-	1.0	G, J, K	M, P, R	1.875	(47.63)	0.562	(14.27)	1.781	(45.24)	0.562	(14.27)
Rated voltage 400 V_{DC}											
CQR33A-ME102-3-	0.0010	G, J, K	M, P, R	0.812	(20.62)	0.235	(5.97)	0.719	(18.26)	0.235	(5.97)
CQR33A-ME122-3-	0.0012	G, J, K	M, P, R	0.812	(20.62)	0.235	(5.97)	0.719	(18.26)	0.235	(5.97)
CQR33A-ME152-3-	0.0015	G, J, K	M, P, R	0.812	(20.62)	0.235	(5.97)	0.719	(18.26)	0.235	(5.97)
CQR33A-ME182-3-	0.0018	G, J, K	M, P, R	0.812	(20.62)	0.235	(5.97)	0.719	(18.26)	0.235	(5.97)
CQR33A-ME222-3-	0.0022	G, J, K	M, P, R	0.812	(20.62)	0.235	(5.97)	0.719	(18.26)	0.235	(5.97)
CQR33A-ME272-3-	0.0027	G, J, K	M, P, R	0.812	(20.62)	0.235	(5.97)	0.719	(18.26)	0.235	(5.97)
CQR33A-ME332-3-	0.0033	G, J, K	M, P, R	0.812	(20.62)	0.235	(5.97)	0.719	(18.26)	0.235	(5.97)
CQR33A-ME392-3-	0.0039	G, J, K	M, P, R	0.812	(20.62)	0.235	(5.97)	0.719	(18.26)	0.235	(5.97)
CQR33A-ME472-3-	0.0047	G, J, K	M, P, R	0.812	(20.62)	0.235	(5.97)	0.719	(18.26)	0.235	(5.97)
CQR33A-ME562-3-	0.0056	G, J, K	M, P, R	0.938	(23.83)	0.312	(7.92)	0.844	(21.44)	0.312	(7.92)
CQR33A-ME682-3-	0.0068	G, J, K	M, P, R	0.938	(23.83)	0.312	(7.92)	0.844	(21.44)	0.312	(7.92)
CQR33A-ME822-3-	0.0082	G, J, K	M, P, R	0.938	(23.83)	0.312	(7.92)	0.844	(21.44)	0.312	(7.92)
CQR33A-ME103-3-	0.010	G, J, K	M, P, R	0.938	(23.83)	0.312	(7.92)	0.844	(21.44)	0.312	(7.92)
CQR33A-ME123-3-	0.012	G, J, K	M, P, R	0.938	(23.83)	0.312	(7.92)	0.844	(21.44)	0.312	(7.92)
CQR33A-ME153-3-	0.015	G, J, K	M, P, R	0.938	(23.83)	0.312	(7.92)	0.844	(21.44)	0.312	(7.92)
CQR33A-ME183-3-	0.018	G, J, K	M, P, R	1.062	(26.97)	0.312	(7.92)	0.969	(24.61)	0.312	(7.92)
CQR33A-ME223-3-	0.022	G, J, K	M, P, R	1.062	(26.97)	0.312	(7.92)	0.969	(24.61)	0.312	(7.92)
CQR33A-ME273-3-	0.027	G, J, K	M, P, R	0.938	(23.83)	0.400	(10.16)	0.844	(21.44)	0.400	(10.16)
CQR33A-ME333-3-	0.033	G, J, K	M, P, R	0.938	(23.83)	0.400	(10.16)	0.844	(21.44)	0.400	(10.16)
CQR33A-ME393-3-	0.039	G, J, K	M, P, R	1.062	(26.97)	0.400	(10.16)	0.969	(24.61)	0.400	(10.16)
CQR33A-ME473-3-	0.047	G, J, K	M, P, R	1.062	(26.97)	0.400	(10.16)	0.969	(24.61)	0.400	(10.16)
CQR33A-ME563-3-	0.056	G, J, K	M, P, R	1.250	(31.75)	0.400	(10.16)	1.156	(29.36)	0.400	(10.16)
CQR33A-ME683-3-	0.068	G, J, K	M, P, R	1.250	(31.75)	0.400	(10.16)	1.156	(29.36)	0.400	(10.16)
CQR33A-ME823-3-	0.082	G, J, K	M, P, R	1.562	(39.67)	0.400	(10.16)	1.469	(37.31)	0.400	(10.16)
CQR33A-ME104-3-	0.10	G, J, K	M, P, R	1.562	(39.67)	0.400	(10.16)	1.469	(37.31)	0.400	(10.16)
CQR33A-ME124-3-	0.12	G, J, K	M, P, R	1.281	(32.54)	0.562	(14.27)	1.188	(30.18)	0.562	(14.27)
CQR33A-ME154-3-	0.15	G, J, K	M, P, R	1.281	(32.54)	0.562	(14.27)	1.188	(30.18)	0.562	(14.27)
CQR33A-ME184-3-	0.18	G, J, K	M, P, R	1.531	(38.89)	0.562	(14.27)	1.438	(36.53)	0.562	(14.27)
CQR33A-ME224-3-	0.22	G, J, K	M, P, R	1.531	(38.89)	0.562	(14.27)	1.438	(36.53)	0.562	(14.27)
CQR33A-ME274-3-	0.27	G, J, K	M, P, R	1.906	(48.41)	0.562	(14.27)	1.812	(46.02)	0.562	(14.27)
CQR33A-ME334-3-	0.33	G, J, K	M, P, R	1.906	(48.41)	0.562	(14.27)	1.812	(46.02)	0.562	(14.27)

* Part or Identifying Number (PIN) shall include additional symbols to indicate circuit symbol, capacitance tolerance, and failure rate level, as applicable

Type 127P

MIL-PRF-19978/15

CQR33

ELECTRICAL CHARACTERISTICS

Part or Identifying Number (PIN)*	Nominal capacitance (µF)	Capacitance Tolerance (in code)	Failure rate Level (in code)	Dimensions							
				Circuit 1				Circuit 3			
				A ±0.031 (±0.79mm)		B +0.015/–0.005 (+0.38/–0.13mm)		A ±0.031 (±0.79mm)		B +0.015/–0.005 (+0.38/–0.13mm)	
				Inches	(mm)	Inches	(mm)	Inches	(mm)	Inches	(mm)
Rated voltage 400 V_{DC}											
CQR33A-ME394-3-	0.39	G, J, K	M, P, R	1.906	(48.41)	0.670	(17.02)	1.812	(46.02)	0.670	(17.02)
CQR33A-ME474-3-	0.47	G, J, K	M, P, R	1.906	(48.41)	0.670	(17.02)	1.812	(46.02)	0.670	(17.02)
CQR33A-ME564-3-	0.56	G, J, K	M, P, R	2.156	(54.76)	0.750	(19.05)	2.062	(52.37)	0.750	(19.05)
CQR33A-ME684-3-	0.68	G, J, K	M, P, R	2.156	(54.76)	0.750	(19.05)	2.062	(52.37)	0.750	(19.05)
CQR33A-ME824-3-	0.82	G, J, K	M, P, R	2.656	(67.46)	0.750	(19.05)	2.562	(65.07)	0.750	(19.05)
CQR33A-ME105-3-	1.0	G, J, K	M, P, R	2.656	(67.46)	0.750	(19.05)	2.562	(65.07)	0.750	(19.05)
Rated voltage 600 V_{DC}											
CQR33A-MF102-3-	0.0010	G, J, K	M, P, R	0.812	(20.62)	0.235	(5.97)	0.719	(18.26)	0.235	(5.97)
CQR33A-MF122-3-	0.0012	G, J, K	M, P, R	0.812	(20.62)	0.235	(5.97)	0.719	(18.26)	0.235	(5.97)
CQR33A-MF152-3-	0.0015	G, J, K	M, P, R	0.812	(20.62)	0.235	(5.97)	0.719	(18.26)	0.235	(5.97)
CQR33A-MF182-3-	0.0018	G, J, K	M, P, R	0.812	(20.62)	0.235	(5.97)	0.719	(18.26)	0.235	(5.97)
CQR33A-MF222-3-	0.0022	G, J, K	M, P, R	0.812	(20.62)	0.235	(5.97)	0.719	(18.26)	0.235	(5.97)
CQR33A-MF272-3-	0.0027	G, J, K	M, P, R	0.812	(20.62)	0.235	(5.97)	0.719	(18.26)	0.235	(5.97)
CQR33A-MF332-3-	0.0033	G, J, K	M, P, R	0.938	(23.83)	0.312	(7.92)	0.844	(21.44)	0.312	(7.92)
CQR33A-MF392-3-	0.0039	G, J, K	M, P, R	0.938	(23.83)	0.312	(7.92)	0.844	(21.44)	0.312	(7.92)
CQR33A-MF472-3-	0.0047	G, J, K	M, P, R	0.938	(23.83)	0.312	(7.92)	0.844	(21.44)	0.312	(7.92)
CQR33A-MF562-3-	0.0056	G, J, K	M, P, R	0.938	(23.83)	0.312	(7.92)	0.844	(21.44)	0.312	(7.92)
CQR33A-MF682-3-	0.0068	G, J, K	M, P, R	0.938	(23.83)	0.312	(7.92)	0.844	(21.44)	0.312	(7.92)
CQR33A-MF822-3-	0.0082	G, J, K	M, P, R	1.062	(26.97)	0.312	(7.92)	0.969	(24.61)	0.312	(7.92)
CQR33A-MF103-3-	0.010	G, J, K	M, P, R	1.062	(26.97)	0.312	(7.92)	0.969	(24.61)	0.312	(7.92)
CQR33A-MF123-3-	0.012	G, J, K	M, P, R	0.938	(23.83)	0.400	(10.16)	0.844	(21.44)	0.400	(10.16)
CQR33A-MF153-3-	0.015	G, J, K	M, P, R	0.938	(23.83)	0.400	(10.16)	0.844	(21.44)	0.400	(10.16)
CQR33A-MF183-3-	0.018	G, J, K	M, P, R	1.062	(26.97)	0.400	(10.16)	0.969	(24.61)	0.400	(10.16)
CQR33A-MF223-3-	0.022	G, J, K	M, P, R	1.062	(26.97)	0.400	(10.16)	0.969	(24.61)	0.400	(10.16)
CQR33A-MF273-3-	0.027	G, J, K	M, P, R	1.312	(33.32)	0.400	(10.16)	1.219	(30.96)	0.400	(10.16)
CQR33A-MF333-3-	0.033	G, J, K	M, P, R	1.312	(33.32)	0.400	(10.16)	1.219	(30.96)	0.400	(10.16)
CQR33A-MF393-3-	0.039	G, J, K	M, P, R	1.562	(39.67)	0.400	(10.16)	1.469	(37.31)	0.400	(10.16)
CQR33A-MF473-3-	0.047	G, J, K	M, P, R	1.562	(39.67)	0.400	(10.16)	1.469	(37.31)	0.400	(10.16)
CQR33A-MF563-3-	0.056	G, J, K	M, P, R	1.250	(31.75)	0.562	(14.27)	1.156	(29.36)	0.562	(14.27)
CQR33A-MF683-3-	0.068	G, J, K	M, P, R	1.250	(31.75)	0.562	(14.27)	1.156	(29.36)	0.562	(14.27)
CQR33A-MF823-3-	0.082	G, J, K	M, P, R	1.500	(38.10)	0.562	(14.27)	1.406	(35.71)	0.562	(14.27)
CQR33A-MF104-3-	0.10	G, J, K	M, P, R	1.500	(38.10)	0.562	(14.27)	1.406	(35.71)	0.562	(14.27)
CQR33A-MF124-3-	0.12	G, J, K	M, P, R	1.875	(47.63)	0.562	(14.27)	1.781	(45.24)	0.562	(14.27)
CQR33A-MF154-3-	0.15	G, J, K	M, P, R	1.875	(47.63)	0.562	(14.27)	1.781	(45.24)	0.562	(14.27)
CQR33A-MF184-3-	0.18	G, J, K	M, P, R	1.875	(47.63)	0.670	(17.02)	1.781	(45.24)	0.670	(17.02)
CQR33A-MF224-3-	0.22	G, J, K	M, P, R	1.875	(47.63)	0.670	(17.02)	1.781	(45.24)	0.670	(17.02)
CQR33A-MF274-3-	0.27	G, J, K	M, P, R	2.125	(53.98)	0.750	(19.05)	2.031	(51.59)	0.750	(19.05)
CQR33A-MF334-3-	0.33	G, J, K	M, P, R	2.125	(53.98)	0.750	(19.05)	2.031	(51.59)	0.750	(19.05)
CQR33A-MF394-3-	0.39	G, J, K	M, P, R	2.625	(66.68)	0.750	(19.05)	2.531	(64.29)	0.750	(19.05)
CQR33A-MF474-3-	0.47	G, J, K	M, P, R	2.625	(66.68)	0.750	(19.05)	2.531	(64.29)	0.750	(19.05)
CQR33A-MF564-3-	0.56	G, J, K	M, P, R	2.125	(53.98)	1.000	(25.40)	2.031	(51.59)	1.000	(25.40)
CQR33A-MF684-3-	0.68	G, J, K	M, P, R	2.125	(53.98)	1.000	(25.40)	2.031	(51.59)	1.000	(25.40)
Rated voltage 1,000 V_{DC}											
CQR33A-MG823-3-	0.082	G, J, K	M, P, R	2.125	(53.98)	0.750	(19.05)	2.031	(51.59)	0.750	(19.05)
CQR33A-MG104-3-	0.10	G, J, K	M, P, R	2.125	(53.98)	0.750	(19.05)	2.031	(51.59)	0.750	(19.05)
CQR33A-MG124-3-	0.12	G, J, K	M, P, R	1.875	(47.63)	1.000	(25.40)	1.781	(45.24)	1.000	(25.40)
CQR33A-MG154-3-	0.15	G, J, K	M, P, R	1.875	(47.63)	1.000	(25.40)	1.781	(45.24)	1.000	(25.40)
CQR33A-MG184-3-	0.18	G, J, K	M, P, R	2.375	(60.33)	1.000	(25.40)	2.281	(57.94)	1.000	(25.40)
CQR33A-MG224-3-	0.22	G, J, K	M, P, R	2.375	(60.33)	1.000	(25.40)	2.281	(57.94)	1.000	(25.40)

* Part or Identifying Number (PIN) shall include additional symbols to indicate circuit symbol, capacitance tolerance, and failure rate level, as applicable

CQR44

MIL-PRF-19978/22

Type 837P

Capacitor,
Fixed,
Plastic dielectric,
Axial-wire terminal,
Tubular (insulated),
Hermetically sealed in metal cases,
Established reliability.

GENERAL CHARACTERISTICS

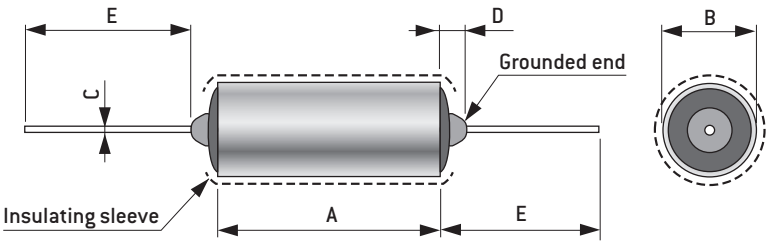
Rated temperature	–55°C to +125°C.
Capacitance range	1 nF to 1 μF
Voltage range	50 V to 600 V
Capacitance tolerance	J, K
Dissipation factor (DF)	0.15 % max.
Dielectric withstanding voltage (DWV)	Sleeving and Barometric pressure: In accordance with MIL-PRF-19978 Test points: **Circuit diagram 1**: Between terminals and case. **Circuit diagram 3**: Between ungrounded terminal and case.
Insulation resistance (IR)	Sleeving: In accordance with MIL-PRF-19978 Terminal to terminal: **At +25°C** : 0 to 0.5 μF = 150,000 MΩ / >0.5 μF = 75,000 MΩ/μF **At +125°C**: 0 to 0.1 μF = 5,000 MΩ / >0.1 μF = 500 MΩ/μF

Full details and most up to date information found at government website.

DIMENSIONS

A	B
See tables on the next pages	

C		D		E	
Inches	(mm)	Inches	(mm)	Inches	(mm)
See note 3		0.172 max	(4.37 max)	1.625 $^{+1}_{-0}$	(41.28 $^{+25.4}_{-0}$)

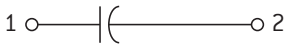


NOTES

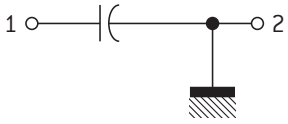
1. Dimensions are in Inches.
2. Metric equivalents are given for general information only.
3. Leads shall be of solder coated solid wire, 0.020" (0,51mm) (No. 24AWG) for cases 0.175" (4,45mm) and 0.312" (7,92mm) in diameter; and 0.032" (0,81mm) (No. 20AWG) for cases 0.400" (10,16mm) diameter and above. Tolerance on all lead wire diameters shall be +0.004" (0,10mm), –0.001" (0,03mm).
4. Capacitors with dimension A of 1.562" (39.67mm) or B of 0.562" (14,27mm) and larger, are not intended to be supported by their leads. These capacitors shall be supported with a supplementary means of mounting, such as a wrap-around band. The supporting device will not be supplied with the capacitor.
5. Lead length may be a minimum of 1" (24,4mm) long for use in tape and reel packaging when specified in the ordering data.

CIRCUIT DIAGRAM

Circuit 1



Circuit 3



HOW TO ORDER

CQR44	A	1	V	C	152	K	1	M
ER Style	Terminal	Circuit	Characteristic	Voltage in code	Capacitance in code	Capacitance tolerance in code	Vibration grade	Failure rate level
CQR = ER style	**A**, **B**, **C**, **D**, **H**, **E** (see page 6)	**1** = Circuit 1 **3** = Circuit 3	**V** (see page 6)	**B** = 100 V **C** = 200 V **E** = 400 V **F** = 600 V **G** = 1,000 V	Examples: **101** = 100pF **472** = 4.7nF **473** = 47nF	**J** = ±5% **K** = ±10%	**1** = 10 to 55 Hz inclusive **3** = 10 to 2,000 Hz inclusive (acceleration 15 G)	**M** = 1%/1,000 hours **P** = 0.1%/1,000 hours **R** = 0.01%/1,000 hours

Type 837P

MIL-PRF-19978/22

CQR44

ELECTRICAL CHARACTERISTICS

Part or Identifying Number (PIN)*	Nominal capacitance (µF)	Capacitance Tolerance (in code)	Failure rate Level (in code)	Dimensions**							
				Circuit 1				Circuit 3			
				A ±0.031 (±0.79mm)		B +0.015/–0.005 (+0.38/–0.13mm)		A ±0.031 (±0.79mm)		B +0.015/–0.005 (+0.38/–0.13mm)	
				Inches	(mm)	Inches	(mm)	Inches	(mm)	Inches	(mm)
Rated voltage 50 V_{DC}											
CQR44A-VA392-3-	0.0039	J, K	M, P, R	0.750	(19,05)	0.175	(4,45)	0.688	(4,45)	0.175	(4,45)
CQR44A-VA472-3-	0.0047	J, K	M, P, R	0.750	(19,05)	0.175	(4,45)	0.688	(4,45)	0.175	(4,45)
CQR44A-VA562-3-	0.0056	J, K	M, P, R	0.750	(19,05)	0.195	(4,95)	0.688	(4,95)	0.195	(4,95)
CQR44A-VA682-3-	0.0068	J, K	M, P, R	0.750	(19,05)	0.195	(4,95)	0.688	(4,95)	0.195	(4,95)
CQR44A-VA393-3-	0.039	J, K	M, P, R	0.875	(22,23)	0.312	(7,92)	0.812	(7,92)	0.312	(7,92)
CQR44A-VA473-3-	0.047	J, K	M, P, R	0.875	(22,23)	0.312	(7,92)	0.812	(7,92)	0.312	(7,92)
CQR44A-VA563-3-	0.056	J, K	M, P, R	0.875	(22,23)	0.400	(10,16)	0.812	(10,16)	0.400	(10,16)
CQR44A-VA683-3-	0.068	J, K	M, P, R	0.875	(22,23)	0.400	(10,16)	0.812	(10,16)	0.400	(10,16)
CQR44A-VA823-3-	0.082	J, K	M, P, R	0.875	(22,23)	0.400	(10,16)	0.812	(10,16)	0.400	(10,16)
CQR44A-VA104-3-	0.1	J, K	M, P, R	0.875	(22,23)	0.400	(10,16)	0.812	(10,16)	0.400	(10,16)
CQR44A-VA124-3-	0.12	J, K	M, P, R	1.375	(34,93)	0.400	(10,16)	1.312	(10,16)	0.400	(10,16)
CQR44A-VA154-3-	0.15	J, K	M, P, R	1.375	(34,93)	0.400	(10,16)	1.312	(10,16)	0.400	(10,16)
CQR44A-VA184-3-	0.18	J, K	M, P, R	1.125	(28,58)	0.562	(14,27)	1.062	(14,27)	0.562	(14,27)
CQR44A-VA224-3-	0.22	J, K	M, P, R	1.125	(28,58)	0.562	(14,27)	1.062	(14,27)	0.562	(14,27)
CQR44A-VA274-3-	0.27	J, K	M, P, R	1.375	(34,93)	0.562	(14,27)	1.312	(14,27)	0.562	(14,27)
CQR44A-VA334-3-	0.33	J, K	M, P, R	1.375	(34,93)	0.562	(14,27)	1.312	(14,27)	0.562	(14,27)
CQR44A-VA394-3-	0.39	J, K	M, P, R	1.875	(47,63)	0.562	(14,27)	1.812	(14,27)	0.562	(14,27)
CQR44A-VA474-3-	0.47	J, K	M, P, R	1.875	(47,63)	0.562	(14,27)	1.812	(14,27)	0.562	(14,27)
CQR44A-VA564-3-	0.56	J, K	M, P, R	1.875	(47,63)	0.670	(17,02)	1.812	(17,02)	0.670	(17,02)
CQR44A-VA684-3-	0.68	J, K	M, P, R	1.875	(47,63)	0.670	(17,02)	1.812	(17,02)	0.670	(17,02)
CQR44A-VA824-3-	0.82	J, K	M, P, R	1.875	(47,63)	0.750	(19,05)	1.812	(19,05)	0.750	(19,05)
CQR44A-VA105-3-	10.0	J, K	M, P, R	1.875	(47,63)	0.750	(19,05)	1.812	(19,05)	0.750	(19,05)
Rated voltage 100 V_{DC}											
CQR44A-VC102-3-	0.001	J, K	M, P, R	0.750	(19,05)	0.175	(4,45)	0.688	(4,45)	0.175	(4,45)
CQR44A-VC122-3-	0.0012	J, K	M, P, R	0.750	(19,05)	0.175	(4,45)	0.688	(4,45)	0.175	(4,45)
CQR44A-VC152-3-	0.0015	J, K	M, P, R	0.750	(19,05)	0.175	(4,45)	0.688	(4,45)	0.175	(4,45)
CQR44A-VC182-3-	0.0018	J, K	M, P, R	0.750	(19,05)	0.195	(4,95)	0.688	(4,95)	0.195	(4,95)
CQR44A-VC222-3-	0.0022	J, K	M, P, R	0.750	(19,05)	0.195	(4,95)	0.688	(4,95)	0.195	(4,95)
CQR44A-VC272-3-	0.0027	J, K	M, P, R	0.750	(19,05)	0.235	(5,97)	0.688	(5,97)	0.235	(5,97)
CQR44A-VC332-3-	0.0033	J, K	M, P, R	0.750	(19,05)	0.235	(5,97)	0.688	(5,97)	0.235	(5,97)
CQR44A-VC822-3-	0.0082	J, K	M, P, R	0.750	(19,05)	0.235	(5,97)	0.688	(5,97)	0.235	(5,97)
CQR44A-VC103-3-	0.01	J, K	M, P, R	0.750	(19,05)	0.235	(5,97)	0.688	(5,97)	0.235	(5,97)
CQR44A-VC123-3-	0.012	J, K	M, P, R	0.875	(22,23)	0.312	(7,92)	0.812	(7,92)	0.312	(7,92)
CQR44A-VC153-3-	0.015	J, K	M, P, R	0.875	(22,23)	0.312	(7,92)	0.812	(7,92)	0.312	(7,92)
CQR44A-VC183-3-	0.018	J, K	M, P, R	0.875	(22,23)	0.312	(7,92)	0.812	(7,92)	0.312	(7,92)
CQR44A-VC223-3-	0.022	J, K	M, P, R	0.875	(22,23)	0.312	(7,92)	0.812	(7,92)	0.312	(7,92)
CQR44A-VC273-3-	0.027	J, K	M, P, R	0.875	(22,23)	0.400	(10,16)	0.812	(10,16)	0.400	(10,16)
CQR44A-VC333-3-	0.033	J, K	M, P, R	0.875	(22,23)	0.400	(10,16)	0.812	(10,16)	0.400	(10,16)
CQR44A-VC393-3-	0.039	J, K	M, P, R	1.125	(28,58)	0.400	(10,16)	1.062	(10,16)	0.400	(10,16)
CQR44A-VC473-3-	0.047	J, K	M, P, R	1.125	(28,58)	0.400	(10,16)	1.062	(10,16)	0.400	(10,16)
CQR44A-VC563-3-	0.056	J, K	M, P, R	1.125	(28,58)	0.400	(10,16)	1.062	(10,16)	0.400	(10,16)
CQR44A-VC683-3-	0.068	J, K	M, P, R	1.125	(28,58)	0.400	(10,16)	1.062	(10,16)	0.400	(10,16)
CQR44A-VC823-3-	0.082	J, K	M, P, R	1.375	(34,93)	0.562	(14,27)	1.312	(14,27)	0.562	(14,27)
CQR44A-VC104-3-	0.1	J, K	M, P, R	1.375	(34,93)	0.562	(14,27)	1.312	(14,27)	0.562	(14,27)
CQR44A-VC124-3-	0.12	J, K	M, P, R	1.625	(41,28)	0.562	(14,27)	1.562	(14,27)	0.562	(14,27)
CQR44A-VC154-3-	0.15	J, K	M, P, R	1.625	(41,28)	0.562	(14,27)	1.562	(14,27)	0.562	(14,27)
CQR44A-VC184-3-	0.18	J, K	M, P, R	1.625	(41,28)	0.670	(17,02)	1.562	(17,02)	0.670	(17,02)
CQR44A-VC224-3-	0.22	J, K	M, P, R	1.625	(41,28)	0.670	(17,02)	1.562	(17,02)	0.670	(17,02)
CQR44A-VC274-3-	0.27	J, K	M, P, R	1.875	(47,63)	0.750	(19,05)	1.812	(19,05)	0.750	(19,05)
CQR44A-VC334-3-	0.33	J, K	M, P, R	1.875	(47,63)	0.750	(19,05)	1.812	(19,05)	0.750	(19,05)
CQR44A-VC394-3-	0.39	J, K	M, P, R	2.375	(60,33)	0.750	(19,05)	2.312	(19,05)	0.750	(19,05)
CQR44A-VC474-3-	0.47	J, K	M, P, R	2.375	(60,33)	0.750	(19,05)	2.312	(19,05)	0.750	(19,05)
CQR44A-VC564-3-	0.56	J, K	M, P, R	1.875	(47,63)	1.000	(25,40)	1.812	(25,40)	1.000	(25,40)
CQR44A-VC684-3-	0.68	J, K	M, P, R	1.875	(47,63)	1.000	(25,40)	1.812	(25,40)	1.000	(25,40)

* Complete part number shall include additional symbols to indicate circuit, capacitance tolerance and failure rate level as applicable.

** Dimensions are for basic case; sleeving shall extend 0.016" (0.41mm) minimum and 0.062" (1,57mm) maximum, beyond each end of the capacitor body; however, if a shrink-fitted insulation is used for the sleeving, it shall lap over the ends of the capacitor body. Add 0.047" (1,19mm) maximum to the nominal for capacitance diameter.

CQR44

MIL-PRF-19978/22

Type 837P

ELECTRICAL CHARACTERISTICS

Part or Identifying Number (PIN)*	Nominal capacitance (µF)	Capacitance Tolerance (in code)	Failure rate Level (in code)	Dimensions**							
				Circuit 1				Circuit 3			
				A ±0.031 (±0.79mm)		B +0.015/–0.005 (+0.38/–0.13mm)		A ±0.031 (±0.79mm)		B +0.015/–0.005 (+0.38/–0.13mm)	
				Inches	(mm)	Inches	(mm)	Inches	(mm)	Inches	(mm)
Rated voltage 200 V_{DC}											
CQR44A-VC102-3-	0.001	J, K	M, P, R	0.750	(19,05)	0.175	(4,45)	0.688	(4,45)	0.175	(4,45)
CQR44A-VC122-3-	0.0012	J, K	M, P, R	0.750	(19,05)	0.195	(4,95)	0.688	(4,95)	0.195	(4,95)
CQR44A-VC152-3-	0.0015	J, K	M, P, R	0.750	(19,05)	0.195	(4,95)	0.688	(4,95)	0.195	(4,95)
CQR44A-VC182-3-	0.0018	J, K	M, P, R	0.750	(19,05)	0.195	(4,95)	0.688	(4,95)	0.195	(4,95)
CQR44A-VC222-3-	0.0022	J, K	M, P, R	0.750	(19,05)	0.195	(4,95)	0.688	(4,95)	0.195	(4,95)
CQR44A-VC272-3-	0.0027	J, K	M, P, R	0.750	(19,05)	0.235	(5,97)	0.688	(5,97)	0.235	(5,97)
CQR44A-VC332-3-	0.0033	J, K	M, P, R	0.750	(19,05)	0.235	(5,97)	0.688	(5,97)	0.235	(5,97)
CQR44A-VC822-3-	0.0082	J, K	M, P, R	0.875	(22,23)	0.312	(7,92)	0.812	(7,92)	0.312	(7,92)
CQR44A-VC103-3-	0.01	J, K	M, P, R	0.875	(22,23)	0.312	(7,92)	0.812	(7,92)	0.312	(7,92)
CQR44A-VC123-3-	0.012	J, K	M, P, R	0.875	(22,23)	0.312	(7,92)	0.812	(7,92)	0.312	(7,92)
CQR44A-VC153-3-	0.015	J, K	M, P, R	0.875	(22,23)	0.312	(7,92)	0.812	(7,92)	0.312	(7,92)
CQR44A-VC183-3-	0.018	J, K	M, P, R	0.875	(22,23)	0.400	(10,16)	0.812	(10,16)	0.400	(10,16)
CQR44A-VC223-3-	0.022	J, K	M, P, R	0.875	(22,23)	0.400	(10,16)	0.812	(10,16)	0.400	(10,16)
CQR44A-VC273-3-	0.027	J, K	M, P, R	1.125	(28,58)	0.400	(10,16)	1.062	(10,16)	0.400	(10,16)
CQR44A-VC333-3-	0.033	J, K	M, P, R	1.125	(28,58)	0.400	(10,16)	1.062	(10,16)	0.400	(10,16)
CQR44A-VC393-3-	0.039	J, K	M, P, R	1.125	(28,58)	0.400	(10,16)	1.062	(10,16)	0.400	(10,16)
CQR44A-VC473-3-	0.047	J, K	M, P, R	1.125	(28,58)	0.400	(10,16)	1.062	(10,16)	0.400	(10,16)
CQR44A-VC563-3-	0.056	J, K	M, P, R	1.125	(28,58)	0.500	(12,70)	1.062	(12,70)	0.500	(12,70)
CQR44A-VC683-3-	0.068	J, K	M, P, R	1.125	(28,58)	0.500	(12,70)	1.062	(12,70)	0.500	(12,70)
CQR44A-VC823-3-	0.082	J, K	M, P, R	1.125	(28,58)	0.562	(14,27)	1.062	(14,27)	0.562	(14,27)
CQR44A-VC104-3-	0.1	J, K	M, P, R	1.125	(28,58)	0.562	(14,27)	1.062	(14,27)	0.562	(14,27)
CQR44A-VC124-3-	0.12	J, K	M, P, R	1.875	(47,63)	0.562	(14,27)	1.812	(14,27)	0.562	(14,27)
CQR44A-VC154-3-	0.15	J, K	M, P, R	1.875	(47,63)	0.562	(14,27)	1.812	(14,27)	0.562	(14,27)
CQR44A-VC184-3-	0.18	J, K	M, P, R	1.875	(47,63)	0.670	(17,02)	1.812	(17,02)	0.670	(17,02)
CQR44A-VC224-3-	0.22	J, K	M, P, R	1.875	(47,63)	0.670	(17,02)	1.812	(17,02)	0.670	(17,02)
CQR44A-VC274-3-	0.27	J, K	M, P, R	2.125	(53,98)	0.750	(19,05)	2.062	(19,05)	0.750	(19,05)
CQR44A-VC334-3-	0.33	J, K	M, P, R	2.125	(53,98)	0.750	(19,05)	2.062	(19,05)	0.750	(19,05)
CQR44A-VC394-3-	0.39	J, K	M, P, R	1.875	(47,63)	1.000	(25,40)	1.812	(25,40)	1.000	(25,40)
CQR44A-VC474-3-	0.47	J, K	M, P, R	1.875	(47,63)	1.000	(25,40)	1.812	(25,40)	1.000	(25,40)
CQR44A-VC564-3-	0.56	J, K	M, P, R	2.125	(53,98)	1.000	(25,40)	2.062	(25,40)	1.000	(25,40)
CQR44A-VC684-3-	0.68	J, K	M, P, R	2.125	(53,98)	1.000	(25,40)	2.062	(25,40)	1.000	(25,40)
Rated voltage 400 V_{DC}											
CQR44A-VE122-3-	0.0012	J, K	M, P, R	0.750	(19,05)	0.235	(5,97)	0.688	(5,97)	0.235	(5,97)
CQR44A-VE152-3-	0.0015	J, K	M, P, R	0.750	(19,05)	0.235	(5,97)	0.688	(5,97)	0.235	(5,97)
CQR44A-VE392-3-	0.0039	J, K	M, P, R	0.875	(22,23)	0.312	(7,92)	0.812	(7,92)	0.312	(7,92)
CQR44A-VE472-3-	0.0047	J, K	M, P, R	0.875	(22,23)	0.312	(7,92)	0.812	(7,92)	0.312	(7,92)
CQR44A-VE562-3-	0.0056	J, K	M, P, R	0.875	(22,23)	0.312	(7,92)	0.812	(7,92)	0.312	(7,92)
CQR44A-VE682-3-	0.0068	J, K	M, P, R	0.875	(22,23)	0.312	(7,92)	0.812	(7,92)	0.312	(7,92)
CQR44A-VE822-3-	0.0082	J, K	M, P, R	0.875	(22,23)	0.400	(10,16)	0.812	(10,16)	0.400	(10,16)
CQR44A-VE103-3-	0.01	J, K	M, P, R	0.875	(22,23)	0.400	(10,16)	0.812	(10,16)	0.400	(10,16)
CQR44A-VE123-3-	0.012	J, K	M, P, R	1.125	(28,58)	0.400	(10,16)	1.062	(10,16)	0.400	(10,16)
CQR44A-VE153-3-	0.015	J, K	M, P, R	1.125	(28,58)	0.400	(10,16)	1.062	(10,16)	0.400	(10,16)
CQR44A-VE183-3-	0.018	J, K	M, P, R	1.375	(34,93)	0.400	(10,16)	1.312	(10,16)	0.400	(10,16)
CQR44A-VE223-3-	0.022	J, K	M, P, R	1.375	(34,93)	0.400	(10,16)	1.312	(10,16)	0.400	(10,16)
CQR44A-VE273-3-	0.027	J, K	M, P, R	1.125	(28,58)	0.500	(12,70)	1.062	(12,70)	0.500	(12,70)
CQR44A-VE333-3-	0.033	J, K	M, P, R	1.125	(28,58)	0.500	(12,70)	1.062	(12,70)	0.500	(12,70)
CQR44A-VE393-3-	0.039	J, K	M, P, R	1.125	(28,58)	0.562	(14,27)	1.062	(14,27)	0.562	(14,27)
CQR44A-VE473-3-	0.047	J, K	M, P, R	1.125	(28,58)	0.562	(14,27)	1.062	(14,27)	0.562	(14,27)
CQR44A-VE563-3-	0.056	J, K	M, P, R	1.375	(34,93)	0.562	(14,27)	1.312	(14,27)	0.562	(14,27)
CQR44A-VE683-3-	0.068	J, K	M, P, R	1.375	(34,93)	0.562	(14,27)	1.312	(14,27)	0.562	(14,27)
CQR44A-VE823-3-	0.082	J, K	M, P, R	1.625	(41,28)	0.670	(17,02)	1.562	(17,02)	0.670	(17,02)
CQR44A-VE104-3-	0.1	J, K	M, P, R	1.625	(41,28)	0.670	(17,02)	1.562	(17,02)	0.670	(17,02)
CQR44A-VE124-3-	0.12	J, K	M, P, R	2.125	(53,98)	0.750	(19,05)	2.062	(19,05)	0.750	(19,05)
CQR44A-VE154-3-	0.15	J, K	M, P, R	2.125	(53,98)	0.750	(19,05)	2.062	(19,05)	0.750	(19,05)
CQR44A-VE184-3-	0.18	J, K	M, P, R	2.625	(66,68)	0.750	(19,05)	2.562	(19,05)	0.750	(19,05)
CQR44A-VE224-3-	0.22	J, K	M, P, R	2.625	(66,68)	0.750	(19,05)	2.562	(19,05)	0.750	(19,05)
CQR44A-VE274-3-	0.27	J, K	M, P, R	2.125	(53,98)	1.000	(25,40)	2.062	(25,40)	1.000	(25,40)
CQR44A-VE334-3-	0.33	J, K	M, P, R	2.125	(53,98)	1.000	(25,40)	2.062	(25,40)	1.000	(25,40)
CQR44A-VE394-3-	0.39	J, K	M, P, R	2.625	(66,68)	1.000	(25,40)	2.562	(25,40)	1.000	(25,40)
CQR44A-VE474-3-	0.47	J, K	M, P, R	2.625	(66,68)	1.000	(25,40)	2.562	(25,40)	1.000	(25,40)

* Complete part number shall include additional symbols to indicate circuit, capacitance tolerance and failure rate level as applicable.

** Dimensions are for basic case; sleeving shall extend 0.016" (0.41mm) minimum and 0.062" (1,57mm) maximum, beyond each end of the capacitor body; however, if a shrink-fitted insulation is used for the sleeving, it shall lap over the ends of the capacitor body. Add 0.047" (1,19mm) maximum to the nominal for capacitance diameter.

Type 837P

MIL-PRF-19978/22

CQR44

ELECTRICAL CHARACTERISTICS

Part or Identifying Number (PIN)*	Nominal capacitance (µF)	Capacitance Tolerance (in code)	Failure rate Level (in code)	Dimensions**							
				Circuit 1				Circuit 3			
				A ±0.031 (±0.79mm)		B +0.015/–0.005 (+0.38/–0.13mm)		A ±0.031 (±0.79mm)		B +0.015/–0.005 (+0.38/–0.13mm)	
				Inches	(mm)	Inches	(mm)	Inches	(mm)	Inches	(mm)
Rated voltage 600 V_{DC}											
CQR44A-VF102-3-	0.001	J, K	M, P, R	0.750	(19,05)	0.235	(5,97)	0.688	(17,48)	0.235	(5,97)
CQR44A-VF122-3-	0.0012	J, K	M, P, R	0.875	(22,23)	0.312	(7,92)	0.812	(17,48)	0.312	(7,92)
CQR44A-VF152-3-	0.0015	J, K	M, P, R	0.875	(22,23)	0.312	(7,92)	0.812	(17,48)	0.312	(7,92)
CQR44A-VF182-3-	0.0018	J, K	M, P, R	0.875	(22,23)	0.312	(7,92)	0.812	(17,48)	0.312	(7,92)
CQR44A-VF222-3-	0.0022	J, K	M, P, R	0.875	(22,23)	0.312	(7,92)	0.812	(20,62)	0.312	(7,92)
CQR44A-VF272-3-	0.0027	J, K	M, P, R	0.875	(22,23)	0.312	(7,92)	0.812	(20,62)	0.312	(7,92)
CQR44A-VF332-3-	0.0033	J, K	M, P, R	0.875	(22,23)	0.312	(7,92)	0.812	(20,62)	0.312	(7,92)
CQR44A-VF392-3-	0.0039	J, K	M, P, R	0.875	(22,23)	0.400	(10,16)	0.812	(20,62)	0.400	(10,16)
CQR44A-VF472-3-	0.0047	J, K	M, P, R	0.875	(22,23)	0.400	(10,16)	0.812	(20,62)	0.400	(10,16)
CQR44A-VF562-3-	0.0056	J, K	M, P, R	1.125	(28,58)	0.400	(10,16)	1.062	(20,62)	0.400	(10,16)
CQR44A-VF682-3-	0.0068	J, K	M, P, R	1.125	(28,58)	0.400	(10,16)	1.062	(33,32)	0.400	(10,16)
CQR44A-VF822-3-	0.0082	J, K	M, P, R	1.125	(28,58)	0.400	(10,16)	1.062	(33,32)	0.400	(10,16)
CQR44A-VF103-3-	0.01	J, K	M, P, R	1.125	(28,58)	0.400	(10,16)	1.062	(26,97)	0.400	(10,16)
CQR44A-VF123-3-	0.012	J, K	M, P, R	1.125	(28,58)	0.500	(12,70)	1.062	(26,97)	0.500	(12,70)
CQR44A-VF153-3-	0.015	J, K	M, P, R	1.125	(28,58)	0.500	(12,70)	1.062	(33,32)	0.500	(12,70)
CQR44A-VF183-3-	0.018	J, K	M, P, R	1.125	(28,58)	0.562	(14,27)	1.062	(33,32)	0.562	(14,27)
CQR44A-VF223-3-	0.022	J, K	M, P, R	1.125	(28,58)	0.562	(14,27)	1.062	(46,02)	0.562	(14,27)
CQR44A-VF273-3-	0.027	J, K	M, P, R	1.375	(34,93)	0.562	(14,27)	1.312	(46,02)	0.562	(14,27)
CQR44A-VF333-3-	0.033	J, K	M, P, R	1.375	(34,93)	0.562	(14,27)	1.312	(46,02)	0.562	(14,27)
CQR44A-VF393-3-	0.039	J, K	M, P, R	1.625	(41,28)	0.562	(14,27)	1.562	(46,02)	0.562	(14,27)
CQR44A-VF473-3-	0.047	J, K	M, P, R	1.625	(41,28)	0.562	(14,27)	1.562	(46,02)	0.562	(14,27)
CQR44A-VF563-3-	0.056	J, K	M, P, R	1.625	(41,28)	0.670	(17,02)	1.562	(46,02)	0.670	(17,02)
CQR44A-VF683-3-	0.068	J, K	M, P, R	1.625	(41,28)	0.670	(17,02)	1.562	(17,48)	0.670	(17,02)
CQR44A-VF823-3-	0.082	J, K	M, P, R	1.875	(47,63)	0.750	(19,05)	1.812	(17,48)	0.750	(19,05)
CQR44A-VF104-3-	0.1	J, K	M, P, R	1.875	(47,63)	0.750	(19,05)	1.812	(17,48)	0.750	(19,05)
CQR44A-VF124-3-	0.12	J, K	M, P, R	1.875	(47,63)	1.000	(25,40)	1.812	(17,48)	1.000	(25,40)
CQR44A-VF154-3-	0.15	J, K	M, P, R	1.875	(47,63)	1.000	(25,40)	1.812	(17,48)	1.000	(25,40)
CQR44A-VF184-3-	0.18	J, K	M, P, R	2.625	(66,68)	1.000	(25,40)	2.562	(17,48)	1.000	(25,40)
CQR44A-VF224-3-	0.22	J, K	M, P, R	2.625	(66,68)	1.000	(25,40)	2.562	(17,48)	1.000	(25,40)

* Complete part number shall include additional symbols to indicate circuit, capacitance tolerance and failure rate level as applicable.

** Dimensions are for basic case; sleeving shall extend 0.016" (0.41mm) minimum and 0.062" (1,57mm) maximum, beyond each end of the capacitor body; however, if a shrink-fitted insulation is used for the sleeving, it shall lap over the ends of the capacitor body. Add 0.047" (1,19mm) maximum to the nominal for capacitance diameter.

CHR09

MIL-PRF-39022/1

Type 118P/218P

Capacitors,
Fixed,
Metallized,
Nonmagnetic (end seals may be of magnetic material),
Paper-plastic film, or plastic film dielectric,
Direct current,
Hermetically sealed in metal cases,
Established reliability.

GENERAL CHARACTERISTICS

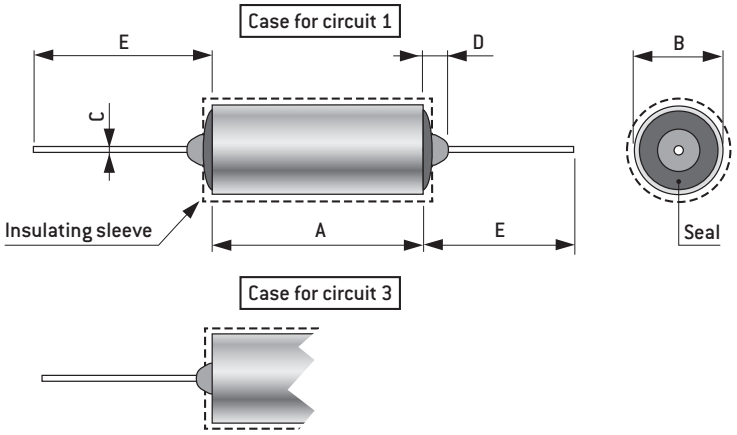
Dielectric material	50 V = normally polyethylene-terephthalate 200 to 600 V = normally paper polyethylene-terephthalate
Rated temperature	50 V = –55°C to +85°C 200 to 600 V = –55°C to +125°C.
Capacitance range	47 nF to 12 µF
Voltage range	50 V to 600 V
Capacitance tolerance	±5%, ±10%, ±20%
Failure rate level	**L** (5% / 1,000 hours), **M** (1% / 1,000 hours), **P** (0.1% / 1,000 hours), **R** (0.01% / 1,000 hours).
Dielectric withstanding voltage (DWV)	Method 301 of MIL-STD-202 Terminal to terminal: 200 % of rated voltage. Terminals to case (when case is not a terminal): 200 % of rated voltage. For 100 % inspection: 250 % of rated voltage for not less than 5 seconds, or 200 % of rated voltage for not less than 15 seconds
Insulation resistance (IR)	Method 302 of MIL-STD-202 Terminal to terminal: See table **INSULATION RESISTANCE** Terminal to case: Greater than 10,000 MΩ

Full details and most up to date information found at government website.

DIMENSIONS

A		B	
See tables on the next pages			

C		D		E	
Inches	(mm)	Inches	(mm)	Inches	(mm)
See note 1		0.172 max	(4.37 max)	1.625^{+1}_{-0}	$(41.28^{+25.4}_{-0})$



HOW TO ORDER

M39022	/01-	1025
Performance Specification number	Specification sheet number	Nonsignificant dash number

CHR09	A	1	M	C	152	K	1	M
HR Style	Terminal	Circuit	Characteristic	Voltage in code	Capacitance in code	Capacitance tolerance in code	Vibration grade	Failure rate level
CHR = HR style	**A, R, L** (see page 6)	**1** = Circuit 1 **3** = Circuit 3	**R, N** (see page 6)	**A** = 50V **C** = 200V **E** = 400V **F** = 600V	Examples: **101** = 100pF **472** = 4.7nF **473** = 47nF	**J** = ±5% **K** = ±10% **M** = ±20%	**1** = 10 to 55 Hz inclusive **3** = 10 to 2,000 Hz inclusive (acceleration 15 G)	**M** = 1% /1,000 hours **P** = 0.1% /1,000 hours **R** = 0.01% /1,000 hours

Type 118P / 218P

MIL-PRF-39022/1

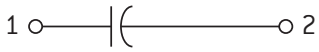
CHR09

NOTES

1. Number 24 AWG wire 0.020" ± 0.002 (0.51 ± 0.05 mm) for case diameters of 0.175" (4.45 mm) and 0.195" (4.95 mm). Number 22 AWG wire 0.025" ± 0.002 (0.64 ± 0.05 mm) for case diameters of 0.235" (5.97 mm) and 0.312" (7.92 mm). Number 20 AWG wire 0.032" ± 0.002 (0.81 ± 0.05 mm) for case diameters of 0.400" (10.16 mm) and over.
2. See table below for additional dimensions.
3. Dimensions are in inches.
4. Metric equivalents are given for general information only
5. Insulating sleeve shall extend beyond the capacitor body but shall not exceed 0.031" (0.79 mm) on either end. Insulating sleeve thickness shall not exceed 0.016" (0.41 mm).
6. Plastic insulating sleeve shall be transparent; marking shall be applied to the capacitor case.
7. Metric equivalents are in parentheses.
8. Lead length may be a minimum of 1inch (25.4 mm) long for use in tape and reel packaging when specified in the ordering data.

CIRCUIT DIAGRAM

Circuit 1



Circuit 3

CHARACTERISTICS

Dielectric material	Paper-polyethylene-terephthalate		Polyethylene-terephthalate
Operating temperature range	–55°C to +125°C		–55°C to +85°C
DC voltage rating (volts)	200 V	400 V, 600 V	50 V
High ambient test temperature Low ambient test temperature	+125°C +4°C, –0°C –55°C +0°C, –3°C	–55°C +0°C, –3°C +85°C +4°C, –0°C	+125°C +4°C, –0°C –55°C +0°C, –3°C
Megohms x microfarads (minimum) At +25°C At high ambient test temperature	2,000 10	2,000 40	25,000 3,000
Insulation resistance (megohms) (need not exceed) At +25°C At high ambient test temperature	12,000 150	12,000 600	50,000 6,000
Capacitance change with temperature (maximum) At –55°C At high ambient test temperature	–10 +20	–10 +20	–8 % +8 %

ELECTRICAL CHARACTERISTICS, DIMENSIONS, AND DASH NUMBERS

Type designation in MIL-C-39022/1B *	Nominal capacitance (µF)	Capacitance Tolerance (%)	Circuit diagram	Dimensions**				Dash number in			
								MIL-C-39022/1C thru MIL-PRF-39022/1G **			MIL-C-39022/1A and /1
				A ±0.031 (±0.79mm)		B +0.015/–0.005 (+0.38/–0.13)		Failure rate level (%/1,000 hr)			
				Inches	(mm)	Inches	(mm)	M(1.0)	P(0.1)	R(0.01)	
Rated voltage 50 V_{DC}											
CHR09A1RA183--	0.018	5	1	0.750	(19.05)	0.175	(4.45)	1261	1521	1781	0001
CHR09A1RA183--	0.018	10	1	0.750	(19.05)	0.175	(4.45)	1262	1522	1782	0002
CHR09A3RA183--	0.018	5	3	0.688	(17.48)	0.175	(4.45)	1263	1523	1783	0003
CHR09A3RA183--	0.018	10	3	0.688	(17.48)	0.175	(4.45)	1264	1524	1784	0004
CHR09A1RA223--	0.022	5	1	0.750	(19.05)	0.175	(4.45)	1265	1525	1785	0005
CHR09A1RA223--	0.022	10	1	0.750	(19.05)	0.175	(4.45)	1266	1526	1786	0006
CHR09A3RA223--	0.022	5	3	0.688	(17.48)	0.175	(4.45)	1267	1527	1787	0007
CHR09A3RA223--	0.022	10	3	0.688	(17.48)	0.175	(4.45)	1268	1528	1788	0008
CHR09A1RA273--	0.027	5	1	0.750	(19.05)	0.175	(4.45)	1269	1529	1789	0009
CHR09A1RA273--	0.027	10	1	0.750	(19.05)	0.175	(4.45)	1270	1530	1790	0010
CHR09A3RA273--	0.027	5	3	0.688	(17.48)	0.175	(4.45)	1271	1531	1791	0011
CHR09A3RA273--	0.027	10	3	0.688	(17.48)	0.175	(4.45)	1272	1532	1792	0012
CHR09A1RA333--	0.033	5	1	0.750	(19.05)	0.175	(4.45)	1273	1533	1793	0013
CHR09A1RA333--	0.033	10	1	0.750	(19.05)	0.175	(4.45)	1274	1534	1794	0014
CHR09A3RA333--	0.033	5	3	0.688	(17.48)	0.175	(4.45)	1275	1535	1795	0015
CHR09A3RA333--	0.033	10	3	0.688	(17.48)	0.175	(4.45)	1276	1536	1796	0016
CHR09A1RA393--	0.039	5	1	0.750	(19.05)	0.195	(4.95)	1277	1537	1797	0017
CHR09A1RA393--	0.039	10	1	0.750	(19.05)	0.195	(4.95)	1278	1538	1798	0018
CHR09A3RA393--	0.039	5	3	0.688	(17.48)	0.195	(4.95)	1279	1539	1799	0019
CHR09A3RA393--	0.039	10	3	0.688	(17.48)	0.195	(4.95)	1280	1540	1800	0020
CHR09A1RA473--	0.047	5	1	0.750	(19.05)	0.195	(4.95)	1281	1541	1801	0021
CHR09A1RA473--	0.047	10	1	0.750	(19.05)	0.195	(4.95)	1282	1542	1802	0022
CHR09A3RA473--	0.047	5	3	0.688	(17.48)	0.195	(4.95)	1283	1543	1803	0023
CHR09A3RA473--	0.047	10	3	0.688	(17.48)	0.195	(4.95)	1284	1544	1804	0024

* Complete type designation will include additional symbols for capacitance tolerance and failure rate level.
** FRL L for revision C only.

ELECTRICAL CHARACTERISTICS, DIMENSIONS, AND DASH NUMBERS

Type designation in MIL-C-39022/1B *	Nominal capacitance (µF)	Capacitance Tolerance (%)	Circuit diagram	Dimensions**				Dash number in			
				A ±0.031 (±0.79mm)		B +0.015/–0.005 (+0.38/–0.13)		MIL-C-39022/1C thru MIL-PRF-39022/1G ** Failure rate level (%/1,000 hr)			MIL-C-39022/1A and /1
				Inches	(mm)	Inches	(mm)	M(1.0)	P(0.1)	R(0.01)	
Rated voltage 50 V_{DC}											
CHR09A1RA563--	0.056	5	1	0.750	(19.05)	0.235	(5.97)	1285	1545	1805	0025
CHR09A1RA563--	0.056	10	1	0.750	(19.05)	0.235	(5.97)	1286	1546	1806	0026
CHR09A3RA563--	0.056	5	3	0.688	(17.48)	0.235	(5.97)	1287	1547	1807	0027
CHR09A3RA563--	0.056	10	3	0.688	(17.48)	0.235	(5.97)	1288	1548	1808	0028
CHR09A1RA683--	0.068	5	1	0.750	(19.05)	0.235	(5.97)	1289	1549	1809	0029
CHR09A1RA683--	0.068	10	1	0.750	(19.05)	0.235	(5.97)	1290	1550	1810	0030
CHR09A3RA683--	0.068	5	3	0.688	(17.48)	0.235	(5.97)	1291	1551	1811	0031
CHR09A3RA683--	0.068	10	3	0.688	(17.48)	0.235	(5.97)	1292	1552	1812	0032
CHR09A1RA823--	0.082	5	1	0.750	(19.05)	0.235	(5.97)	1293	1553	1813	0033
CHR09A1RA823--	0.082	10	1	0.750	(19.05)	0.235	(5.97)	1294	1554	1814	0034
CHR09A3RA823--	0.082	5	3	0.688	(17.48)	0.235	(5.97)	1295	1555	1815	0035
CHR09A3RA823--	0.082	10	3	0.688	(17.48)	0.235	(5.97)	1296	1556	1816	0036
CHR09A1RA104--	0.10	5	1	0.750	(19.05)	0.235	(5.97)	1297	1557	1817	0037
CHR09A1RA104--	0.10	10	1	0.750	(19.05)	0.235	(5.97)	1298	1558	1818	0038
CHR09A3RA104--	0.10	5	3	0.688	(17.48)	0.235	(5.97)	1299	1559	1819	0039
CHR09A3RA104--	0.10	10	3	0.688	(17.48)	0.235	(5.97)	1300	1560	1820	0040
CHR09A1RA124--	0.12	5	1	0.750	(19.05)	0.235	(5.97)	1301	1561	1821	
CHR09A1RA124--	0.12	10	1	0.750	(19.05)	0.235	(5.97)	1302	1562	1822	
CHR09A3RA124--	0.12	5	3	0.688	(17.48)	0.235	(5.97)	1303	1563	1823	
CHR09A3RA124--	0.12	10	3	0.688	(17.48)	0.235	(5.97)	1304	1564	1824	
CHR09A1RA154--	0.15	5	1	0.875	(22.23)	0.312	(7.92)	1305	1565	1825	
CHR09A1RA154--	0.15	10	1	0.875	(22.23)	0.312	(7.92)	1306	1566	1826	
CHR09A3RA154--	0.15	5	3	0.812	(20.62)	0.312	(7.92)	1307	1567	1827	
CHR09A3RA154--	0.15	10	3	0.812	(20.62)	0.312	(7.92)	1308	1568	1828	
CHR09A1RA184--	0.18	5	1	0.875	(22.23)	0.312	(7.92)	1309	1569	1829	0041
CHR09A1RA184--	0.18	10	1	0.875	(22.23)	0.312	(7.92)	1310	1570	1830	0042
CHR09A3RA184--	0.18	5	3	0.812	(20.62)	0.312	(7.92)	1311	1571	1831	0043
CHR09A3RA184--	0.18	10	3	0.812	(20.62)	0.312	(7.92)	1312	1572	1832	0044
CHR09A1RA224--	0.22	5	1	0.875	(22.23)	0.312	(7.92)	1313	1573	1833	0045
CHR09A1RA224--	0.22	10	1	0.875	(22.23)	0.312	(7.92)	1314	1574	1834	0046
CHR09A3RA224--	0.22	5	3	0.812	(20.62)	0.312	(7.92)	1315	1575	1835	0047
CHR09A3RA224--	0.22	10	3	0.812	(20.62)	0.312	(7.92)	1316	1576	1836	0048
CHR09A1RA274--	0.27	5	1	0.875	(22.23)	0.312	(7.92)	1317	1577	1837	0049
CHR09A1RA274--	0.27	10	1	0.875	(22.23)	0.312	(7.92)	1318	1578	1838	0050
CHR09A3RA274--	0.27	5	3	0.812	(20.62)	0.312	(7.92)	1319	1579	1839	0051
CHR09A3RA274--	0.27	10	3	0.812	(20.62)	0.312	(7.92)	1320	1580	1840	0052
CHR09A1RA334--	0.33	5	1	0.875	(22.23)	0.312	(7.92)	1321	1581	1841	0053
CHR09A1RA334--	0.33	10	1	0.875	(22.23)	0.312	(7.92)	1322	1582	1842	0054
CHR09A3RA334--	0.33	5	3	0.812	(20.62)	0.312	(7.92)	1323	1583	1843	0055
CHR09A3RA334--	0.33	10	3	0.812	(20.62)	0.312	(7.92)	1324	1584	1844	0056
CHR09A1RA394--	0.39	5	1	1.125	(28.58)	0.312	(7.92)	1325	1585	1845	0057
CHR09A1RA394--	0.39	10	1	1.125	(28.58)	0.312	(7.92)	1326	1586	1846	0058
CHR09A3RA394--	0.39	5	3	1.062	(26.97)	0.312	(7.92)	1327	1587	1847	0059
CHR09A3RA394--	0.39	10	3	1.062	(26.97)	0.312	(7.92)	1328	1588	1848	0060
CHR09A1RA474--	0.47	5	1	1.125	(28.58)	0.312	(7.92)	1329	1589	1849	0061
CHR09A1RA474--	0.47	10	1	1.125	(28.58)	0.312	(7.92)	1330	1590	1850	0062
CHR09A3RA474--	0.47	5	3	1.062	(26.97)	0.312	(7.92)	1331	1591	1851	0063
CHR09A3RA474--	0.47	10	3	1.062	(26.97)	0.312	(7.92)	1332	1592	1852	0064
CHR09A1RA564--	0.56	5	1	1.125	(28.58)	0.400	(10.16)	1333	1593	1853	0065
CHR09A1RA564--	0.56	10	1	1.125	(28.58)	0.400	(10.16)	1334	1594	1854	0066
CHR09A3RA564--	0.56	5	3	1.062	(26.97)	0.400	(10.16)	1335	1595	1855	0067
CHR09A3RA564--	0.56	10	3	1.062	(26.97)	0.400	(10.16)	1336	1596	1856	0068
CHR09A1RA684--	0.68	5	1	1.125	(28.58)	0.400	(10.16)	1337	1597	1857	0069
CHR09A1RA684--	0.68	10	1	1.125	(28.58)	0.400	(10.16)	1338	1598	1858	0070
CHR09A3RA684--	0.68	5	3	1.062	(26.97)	0.400	(10.16)	1339	1599	1859	0071
CHR09A3RA684--	0.68	10	3	1.062	(26.97)	0.400	(10.16)	1340	1600	1860	0072
CHR09A1RA824--	0.82	5	1	1.125	(28.58)	0.400	(10.16)	1341	1601	1861	0073
CHR09A1RA824--	0.82	10	1	1.125	(28.58)	0.400	(10.16)	1342	1602	1862	0074
CHR09A3RA824--	0.82	5	3	1.062	(26.97)	0.400	(10.16)	1343	1603	1863	0075
CHR09A3RA824--	0.82	10	3	1.062	(26.97)	0.400	(10.16)	1344	1604	1864	0076
CHR09A1RA105--	1.0	5	1	1.125	(28.58)	0.400	(10.16)	1345	1605	1865	0077
CHR09A1RA105--	1.0	10	1	1.125	(28.58)	0.400	(10.16)	1346	1606	1866	0078

* Complete type designation will include additional symbols for capacitance tolerance and failure rate level.

** FRL L for revision C only.

Type 118P/ 218P

MIL-PRF-39022/1

CHR09

ELECTRICAL CHARACTERISTICS, DIMENSIONS, AND DASH NUMBERS

Type designation in MIL-C-39022/1B *	Nominal capacitance (µF)	Capacitance Tolerance (%)	Circuit diagram	Dimensions**				Dash number in			
				A ±0.031 (±0.79mm)		B +0.015/–0.005 (+0.38/–0.13)		MIL-C-39022/1C thru MIL-PRF-39022/1G ** Failure rate level (%/1,000 hr)			MIL-C-39022/1A and /1
				Inches	(mm)	Inches	(mm)	M(1.0)	P(0.1)	R(0.01)	
Rated voltage 50 V_{DC}											
CHR09A3RA105--	1.0	5	3	1.062	(26.97)	0.400	(10.16)	1347	1607	1867	0079
CHR09A3RA105--	1.0	10	3	1.062	(26.97)	0.400	(10.16)	1348	1608	1868	0080
CHR09A1RA125--	1.2	5	1	1.375	(34.93)	0.400	(10.16)	1349	1609	1869	–
CHR09A1RA125--	1.2	10	1	1.375	(34.93)	0.400	(10.16)	1350	1610	1870	–
CHR09A3RA125--	1.2	5	3	1.312	(33.32)	0.400	(10.16)	1351	1611	1871	–
CHR09A3RA125--	1.2	10	3	1.312	(33.32)	0.400	(10.16)	1352	1612	1872	–
CHR09A1RA155--	1.5	5	1	1.125	(28.58)	0.500	(12.70)	1353	1613	1873	0081
CHR09A1RA155--	1.5	10	1	1.125	(28.58)	0.500	(12.70)	1354	1614	1874	0082
CHR09A3RA155--	1.5	5	3	1.062	(26.97)	0.500	(12.70)	1355	1615	1875	0083
CHR09A3RA155--	1.5	10	3	1.062	(26.97)	0.500	(12.70)	1356	1616	1876	0084
CHR09A1RA185--	1.8	5	1	1.375	(34.93)	0.500	(12.70)	1357	1617	1877	–
CHR09A1RA185--	1.8	10	1	1.375	(34.93)	0.500	(12.70)	1358	1618	1878	–
CHR09A3RA185--	1.8	5	3	1.312	(33.32)	0.500	(12.70)	1359	1619	1879	–
CHR09A3RA185--	1.8	10	3	1.312	(33.32)	0.500	(12.70)	1360	1620	1880	–
CHR09A1RA225--	2.2	5	1	1.125	(28.58)	0.562	(14.27)	1361	1621	1881	–
CHR09A1RA225--	2.2	10	1	1.125	(28.58)	0.562	(14.27)	1362	1622	1882	–
CHR09A3RA225--	2.2	5	3	1.062	(26.97)	0.562	(14.27)	1363	1623	1883	–
CHR09A3RA225--	2.2	10	3	1.062	(26.97)	0.562	(14.27)	1364	1624	1884	–
CHR09A1RA275--	2.7	5	1	1.375	(34.93)	0.562	(14.27)	1365	1625	1885	–
CHR09A1RA275--	2.7	10	1	1.375	(34.93)	0.562	(14.27)	1366	1626	1886	–
CHR09A3RA275--	2.7	5	3	1.312	(33.32)	0.562	(14.27)	1367	1627	1887	–
CHR09A3RA275--	2.7	10	3	1.312	(33.32)	0.562	(14.27)	1368	1628	1888	–
CHR09A1RA335--	3.3	5	1	1.375	(34.93)	0.562	(14.27)	1369	1629	1889	–
CHR09A1RA335--	3.3	10	1	1.375	(34.93)	0.562	(14.27)	1370	1630	1890	–
CHR09A3RA335--	3.3	5	3	1.312	(33.32)	0.562	(14.27)	1371	1631	1891	–
CHR09A3RA335--	3.9	10	3	1.312	(33.32)	0.562	(14.27)	1372	1632	1892	–
CHR09A1RA395--	3.9	5	1	1.625	(41.28)	0.562	(14.27)	1373	1633	1893	–
CHR09A1RA395--	3.9	10	1	1.625	(41.28)	0.562	(14.27)	1374	1634	1894	–
CHR09A3RA395--	3.9	5	3	1.562	(39.67)	0.562	(14.27)	1375	1635	1895	–
CHR09A3RA395--	3.9	10	3	1.562	(39.67)	0.562	(14.27)	1376	1636	1896	–
CHR09A1RA475--	4.7	5	1	1.750	(44.45)	0.562	(14.27)	1377	1637	1897	–
CHR09A1RA475--	4.7	10	1	1.750	(44.45)	0.562	(14.27)	1378	1638	1898	–
CHR09A3RA475--	4.7	5	3	1.688	(42.88)	0.562	(14.27)	1379	1639	1899	–
CHR09A3RA475--	4.7	10	3	1.688	(42.88)	0.562	(14.27)	1380	1640	1900	–
CHR09A1RA565--	5.6	5	1	1.875	(47.63)	0.562	(14.27)	1381	1641	1901	–
CHR09A1RA565--	5.6	10	1	1.875	(47.63)	0.562	(14.27)	1382	1642	1902	–
CHR09A3RA565--	5.6	5	3	1.812	(46.02)	0.562	(14.27)	1383	1643	1903	–
CHR09A3RA565--	5.6	10	3	1.812	(46.02)	0.562	(14.27)	1384	1644	1904	–
CHR09A1RA685--	6.8	5	1	1.625	(41.28)	0.672	(17.07)	1385	1645	1905	–
CHR09A1RA685--	6.8	10	1	1.625	(41.28)	0.672	(17.07)	1386	1646	1906	–
CHR09A3RA685--	6.8	5	3	1.562	(39.67)	0.672	(17.07)	1387	1647	1907	–
CHR09A3RA685--	6.8	10	3	1.562	(39.67)	0.672	(17.07)	1388	1648	1908	–
CHR09A1RA825--	8.2	5	1	1.875	(47.63)	0.672	(17.07)	1389	1649	1909	–
CHR09A1RA825--	8.2	10	1	1.875	(47.63)	0.672	(17.07)	1390	1650	1910	–
CHR09A3RA825--	8.2	5	3	1.812	(46.02)	0.672	(17.07)	1391	1651	1911	–
CHR09A3RA825--	8.2	10	3	1.812	(46.02)	0.672	(17.07)	1392	1652	1912	–
CHR09A1RA106--	10.0	5	1	1.875	(47.63)	0.750	(19.05)	1393	1653	1913	0113
CHR09A1RA106--	10.0	10	1	1.875	(47.63)	0.750	(19.05)	1394	1654	1914	0114
CHR09A3RA106--	10.0	5	3	1.812	(46.02)	0.750	(19.05)	1395	1655	1915	0115
CHR09A3RA106--	10.0	10	3	1.812	(46.02)	0.750	(19.05)	1396	1656	1916	0116
CHR09A1RA126--	12.0	5	1	2.375	(60.33)	0.750	(19.05)	1397	1657	1917	0117
CHR09A1RA126--	12.0	10	1	2.375	(60.33)	0.750	(19.05)	1398	1658	1918	0118
CHR09A3RA825--	8.2	5	3	1.812	(46.02)	0.672	(17.07)	1391	1651	1911	–
CHR09A3RA825--	8.2	10	3	1.812	(46.02)	0.672	(17.07)	1392	1652	1912	–
CHR09A1RA106--	10.0	5	1	1.875	(47.63)	0.750	(19.05)	1393	1653	1913	0113
CHR09A1RA106--	10.0	10	1	1.875	(47.63)	0.750	(19.05)	1394	1654	1914	0114
CHR09A3RA106--	10.0	5	3	1.812	(46.02)	0.750	(19.05)	1395	1655	1915	0115
CHR09A3RA106--	10.0	10	3	1.812	(46.02)	0.750	(19.05)	1396	1656	1916	0116
CHR09A1RA126--	12.0	5	1	2.375	(60.33)	0.750	(19.05)	1397	1657	1917	0117
CHR09A1RA126--	12.0	10	1	2.375	(60.33)	0.750	(19.05)	1398	1658	1918	0118
CHR09A3RA126--	12.0	5	3	2.312	(58.72)	0.750	(19.05)	1399	1659	1919	0119
CHR09A3RA126--	12.0	10	3	2.312	(58.72)	0.750	(19.05)	1400	1660	1920	0120

* Complete type designation will include additional symbols for capacitance tolerance and failure rate level.

** FRL L for revision C only.

ELECTRICAL CHARACTERISTICS, DIMENSIONS, AND DASH NUMBERS

Type designation in MIL-C-39022/1B *	Nominal capacitance (µF)	Capacitance Tolerance (%)	Circuit diagram	Dimensions**				Dash number in			
				A ±0.031 (±0.79mm)		B +0.015/–0.005 (+0.38/–0.13)		MIL-C-39022/1C thru MIL-PRF-39022/1G ** Failure rate level (%/1,000 hr)			MIL-C-39022/1A and /1
				Inches	(mm)	Inches	(mm)	M(1.0)	P(0.1)	R(0.01)	
Rated voltage 200 V_{DC}											
CHR09A1NC104--	0.10	10	1	0.844	(21.44)	0.312	(7.92)	1401	1661	1921	–
CHR09A1NC104--	0.10	20	1	0.844	(21.44)	0.312	(7.92)	1402	1662	1922	–
CHR09A3NC104--	0.10	10	3	0.781	(19.84)	0.312	(7.92)	1403	1663	1923	–
CHR09A3NC104--	0.10	20	3	0.781	(19.84)	0.312	(7.92)	1404	1664	1924	–
CHR09A1NC224--	0.22	10	1	1.125	(28.58)	0.312	(7.92)	1405	1665	1925	–
CHR09A1NC224--	0.22	20	1	1.125	(28.58)	0.312	(7.92)	1406	1666	1926	–
CHR09A3NC224--	0.22	10	3	1.062	(26.97)	0.312	(7.92)	1407	1667	1927	–
CHR09A3NC224--	0.22	20	3	1.062	(26.97)	0.312	(7.92)	1408	1668	1928	–
CHR09A1NC474--	0.47	10	1	1.125	(28.58)	0.400	(10.16)	1409	1669	1929	–
CHR09A1NC474--	0.47	20	1	1.125	(28.58)	0.400	(10.16)	1410	1670	1930	–
CHR09A1NC474--	0.47	10	3	1.062	(26.97)	0.400	(10.16)	1411	1671	1931	–
CHR09A1NC474--	0.47	20	3	1.062	(26.97)	0.400	(10.16)	1412	1672	1932	–
CHR09A1NC155--	1.0	10	1	1.125	(28.58)	0.562	(14.27)	1413	1673	1933	–
CHR09A1NC155--	1.0	20	1	1.125	(28.58)	0.562	(14.27)	1414	1674	1934	–
CHR09A3NC155--	1.0	10	3	1.062	(26.97)	0.562	(14.27)	1415	1675	1935	–
CHR09A3NC155--	1.0	20	3	1.062	(26.97)	0.562	(14.27)	1416	1676	1936	–
CHR09A1NC155--	1.5	10	1	1.844	(46.84)	0.562	(14.27)	1417	1677	1937	–
CHR09A1NC155--	1.5	20	1	1.844	(46.84)	0.562	(14.27)	1418	1678	1938	–
CHR09A3NC155--	1.5	10	3	1.781	(45.24)	0.562	(14.27)	1419	1679	1939	–
CHR09A3NC155--	1.5	20	3	1.781	(45.24)	0.562	(14.27)	1420	1680	1940	–
CHR09A1NC225--	2.2	10	1	1.844	(46.84)	0.562	(14.27)	1421	1681	1941	–
CHR09A1NC225--	2.2	20	1	1.844	(46.84)	0.562	(14.27)	1422	1682	1942	–
CHR09A3NC225--	2.2	10	3	1.781	(45.24)	0.562	(14.27)	1423	1683	1943	–
CHR09A3NC225--	2.2	20	3	1.781	(45.24)	0.562	(14.27)	1424	1684	1944	–
CHR09A1NC335--	3.3	10	1	1.875	(47.63)	0.670	(17.02)	1425	1685	1945	–
CHR09A1NC335--	3.3	20	1	1.875	(47.63)	0.670	(17.02)	1426	1686	1946	–
CHR09A3NC335--	3.3	10	3	1.812	(46.02)	0.670	(17.02)	1427	1687	1947	–
CHR09A3NC335--	3.3	20	3	1.812	(46.02)	0.670	(17.02)	1428	1688	1948	–
CHR09A1NC475--	4.7	10	1	1.875	(47.63)	1.000	(25.40)	1429	1689	1949	–
CHR09A1NC475--	4.7	20	1	1.875	(47.63)	1.000	(25.40)	1430	1690	1950	–
CHR09A3NC475--	4.7	10	3	1.812	(46.02)	1.000	(25.40)	1431	1691	1951	–
CHR09A3NC475--	4.7	20	3	1.812	(46.02)	1.000	(25.40)	1432	1692	1952	–
CHR09A1NC685--	6.8	10	1	1.875	(47.63)	1.000	(25.40)	1433	1693	1953	–
CHR09A1NC685--	6.8	20	1	1.875	(47.63)	1.000	(25.40)	1434	1694	1954	–
Rated voltage 400 V_{DC}											
CHR09A3NC685--	6.8	10	3	1.812	(46.02)	1.000	(25.40)	1435	1695	1955	–
CHR09A3NC685--	6.8	20	3	1.812	(10.16)	1.000	(10.16)	1436	1696	1956	–
CHR09A1NC106--	10.0	10	1	2.375	(10.16)	1.000	(10.16)	1437	1697	1957	–
CHR09A1NC106--	10.0	20	1	2.375	(10.16)	1.000	(10.16)	1438	1698	1958	–
CHR09A3NC106--	10.0	10	3	2.312	(10.16)	1.000	(10.16)	1439	1699	1959	–
CHR09A3NC106--	10.0	20	3	2.312	(10.16)	1.000	(10.16)	1440	1700	1960	–
CHR09A1NC126--	12.0	10	1	2.625	(10.16)	1.000	(10.16)	1441	1701	1961	–
CHR09A1NC126--	12.0	20	1	2.625	(10.16)	1.000	(10.16)	1442	1702	1962	–
CHR09A3NC126--	12.0	10	3	2.562	(14.27)	1.000	(14.27)	1443	1703	1963	–
CHR09A3NC126--	12.0	20	3	2,562	(65,07)	1,000	(25,40)	1444	1704	1964	–
CHR09A1NE104--	0.10	20	1	1,125	(28,58)	0,400	(10,16)	1450	1710	1970	–
CHR09A3NE104--	0.10	10	3	1,062	(26,97)	0,400	(10,16)	1451	1711	1971	–
CHR09A3NE104--	0.10	20	3	1,062	(26,97)	0,400	(10,16)	1452	1712	1972	–
CHR09A1NE224--	0.22	10	1	1,125	(28,58)	0,562	(14,27)	1453	1713	1973	–
CHR09A1NE224--	0.22	20	1	1,125	(28,58)	0,562	(14,27)	1454	1714	1974	–
CHR09A3NE224--	0.22	10	3	1,062	(26,97)	0,562	(14,27)	1455	1715	1975	–
CHR09A3NE224--	0.22	20	3	1,062	(26,97)	0,562	(14,27)	1456	1716	1976	–
CHR09A1NE474--	0.47	10	1	1,625	(41,28)	0,562	(14,27)	1457	1717	1977	–
CHR09A1NE474--	0.47	20	1	1,625	(41,28)	0,562	(14,27)	1458	1718	1978	–
CHR09A3NE474--	0.47	10	3	1,562	(39,67)	0,562	(14,27)	1459	1719	1979	–
CHR09A3NE474--	0.47	20	3	1,562	(39,67)	0,562	(14,27)	1460	1720	1980	–
CHR09A1NE105--	1.0	10	1	1,875	(47,63)	0,750	(19,05)	1461	1721	1981	–
CHR09A1NE105--	1.0	20	1	1,875	(47,63)	0,750	(19,05)	1462	1722	1982	–
CHR09A3NE105--	1.0	10	3	1,812	(46,02)	0,750	(19,05)	1463	1723	1983	–
CHR09A3NE105--	1.0	20	3	1,812	(46,02)	0,750	(19,05)	1464	1724	1984	–
CHR09A1NE125--	2.2	10	1	1,875	(47,63)	1,000	(25,40)	1465	1725	1985	–

* Complete type designation will include additional symbols for capacitance tolerance and failure rate level.

** FRL L for revision C only.

Type 118P / 218P

MIL-PRF-39022/1

CHR09

ELECTRICAL CHARACTERISTICS, DIMENSIONS, AND DASH NUMBERS

Type designation in MIL-C-39022/1B *	Nominal capacitance (µF)	Capacitance Tolerance (%)	Circuit diagram	Dimensions**				Dash number in MIL-C-39022/1C thru MIL-PRF-39022/1G ** Failure rate level (%/1,000 hr)			MIL-C-39022/1A and /1
				A ±0.031 (±0.79mm)		B +0.015/–0.005 (+0.38/–0.13)					
				Inches	(mm)	Inches	(mm)	M(1.0)	P(0.1)	R(0.01)	
Rated voltage 400 V_{DC}											
CHR09A1NE125--	2.2	20	1	1,875	(47,63)	1,000	(25,40)	1466	1726	1986	–
CHR09A3NE125--	2.2	10	3	1,812	(46,02)	1,000	(25,40)	1467	1727	1987	–
CHR09A3NE125--	2.2	20	3	1,812	(46,02)	1,000	(25,40)	1468	1728	1988	–
CHR09A1NE335--	3.3	10	1	2,625	(66,68)	1,000	(25,40)	1469	1729	1989	–
CHR09A1NE335--	3.3	20	1	2,625	(66,68)	1,000	(25,40)	1470	1730	1990	–
CHR09A3NE335--	3.3	10	3	2,625	(66,68)	1,000	(25,40)	1471	1731	1991	–
CHR09A3NE335--	3.3	20	3	2,625	(66,68)	1,000	(25,40)	1472	1732	1992	–
Rated voltage 600 V_{DC}											
CHR09A1NF103--	0.01	10	1	0,812	(20,62)	0,312	(7,92)	1473	1733	1993	–
CHR09A1NF103--	0.01	20	1	0,812	(20,62)	0,312	(7,92)	1474	1734	1994	–
CHR09A3NF103--	0.01	10	3	0,750	(19,05)	0,312	(7,92)	1475	1735	1995	–
CHR09A3NF103--	0.01	20	3	0,750	(19,05)	0,312	(7,92)	1476	1736	1996	–
CHR09A1NF223--	0.022	10	1	0,812	(20,62)	0,312	(7,92)	1477	1737	1997	–
CHR09A1NF223--	0.022	20	1	0,812	(20,62)	0,312	(7,92)	1478	1738	1998	–
CHR09A3NF223--	0.022	10	3	0,750	(19,05)	0,312	(7,92)	1479	1739	1999	–
CHR09A3NF223--	0.022	20	3	0,750	(19,05)	0,312	(7,92)	1480	1740	2000	–
CHR09A1NF473--	0.047	10	1	1,125	(28,58)	0,400	(10,16)	1481	1741	2001	–
CHR09A1NF473--	0.047	20	1	1,125	(28,58)	0,400	(10,16)	1482	1742	2002	–
CHR09A3NF473--	0.047	10	3	1,062	(26,97)	0,400	(10,16)	1483	1743	2003	–
CHR09A3NF473--	0.047	20	3	1,062	(26,97)	0,400	(10,16)	1484	1744	2004	–
CHR09A1NF104--	0.10	10	1	1,125	(28,58)	0,500	(12,70)	1485	1745	2005	–
CHR09A1NF104--	0.10	20	1	1,125	(28,58)	0,500	(12,70)	1486	1746	2006	–
CHR09A3NF104--	0.10	10	3	1,062	(26,97)	0,500	(12,70)	1487	1747	2007	–
CHR09A3NF104--	0.10	20	3	1,062	(26,97)	0,500	(12,70)	1488	1748	2008	–
–	0.15	10	1	1,125	(28,58)	0,562	(14,27)	1509	1769	2029	–
–	0.15	20	1	1,125	(28,58)	0,562	(14,27)	1510	1770	2030	–
–	0.15	10	3	1,062	(26,97)	0,562	(14,27)	1511	1771	2031	–
–	0.15	20	3	1,062	(26,97)	0,562	(14,27)	1512	1772	2032	–
CHR09A1NF224--	0.22	10	1	1,375	(34,93)	0,562	(14,27)	1489	1749	2009	–
CHR09A1NF224--	0.22	20	1	1,375	(34,93)	0,562	(14,27)	1490	1750	2010	–
CHR09A3NF224--	0.22	10	3	1,312	(33,32)	0,562	(14,27)	1491	1751	2011	–
CHR09A3NF224--	0.22	20	3	1,312	(33,32)	0,562	(14,27)	1492	1752	2012	–
CHR09A1NF474--	0.47	10	1	1,625	(41,28)	0,670	(17,02)	1493	1753	2013	–
CHR09A1NF474--	0.47	20	1	1,625	(41,28)	0,670	(17,02)	1494	1754	2014	–
CHR09A3NF474--	0.47	10	3	1,562	(39,67)	0,670	(17,02)	1495	1755	2015	–
CHR09A3NF474--	0.47	20	3	1,562	(39,67)	0,670	(17,02)	1496	1756	2016	–
CHR09A1NF105--	1.0	10	1	1,844	(46,84)	1,000	(25,40)	1497	1757	2017	–
CHR09A1NF105--	1.0	20	1	1,844	(46,84)	1,000	(25,40)	1498	1758	2018	–
CHR09A3NF105--	1.0	10	3	1,781	(45,24)	1,000	(25,40)	1499	1759	2019	–
CHR09A3NF105--	1.0	20	3	1,781	(45,24)	1,000	(25,40)	1500	1760	2020	–
CHR09A1NF155--	1.5	10	1	1,875	(47,63)	1,000	(25,40)	1501	1761	2021	–
CHR09A1NF155--	1.5	20	1	1,875	(47,63)	1,000	(25,40)	1502	1762	2022	–
CHR09A3NF155--	1.5	10	3	1,812	(46,02)	1,000	(25,40)	1503	1763	2023	–
CHR09A3NF155--	1.5	20	3	1,812	(46,02)	1,000	(25,40)	1504	1764	2024	–
CHR09A1NF225--	2.2	10	1	2,625	(66,68)	1,000	(25,40)	1505	1765	2025	–
CHR09A1NF225--	2.2	20	1	2,625	(66,68)	1,000	(25,40)	1506	1766	2026	–
CHR09A3NF225--	2.2	10	3	2,562	(65,07)	1,000	(25,40)	1507	1767	2027	–
CHR09A3NF225--	2.2	20	3	2,562	(65,07)	1,000	(25,40)	1508	1768	2028	–

* Complete type designation will include additional symbols for capacitance tolerance and failure rate level.

** FRL L for revision C only.

CHR12

MIL-PRF-39022/8

Type 118P/218P

Capacitors,
Fixed,
Metallized paper-plastic film dielectric,
Direct current,
Hermetically sealed in metal cases,
Nonmagnetic (end seal may be of magnetic material),
Established reliability,
Uninsulated.

GENERAL CHARACTERISTICS

Dielectric material	For 50 V: Normally polyethylene-terephthalate	For 200 V to 600 V: Normally paper polycarbonate-terephthalate
Rated temperature	For 50 V: –55°C to +85°C.	For 200 V to 600 V: –55°C to +125°C.
Capacitance range	22 nF to 12 µF	
Voltage range	50 V to 600 V	
Capacitance tolerance	±5%, ±10%, ±20%	
Failure rate level	**M** (1% / 1,000 hours), **P** (0.1% / 1,000 hours), **R** (0.01% / 1,000 hours)	

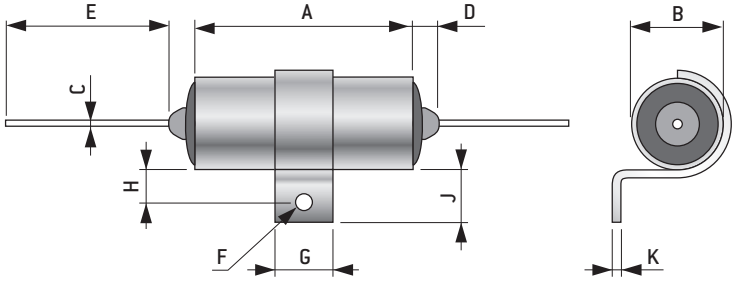
Full details and most up to date information found at government website.

DIMENSIONS

A		B	
See tables on the next pages			

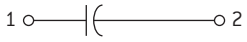
C		D		E	
Inches	(mm)	Inches	(mm)	Inches	(mm)
See note 1		0.172 max	(4.37 max)	1.625^{+1}_{-0}	$(41.28^{+25.4}_{-0})$

Case for circuit 1

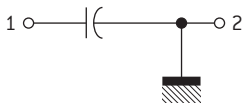


CIRCUIT DIAGRAM

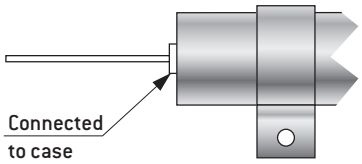
Circuit 1



Circuit 3



Case for circuit 3



HOW TO ORDER

M39022	/08-	2001
Performance Specification number	Specification sheet number	Nonsignificant dash number

M39022	/8	A	152	F	M
Performance Specification number	Specification sheet number	Circuit and voltage code	Capacitance in code	Capacitance tolerance in code	Product level designator
		A, B, C, D, E, F, G, H, J, K (See page 6)	Examples: **101** = 100pF **472** = 4.7nF **473** = 47nF	**J** = ±5% **K** = ±10% **M** = ±20%	**M** = 1% /1,000 hours **P** = 0.1% /1,000 hours **R** = 0.01% /1,000 hours

MIL-PRF-39022/8

INSULATION RESISTANCE

	At dc voltage of	
	200 V	400 V
In megohms: At +25°C ±3°C (need not exceed) At +125°C +4°C, –0°C (need not exceed)	12,000 150	12,000 600
In megohms x microfarads (minimum): At +25°C ±3°C At +125°C +4°C, –0°C	2,000 10	2,000 40

NOTES

1. Number 22 AWG wire 0.025" ± 0.002 (0.64 ± 0.05 mm) for case diameters of 0.235" (5.97 mm) and 0.312" (7.92 mm). Number 20 AWG wire 0.032" ± 0.002 (0.81 ± 0.05 mm) for case diameters of 0.400" (10.16 mm) and over.
2. See table below for additional dimensions.
3. Dimensions are in inches.
4. Metric equivalents are given for general information only.
5. The centerline of the mounting clamp shall be within 0.050" (1.27 mm) of the centerline of the length (A dimension) of the capacitor.

ELECTRICAL CHARACTERISTICS, DIMENSIONS, AND DASH NUMBERS

Type designation in MIL-C-39022/1B *	Nominal capacitance (µF)	Capacitance Tolerance (%)	Circuit diagram	Dimensions**												Dash number in Failure rate level (%/1,000 hr)		
				A ±0.062 (±1.57mm)		B ±0.031 (±0.79mm)		J ±0.062 (±1.57mm)		G ±0.062 (±1.57mm)		H ±0.031 (±0.79mm)		F ±0.005 (±0.13mm)				
				Inches	(mm)	Inches	(mm)	Inches	(mm)	Inches	(mm)	Inches	(mm)	Inches	(mm)	M(1.0)	P(0.1)	R(0.01)
Rated voltage 50 V																		
	0.15	1	5	0.875	(22.23)	0.312	(7.92)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	0.188	2101	2201	2301
	0.15	1	10	0.875	(22.23)	0.312	(7.92)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	0.188	2102	2202	2302
	0.15	3	5	0.812	(20.62)	0.312	(7.92)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	0.188	2103	2203	2303
	0.15	3	10	0.812	(20.62)	0.312	(7.92)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	0.188	2104	2204	2304
	0.18	1	5	0.875	(22.23)	0.312	(7.92)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	0.188	2105	2205	2305
	0.18	1	10	0.875	(22.23)	0.312	(7.92)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	0.188	2106	2206	2306
	0.18	3	5	0.812	(20.62)	0.312	(7.92)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	0.188	2107	2207	2307
	0.18	3	10	0.812	(20.62)	0.312	(7.92)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	0.188	2108	2208	2308
	0.22	1	5	0.875	(22.23)	0.312	(7.92)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	0.188	2109	2209	2309
	0.22	1	10	0.875	(22.23)	0.312	(7.92)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	0.188	2110	2210	2310
	0.22	3	5	0.812	(20.62)	0.312	(7.92)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	0.188	2111	2211	2311
	0.22	3	10	0.812	(20.62)	0.312	(7.92)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	0.188	2112	2212	2312
	0.27	1	5	0.875	(22.23)	0.312	(7.92)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	0.188	2113	2213	2313
	0.27	1	10	0.875	(22.23)	0.312	(7.92)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	0.188	2114	2214	2314
	0.27	3	5	0.812	(20.62)	0.312	(7.92)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	0.188	2115	2215	2315
	0.27	3	10	0.812	(20.62)	0.312	(7.92)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	0.188	2116	2216	2316
	0.33	1	5	0.875	(22.23)	0.312	(7.92)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	0.188	2117	2217	2317
	0.33	1	10	0.875	(22.23)	0.312	(7.92)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	0.188	2118	2218	2318
	0.33	3	5	0.812	(20.62)	0.312	(7.92)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	0.188	2119	2219	2319
	0.33	3	10	0.812	(20.62)	0.312	(7.92)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	0.188	2120	2220	2320
	0.39	1	5	1.125	(28.58)	0.312	(7.92)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	0.188	2121	2221	2321
	0.39	1	10	1.125	(28.58)	0.312	(7.92)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	0.188	2122	2222	2322
	0.39	3	5	1.062	(26.97)	0.312	(7.92)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	0.188	2123	2223	2323
	0.39	3	10	1.062	(26.97)	0.312	(7.92)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	0.188	2124	2224	2324
	0.47	1	5	1.125	(28.58)	0.312	(7.92)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	0.188	2125	2225	2325
	0.47	1	10	1.125	(28.58)	0.312	(7.92)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	0.188	2126	2226	2326
	0.47	3	5	1.062	(26.97)	0.312	(7.92)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	0.188	2127	2227	2327
	0.47	3	10	1.062	(26.97)	0.312	(7.92)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	0.188	2128	2228	2328
	0.56	1	5	1.125	(28.58)	0.400	(10.16)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	0.188	2129	2229	2329
	0.56	1	10	1.125	(28.58)	0.400	(10.16)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	0.188	2130	2230	2330
	0.56	3	5	1.062	(26.97)	0.400	(10.16)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	0.188	2131	2231	2331
	0.56	3	10	1.062	(26.97)	0.400	(10.16)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	0.188	2132	2232	2332
	0.68	1	5	1.125	(28.58)	0.400	(10.16)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	0.188	2133	2233	2333
	0.68	1	10	1.125	(28.58)	0.400	(10.16)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	0.188	2134	2234	2334
	0.68	3	5	1.062	(26.97)	0.400	(10.16)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	0.188	2135	2235	2335
	0.68	3	10	1.062	(26.97)	0.400	(10.16)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	0.188	2136	2236	2336
	0.82	1	5	1.125	(28.58)	0.400	(10.16)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	0.188	2137	2237	2337
	0.82	1	10	1.125	(28.58)	0.400	(10.16)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	0.188	2138	2238	2338
	0.82	3	5	1.062	(26.97)	0.400	(10.16)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	0.188	2139	2239	2339
	0.82	3	10	1.062	(26.97)	0.400	(10.16)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	0.188	2140	2240	2340
	1.0	1	5	1.125	(28.58)	0.400	(10.16)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	0.188	2141	2241	2341
	1.0	1	10	1.125	(28.58)	0.400	(10.16)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	0.188	2142	2242	2342
	1.0	3	5	1.062	(26.97)	0.400	(10.16)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	0.188	2143	2243	2343
	1.0	3	10	1.062	(26.97)	0.400	(10.16)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	0.188	2144	2244	2344
	1.2	1	5	1.375	(34.93)	0.400	(10.16)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	0.188	2145	2245	2345
	1.2	1	10	1.375	(34.93)	0.400	(10.16)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	0.188	2146	2246	2346
	1.2	3	5	1.312	(33.32)	0.400	(10.16)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	0.188	2147	2247	2347
	1.2	3	10	1.312	(33.32)	0.400	(10.16)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	0.188	2148	2248	2348
	1.5	1	5	1.125	(28.58)	0.500	(12.70)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	0.25	2149	2249	2349
	1.5	1	10	1.172	(29.77)	0.500	(12.70)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	0.25	2150	2250	2350

* Complete type designation will include additional symbols for capacitance tolerance and failure rate level.

** FRL L for revision C only.

ELECTRICAL CHARACTERISTICS, DIMENSIONS, AND DASH NUMBERS

Type designation in MIL-C-39022/1B *	Nominal capacitance (µF)	Capacitance Tolerance (%)	Circuit diagram	Dimensions**												Dash number in Failure rate level (%/1,000 hr)		
				A ±0.062 (±1.57mm)		B ±0.031 (±0.79mm)		J ±0.062 (±1.57mm)		G ±0.062 (±1.57mm)		H ±0.031 (±0.79mm)		F ±0.005 (±0.13mm)				
				Inches	(mm)	Inches	(mm)	Inches	(mm)	Inches	(mm)	Inches	(mm)	Inches	(mm)	M(1.0)	P(0.1)	R(0.01)
Rated voltage 50 V_{DC} continued																		
	1.5	3	5	1.062	(26.97)	0.500	(12.70)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	2151	2251	2351
	1.5	3	10	1.062	(26.97)	0.500	(12.70)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	2152	2252	2352
	1.8	1	5	1.375	(34.93)	0.500	(12.70)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	2153	2253	2353
	1.8	1	10	1.375	(34.93)	0.500	(12.70)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	2154	2254	2354
	1.8	3	5	1.312	(33.32)	0.500	(12.70)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	2155	2255	2355
	1.8	3	10	1.312	(33.32)	0.500	(12.70)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	2156	2256	2356
	2.2	1	5	1.125	(28.58)	0.562	(14.27)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	2157	2257	2357
	2.2	1	10	1.125	(28.58)	0.562	(14.27)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	2158	2258	2358
	2.2	3	5	1.062	(26.97)	0.562	(14.27)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	2159	2259	2359
	2.2	3	10	1.062	(26.97)	0.562	(14.27)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	2160	2260	2360
	2.7	1	5	1.375	(34.93)	0.562	(14.27)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	2161	2261	2361
	2.7	1	10	1.375	(34.93)	0.562	(14.27)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	2162	2262	2362
	2.7	3	5	1.312	(33.32)	0.562	(14.27)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	2163	2263	2363
	2.7	3	10	1.312	(33.32)	0.562	(14.27)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	2164	2264	2364
	3.3	1	5	1.375	(34.93)	0.562	(14.27)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	2165	2265	2365
	3.3	1	10	1.375	(34.93)	0.562	(14.27)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	2166	2266	2366
	3.3	3	5	1.312	(33.32)	0.562	(14.27)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	2167	2267	2367
	3.3	3	10	1.312	(33.32)	0.562	(14.27)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	2168	2268	2368
	3.9	1	5	1.625	(41.28)	0.562	(14.27)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	2169	2269	2369
	3.9	1	10	1.625	(41.28)	0.562	(14.27)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	2170	2270	2370
	3.9	3	5	1.562	(39.67)	0.562	(14.27)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	2171	2271	2371
	3.9	3	10	1.562	(39.67)	0.562	(14.27)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	2172	2272	2372
	4.7	1	5	1.750	(44.45)	0.562	(14.27)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	2173	2273	2373
	4.7	1	10	1.750	(44.45)	0.562	(14.27)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	2174	2274	2374
	4.7	3	5	1.688	(42.88)	0.562	(14.27)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	2175	2275	2375
	4.7	3	10	1.688	(42.88)	0.562	(14.27)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	2176	2276	2376
	5.6	1	5	1.875	(47.63)	0.562	(14.27)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	2177	2277	2377
	5.6	1	10	1.875	(47.63)	0.562	(14.27)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	2178	2278	2378
	5.6	3	5	1.812	(46.02)	0.562	(14.27)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	2179	2279	2379
	5.6	3	10	1.812	(46.02)	0.562	(14.27)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	2180	2280	2380
	6.8	1	5	1.625	(41.28)	0.670	(17.02)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	2181	2281	2381
	6.8	1	10	1.625	(41.28)	0.670	(17.02)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	2182	2282	2382
	6.8	3	5	1.562	(39.67)	0.670	(17.02)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	2183	2283	2383
	6.8	3	10	1.562	(39.67)	0.670	(17.02)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	2184	2284	2384
	8.2	1	5	1.875	(47.63)	0.670	(17.02)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	2185	2285	2385
	8.2	1	10	1.875	(47.63)	0.670	(17.02)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	2186	2286	2386
	8.2	3	5	1.812	(46.02)	0.670	(17.02)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	2187	2287	2387
	8.2	3	10	1.812	(46.02)	0.670	(17.02)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	2188	2288	2388
	10.0	1	5	1.875	(47.63)	0.750	(19.05)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	2189	2289	2389
	10.0	1	10	1.875	(47.63)	0.750	(19.05)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	2190	2290	2390
	10.0	3	5	1.812	(46.02)	0.750	(19.05)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	2191	2291	2391
	10.0	3	10	1.812	(46.02)	0.750	(19.05)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	2192	2292	2392
	12.0	1	5	2.375	(60.33)	0.750	(19.05)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	2193	2293	2393
	12.0	1	10	2.375	(60.33)	0.750	(19.05)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	2194	2294	2394
	12.0	3	5	2.312	(58.72)	0.750	(19.05)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	2195	2295	2395
	12.0	3	10	2.312	(58.72)	0.750	(19.05)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	2196	2296	2396
Rated voltage 200 V																		
CHR12A1NC104--	0.10	1	5	0.844	0.844	0.312	(7.92)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	(3.66)	1121	1241	1361
CHR12A1NC104--	0.10	1	10	0.844	0.844	0.312	(7.92)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	(3.66)	1122	1242	1362
CHR12A3NC104--	0.10	3	5	0.781	0.781	0.312	(7.92)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	(3.66)	1123	1243	1363

* Complete type designation will include additional symbols for capacitance tolerance and failure rate level.

** FRL L for revision C only.

Type 118P / 218P

MIL-PRF-39022/8

CHR12

ELECTRICAL CHARACTERISTICS, DIMENSIONS, AND DASH NUMBERS

Type designation in MIL-C-39022/1B *	Nominal capacitance (µF)	Capacitance Tolerance (%)	Circuit diagram	Dimensions**												Dash number in Failure rate level (%/1,000 hr)		
				A ±0.062 (±1.57mm)		B ±0.031 (±0.79mm)		J ±0.062 (±1.57mm)		G ±0.062 (±1.57mm)		H ±0.031 (±0.79mm)		F ±0.005 (±0.13mm)				
				Inches	(mm)	Inches	(mm)	Inches	(mm)	Inches	(mm)	Inches	(mm)	Inches	(mm)	M(1.0)	P(0.1)	R(0.01)
Rated voltage 200 V continued																		
CHR12A3NC104--	0.10	3	10	0.781	(19.84)	0.312	(7.92)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	(3.66)	1124	1244	1364
CHR12A1NC224--	0.22	1	10	1.125	(28.58)	0.312	(7.92)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	(3.66)	1125	1245	1365
CHR12A1NC224--	0.22	1	20	1.125	(28.58)	0.312	(7.92)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	(3.66)	1126	1246	1366
CHR12A3NC224--	0.22	3	10	1.062	(26.97)	0.312	(7.92)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	(3.66)	1127	1247	1367
CHR12A3NC224--	0.22	3	20	1.062	(26.97)	0.312	(7.92)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	(3.66)	1128	1248	1368
CHR12A1NC474--	0.47	1	10	1.125	(28.58)	0.400	(10.16)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	(3.66)	1129	1249	1369
CHR12A1NC474--	0.47	1	20	1.125	(28.58)	0.400	(10.16)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	(3.66)	1130	1250	1370
CHR12A3NC474--	0.47	3	10	1.062	(26.97)	0.400	(10.16)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	(3.66)	1131	1251	1371
CHR12A3NC474--	0.47	3	20	1.062	(26.97)	0.400	(10.16)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	(3.66)	1132	1252	1372
CHR12A1NC105--	1.0	1	10	1.125	(28.58)	0.562	(14.27)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1133	1253	1373
CHR12A1NC105--	1.0	1	20	1.125	(28.58)	0.562	(14.27)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1134	1254	1374
CHR12A3NC105--	1.0	3	10	1.062	(26.97)	0.562	(14.27)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1135	1255	1375
CHR12A3NC105--	1.0	3	20	1.062	(26.97)	0.562	(14.27)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1136	1256	1376
CHR12A1NC155--	1.5	1	10	1.844	(46.84)	0.562	(14.27)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1137	1257	1377
CHR12A1NC155--	1.5	1	20	1.844	(46.84)	0.562	(14.27)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1138	1258	1378
CHR12A3NC155--	1.5	3	10	1.781	(45.24)	0.562	(14.27)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1139	1259	1379
CHR12A3NC155--	1.5	3	20	1.781	(45.24)	0.562	(14.27)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1140	1260	1380
CHR12A1NC225--	2.2	1	10	1.844	(46.84)	0.562	(14.27)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1141	1261	1381
CHR12A1NC225--	2.2	1	20	1.844	(46.84)	0.562	(14.27)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1142	1262	1382
CHR12A3NC225--	2.2	3	10	1.781	(45.24)	0.562	(14.27)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1143	1263	1383
CHR12A3NC225--	2.2	3	20	1.781	(45.24)	0.562	(14.27)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1144	1264	1384
CHR12A1NC335--	3.3	1	10	1.875	(47.63)	0.670	(17.02)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1145	1265	1385
CHR12A1NC335--	3.3	1	20	1.875	(47.63)	0.670	(17.02)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1146	1266	1386
CHR12A3NC335--	3.3	3	10	1.812	(46.02)	0.670	(17.02)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1147	1267	1387
CHR12A3NC335--	3.3	3	20	1.812	(46.02)	0.670	(17.02)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1148	1268	1388
CHR12A1NC475--	4.7	1	10	1.875	(47.63)	1.000	(25.40)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1149	1269	1389
CHR12A1NC475--	4.7	1	20	1.875	(47.63)	1.000	(25.40)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1150	1270	1390
CHR12A3NC475--	4.7	3	10	1.812	(46.02)	1.000	(25.40)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1151	1271	1391
CHR12A3NC475--	4.7	3	20	1.812	(46.02)	1.000	(25.40)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1152	1272	1392
CHR12A1NC685--	6.8	1	10	1.875	(47.63)	1.000	(25.40)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1153	1273	1393
CHR12A1NC685--	6.8	1	20	1.875	(47.63)	1.000	(25.40)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1154	1274	1394
CHR12A3NC685--	6.8	3	10	1.812	(46.02)	1.000	(25.40)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1155	1275	1395
CHR12A3NC685--	6.8	3	20	1.812	(46.02)	1.000	(25.40)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1156	1276	1396
CHR12A1NC106--	10.0	1	10	2.375	(60.33)	1.000	(25.40)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1157	1277	1397
CHR12A1NC106--	10.0	1	20	2.375	(60.33)	1.000	(25.40)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1158	1278	1398
CHR12A3NC106--	10.0	3	10	2.312	(58.72)	1.000	(25.40)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1159	1279	1399
CHR12A3NC106--	10.0	3	20	2.312	(58.72)	1.000	(25.40)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1160	1280	1400
CHR12A1NC126--	12.0	1	10	2.625	(66.68)	1.000	(25.40)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1161	1281	1401
CHR12A1NC126--	12.0	1	20	2.625	(66.68)	1.000	(25.40)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1162	1282	1402
CHR12A3NC126--	12.0	3	10	2.562	(65.07)	1.000	(25.40)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1163	1283	1403
CHR12A3NC126--	12.0	3	20	2.562	(65.07)	1.000	(25.40)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1164	1284	1404
Rated voltage 400 V																		
CHR12A1NE473--	0.047	1	10	1.125	(28.58)	0.312	(7.92)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	(3.66)	1165	1285	1405
CHR12A1NE473--	0.047	1	20	1.125	(28.58)	0.312	(7.92)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	(3.66)	1166	1286	1406
CHR12A3NE473--	0.047	3	10	1.062	(26.97)	0.312	(7.92)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	(3.66)	1167	1287	1407
CHR12A3NE473--	0.047	3	20	1.062	(26.97)	0.312	(7.92)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	(3.66)	1168	1288	1408
CHR12A1NE104--	0.10	1	10	1.125	(28.58)	0.562	(14.27)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1169	1289	1409
CHR12A1NE104--	0.10	1	20	1.125	(28.58)	0.562	(14.27)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1170	1290	1410
CHR12A3NE104--	0.10	3	10	1.062	(26.97)	0.562	(14.27)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1171	1291	1411
CHR12A3NE104--	0.10	3	20	1.062	(26.97)	0.562	(14.27)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1172	1292	1412
Rated voltage 400 V continued																		
CHR12A1NE224--	0.22	1	10	1.125	(28.58)	0.562	(14,27)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1173	1293	1413
CHR12A1NE224--	0.22	1	20	1.125	(28.58)	0.562	(14,27)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1174	1294	1414
CHR12A3NE224--	0.22	3	10	1.062	(26.97)	0.562	(14,27)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1175	1295	1415
CHR12A3NE224--	0.22	3	20	1.062	(26.97)	0.562	(14,27)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1176	1296	1416
CHR12A1NE474--	0.47	1	10	1.625	(41.28)	0.552	(14,02)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1177	1297	1417
CHR12A1NE474--	0.47	1	20	1.625	(41.28)	0.562	(14,27)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1178	1298	1418
CHR12A3NE474--	0.47	3	10	1.562	(39.67)	0.562	(14,27)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1179	1299	1419
CHR12A3NE474--	0.47	3	20	1.562	(39.67)	0.562	(14,27)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1180	1300	1420
CHR12A1NE105--	1.0	1	10	1.875	(47.63)	0.750	(19,05)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1181	1301	1421
CHR12A1NE105--	1.0	1	20	1.875	(47.63)	0.750	(19,05)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1182	1302	1422
CHR12A3NE105--	1.0	3	10	1.812	(46.02)	0.750	(19,05)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1183	1303	1423
CHR12A3NE105--	1.0	3	20	1.812	(46.02)	0.750	(19,05)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1184	1304	1424
CHR12A1NE225--	2.2	1	10	1.875	(47.63)	1.000	(25,40)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1185	1305	1425
CHR12A1NE225--	2.2	1	20	1.875	(47.63)	1.000	(25,40)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1186	1306	1426
CHR12A3NE225--	2.2	3	10	1.812	(46.02)	1.000	(25,40)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1187	1307	1427
CHR12A3NE225--	2.2	3	20	1.812	(46.02)	1.000	(25,40)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1188	1308	1428
CHR12A1NE335--	3.3	1	10	2.625	(66.68)	1.000	(25,40)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1189	1309	1429
CHR12A1NE335--	3.3	1	20	2.625	(66.68)	1.000	(25,40)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1190	1310	1430
CHR12A3NE335--	3.3	3	10	2.562	(65.07)	1.000	(25,40)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1191	1311	1431
CHR12A3NE335--	3.3	3	20	2,562	(65.07)	1.000	(25,40)	0,438	(11.13)	0,500	(12.70)	0,250	(6.35)	0,156	(3.96)	1192	1312	1432

* Complete type designation will include additional symbols for capacitance tolerance and failure rate level.

** FRL L for revision C only.

CHR12

MIL-PRF-39022/8

Type 118P/218P

ELECTRICAL CHARACTERISTICS, DIMENSIONS, AND DASH NUMBERS

Type designation in MIL-C-39022/1B *	Nominal capacitance (µF)	Capacitance Tolerance (%)	Circuit diagram	Dimensions**												Dash number in Failure rate level (%/1,000 hr)		
				A ±0.062 (±1.57mm)		B ±0.031 (±0.79mm)		J ±0.062 (±1.57mm)		G ±0.062 (±1.57mm)		H ±0.031 (±0.79mm)		F ±0.005 (±0.13mm)				
				Inches	(mm)	Inches	(mm)	Inches	(mm)	Inches	(mm)	Inches	(mm)	Inches	(mm)	M(1.0)	P(0.1)	R(0.01)
Rated voltage 600 V																		
CHR12A1NF103--	0.01	1	10	0.812	(20.62)	0.312	(7.92)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	(3.66)	1193	1313	1433
CHR12A1NF103--	0.01	1	20	0.812	(20.62)	0.312	(7.92)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	(3.66)	1194	1314	1434
CHR12A3NF103--	0.01	3	10	0.750	(19.05)	0.312	(7.92)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	(3.66)	1195	1315	1435
CHR12A3NF103--	0.01	3	20	0.750	(19.05)	0.312	(7.92)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	(3.66)	1196	1316	1436
CHR12A1NF223--	0.022	1	10	0.812	(20.62)	0.312	(7.92)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	(3.66)	1197	1317	1437
CHR12A1NF223--	0.022	1	20	0.812	(20.62)	0.312	(7.92)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	(3.66)	1198	1318	1438
CHR12A3NF223--	0.022	3	10	0.750	(19.05)	0.312	(7.92)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	(3.66)	1199	1319	1439
CHR12A3NF223--	0.022	3	20	0.750	(19.05)	0.312	(7.92)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	(3.66)	1200	1320	1440
CHR12A1NF473--	0.047	1	10	1.125	(28.58)	0.400	(10.16)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	(3.66)	1201	1321	1441
CHR12A1NF473--	0.047	1	20	1.125	(28.58)	0.400	(10.16)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	(3.66)	1202	1322	1442
CHR12A3NF473--	0.047	3	10	1.062	(26.97)	0.400	(10.16)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	(3.66)	1203	1323	1443
CHR12A3NF473--	0.047	3	20	1.062	(26.97)	0.400	(10.16)	0.312	(7.92)	0.250	(6.35)	0.188	(4.78)	0.144	(3.66)	1204	1324	1444
CHR12A1NF104--	0.10	1	10	1.125	(28.58)	0.500	(12.70)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1205	1325	1445
CHR12A1NF104--	0.10	1	20	1.125	(28.58)	0.500	(12.70)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1206	1326	1446
CHR12A3NF104--	0.10	3	10	1.062	(26.97)	0.500	(12.70)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1207	1327	1447
CHR12A3NF104--	0.10	3	20	1.062	(26.97)	0.500	(12.70)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1208	1328	1448
	0.15	1	10	1.125	(28.58)	0.562	(14.27)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1229	1349	1469
	0.15	1	20	1.125	(28.58)	0.562	(14.27)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1230	1350	1470
	0.15	3	10	1.062	(26.97)	0.562	(14.27)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1231	1351	1471
	0.15	3	20	1.062	(26.97)	0.562	(14.27)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1232	1352	1472
CHR12A1NF224--	0.22	1	10	1.375	(34.93)	0.562	(14.27)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1209	1329	1449
CHR12A1NF224--	0.22	1	20	1.375	(34.93)	0.562	(14.27)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1210	1330	1450
CHR12A3NF224--	0.22	3	10	1.312	(33.32)	0.562	(14.27)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1211	1331	1451
CHR12A3NF224--	0.22	3	20	1.312	(33.32)	0.562	(14.27)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1212	1332	1452
CHR12A1NF474--	0.47	1	10	1.625	(41.28)	0.670	(17.02)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1213	1333	1453
CHR12A1NF474--	0.47	1	20	1.625	(41.28)	0.670	(17.02)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1214	1334	1454
CHR12A3NF474--	0.47	3	10	1.562	(39.67)	0.670	(17.02)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1215	1335	1455
CHR12A3NF474--	0.47	3	20	1.562	(39.67)	0.670	(17.02)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1216	1336	1456
CHR12A1NF105--	1.0	1	10	1.844	(46.84)	1.000	(25.40)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1217	1337	1457
Rated voltage 600 V continued																		
CHR12A1NF105--	1.0	1	20	1.844	(46.84)	1.000	(25.40)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1218	1338	1458
CHR12A3NF105--	1.0	3	10	1.781	(45.24)	1.000	(25.40)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1219	1339	1459
CHR12A3NF105--	1.0	3	20	1.781	(45.24)	1.000	(25.40)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1220	1340	1460
CHR12A1NF155--	1.5	1	10	1.875	(47.63)	1.000	(25.40)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1221	1341	1461
CHR12A1NF155--	1.5	1	20	1.875	(47.63)	1.000	(25.40)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1222	1342	1462
CHR12A3NF155--	1.5	3	10	1.812	(46.02)	1.000	(25.40)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1223	1343	1463
CHR12A3NF155--	1.5	3	20	1.812	(46.02)	1.000	(25.40)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1224	1344	1464
CHR12A1NF225--	2.2	1	10	2.625	(66.68)	1.000	(25.40)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1225	1345	1465
CHR12A1NF225--	2.2	1	20	2.625	(66.68)	1.000	(25.40)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1226	1346	1466
CHR12A3NF225--	2.2	3	10	2.562	(65.07)	1.000	(25.40)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1227	1347	1467
CHR12A3NF225--	2.2	3	20	2.562	(65.07)	1.000	(25.40)	0.438	(11.13)	0.500	(12.70)	0.250	(6.35)	0.156	(3.96)	1228	1348	1468

* Complete type designation will include additional symbols for capacitance tolerance and failure rate level.

** FRL L for revision C only.

Type 127P

MIL-PRF-39022/2

CHR19

Capacitors,
Fixed,
Metallized,
Nonmagnetic (end seals may be of magnetic material),
Paper-plastic film, or plastic film dielectric,
Direct current,
Hermetically sealed in metal cases,
Established reliability.

GENERAL CHARACTERISTICS

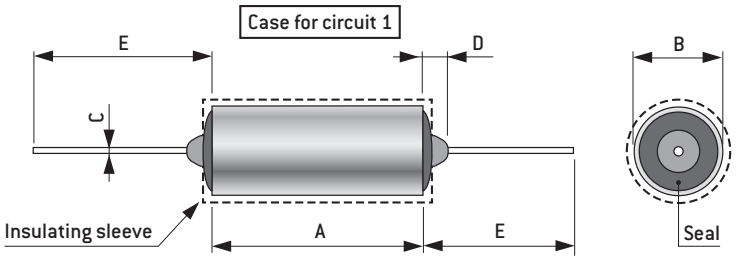
Dielectric material	Normally paper polyethylene-terephthalate
Rated temperature	–55°C to +125°C.
Capacitance range	47 nF to 8.2 µF
Voltage range	200 V and 400 V
Capacitance tolerance	±5%, ±10%
Failure rate level	**M** (1% / 1,000 hours), **P** (0.1% / 1,000 hours), **R** (0.01% / 1,000 hours).

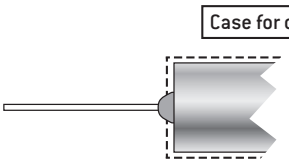
Full details and most up to date information found at government website.

DIMENSIONS

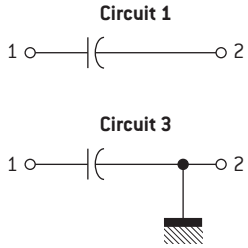
A	B
See tables on the next pages	

C		D		E	
Inches	(mm)	Inches	(mm)	Inches	(mm)
See note 1		0.172 max	(4.37 max)	1.625^{+1}_{-0}	$(41.28^{+25.4}_{-0})$





CIRCUIT DIAGRAM



INSULATION RESISTANCE

	At dc voltage of	
	200 V	400 V
In megohms: At +25°C ±3°C (need not exceed) At +125°C +4°C, –0°C (need not exceed)	12,000 150	12,000 600
In megohms x microfarads (minimum): At +25°C ±3°C At +125°C +4°C, –0°C	2,000 10	2,000 40

NOTES

1. Number 22 AWG wire 0.025"$^{\pm 0.002}$ (0.64$^{\pm 0.05}$ mm) for case diameters of 0.235" (5.97 mm) and 0.312" (7.92 mm). Number 20 AWG wire 0.032"$^{\pm 0.002}$ (0.81$^{\pm 0.05}$ mm) for case diameters of 0.400" (10.16 mm) and over.
2. See table below for additional dimensions.
3. Dimensions are in inches.
4. Metric equivalents are given for general information only.
5. Insulating sleeve shall extend beyond the capacitor body but shall not exceed 0.031" (0.79 mm) on either end. Insulating sleeve thickness shall not exceed 0.016" (0.41 mm).
6. Plastic insulating sleeve shall be transparent; marking shall be applied to the capacitor case.
7. Metric equivalents are in parentheses.
8. Lead length may be a minimum of one inch (25.4 mm) long for use in tape and reel packaging when specified in the ordering data.

HOW TO ORDER

M39022	/02-	1025
Performance Specification number	Specification sheet number	Nonsignificant dash number

M39022	/2	A	152	F	M
Performance Specification number	Specification sheet number	Circuit and voltage code	Capacitance in code	Capacitance tolerance in code	Product level designator
		A, B, C, D, E, F, G, H, J, K (See page 6)	Examples: **101** = 100pF **472** = 4.7nF **473** = 47nF	**J** = ±5% **K** = ±10%	**M** = 1% /1,000 hours **P** = 0.1% /1,000 hours **R** = 0.01% /1,000 hours

ELECTRICAL CHARACTERISTICS, DIMENSIONS, AND DASH NUMBERS

Type designation in MIL-C-39022/1B *	Nominal capacitance (µF)	Capacitance Tolerance (%)	Circuit diagram	Dimensions**				Dash number in			
				A ±0.062 (±1.57 mm)		B ±0.031 (±0.79 mm)		MIL-C-39022/1C thru MIL-PRF-39022/1G ** Failure rate level (%/1,000 hr)			MIL-C-39022/1A and /1
				Inches	(mm)	Inches	(mm)	M(1.0)	P(0.1)	R(0.01)	
Rated voltage 200 V_{DC}											
CHR19A1NC104--	0.10	5	1	1.125	(28.58)	0.312	(7.92)	1111	1221	1331	0001
CHR19A1NC104--	0.10	10	1	1.125	(28.58)	0.312	(7.92)	1112	1222	1332	0002
CHR19A3NC104--	0.10	5	3	1.062	(26.97)	0.312	(7.92)	1113	1223	1333	0003
CHR19A3NC104--	0.10	10	3	1.062	(26.97)	0.312	(7.92)	1114	1224	1334	0004
CHR19A1NC154--	0.15	5	1	1.125	(28.58)	0.312	(7.92)	1115	1225	1335	–
CHR19A1NC154--	0.15	10	1	1.125	(28.58)	0.312	(7.92)	1116	1226	1336	–
CHR19A3NC154--	0.15	5	3	1.062	(26.97)	0.312	(7.92)	1117	1227	1337	–
CHR19A3NC154--	0.15	10	3	1.062	(26.97)	0.312	(7.92)	1118	1228	1338	–
CHR19A1NC224--	0.22	5	1	1.125	(28.58)	0.400	(10.16)	1119	1229	1339	0005
CHR19A1NC224--	0.22	10	1	1.125	(28.58)	0.400	(10.16)	1120	1230	1340	0006
CHR19A3NC224--	0.22	5	3	1.062	(26.97)	0.400	(10.16)	1121	1231	1341	0007
CHR19A3NC224--	0.22	10	3	1.062	(26.97)	0.400	(10.16)	1122	1232	1342	0008
CHR19A1NC334--	0.33	5	1	1.125	(28.58)	0.500	(12.70)	1123	1233	1343	–
CHR19A1NC334--	0.33	10	1	1.125	(28.58)	0.500	(12.70)	1124	1234	1344	–
CHR19A3NC334--	0.33	5	3	1.062	(26.97)	0.500	(12.70)	1125	1235	1345	–
CHR19A3NC334--	0.33	10	3	1.062	(26.97)	0.500	(12.70)	1126	1236	1346	–
CHR19A1NC474--	0.47	5	1	1.125	(28.58)	0.500	(12.70)	1127	1237	1347	0009
CHR19A1NC474--	0.47	10	1	1.125	(28.58)	0.500	(12.70)	1128	1238	1348	0010
CHR19A3NC474--	0.47	5	3	1.062	(26.97)	0.500	(12.70)	1129	1239	1349	0011
CHR19A3NC474--	0.47	10	3	1.062	(26.97)	0.500	(12.70)	1130	1240	1350	0012
CHR19A1NC684--	0.68	5	1	1.375	(34.93)	0.562	(14.27)	1131	1241	1351	–
CHR19A1NC684--	0.68	10	1	1.375	(34.93)	0.562	(14.27)	1132	1242	1352	–
CHR19A3NC684--	0.68	5	3	1.312	(33.32)	0.562	(14.27)	1133	1243	1353	–
CHR19A3NC684--	0.68	10	3	1.312	(33.32)	0.562	(14.27)	1134	1244	1354	–
CHR19A1NC105--	1.0	5	1	1.625	(41.28)	0.562	(14.27)	1135	1245	1355	0013
CHR19A1NC105--	1.0	10	1	1.625	(41.28)	0.562	(14.27)	1136	1246	1356	0014
CHR19A3NC105--	1.0	5	3	1.562	(39.67)	0.562	(14.27)	1137	1247	1357	0015
CHR19A3NC105--	1.0	10	3	1.562	(39.67)	0.562	(14.27)	1138	1248	1358	0016
CHR19A1NC155--	1.5	5	1	1.844	(46.84)	0.562	(14.27)	1139	1249	1359	0017
CHR19A1NC155--	1.5	10	1	1.844	(46.84)	0.562	(14.27)	1140	1250	1360	0018
CHR19A3NC155--	1.5	5	3	1.781	(45.24)	0.562	(14.27)	1141	1251	1361	0019
CHR19A3NC155--	1.5	10	3	1.781	(45.24)	0.562	(14.27)	1142	1252	1362	0020
CHR19A1NC205--	2.0	5	1	1.844	(46.84)	0.672	(17.07)	1143	1253	1363	0021
CHR19A1NC205--	2.0	10	1	1.844	(46.84)	0.672	(17.07)	1144	1254	1364	0022
CHR19A3NC205--	2.0	5	3	1.781	(45.24)	0.672	(17.07)	1145	1255	1365	0023
CHR19A3NC205--	2.0	10	3	1.781	(45.24)	0.672	(17.07)	1146	1256	1366	0024
CHR19A1NC305--	3.0	5	1	2.125	(53.98)	0.750	(19.05)	1147	1257	1367	0025
CHR19A1NC305--	3.0	10	1	2.125	(53.98)	0.750	(19.05)	1148	1258	1368	0026
CHR19A3NC305--	3.0	5	3	2.062	(52.37)	0.750	(19.05)	1149	1259	1369	0027
CHR19A3NC305--	3.0	10	3	2.062	(52.37)	0.750	(19.05)	1150	1260	1370	0028
CHR19A1NC435--	4.3	5	1	2.625	(66.68)	0.750	(19.05)	1151	1261	1371	–
CHR19A1NC435--	4.3	10	1	2.625	(66.68)	0.750	(19.05)	1152	1262	1372	–
CHR19A3NC435--	4.3	5	3	2.562	(65.07)	0.750	(19.05)	1153	1263	1373	–
CHR19A3NC435--	4.3	10	3	2.562	(65.07)	0.750	(19.05)	1154	1264	1374	–
CHR19A1NC515--	5.1	5	1	1.875	(47.63)	1.000	(25.40)	1155	1265	1375	–
CHR19A1NC515--	5.1	10	1	1.875	(47.63)	1.000	(25.40)	1156	1266	1376	–
CHR19A3NC515--	5.1	5	3	1.812	(46.02)	1.000	(25.40)	1157	1267	1377	–
CHR19A3NC515--	5.1	10	3	1.812	(46.02)	1.000	(25.40)	1158	1268	1378	–
CHR19A1NC625--	6.2	5	1	2.125	(53.98)	1.000	(25.40)	1159	1269	1379	–
CHR19A1NC625--	6.2	10	1	2.125	(53.98)	1.000	(25.40)	1160	1270	1380	–
CHR19A3NC625--	6.2	5	3	2.062	(52.37)	1.000	(25.40)	1161	1271	1381	–
CHR19A3NC625--	6.2	10	3	2.062	(52.37)	1.000	(25.40)	1162	1272	1382	–
CHR19A1NC825--	8.2	5	1	2.625	(66.68)	1.000	(25.40)	1163	1273	1383	–
CHR19A1NC825--	8.2	10	1	2.625	(66.68)	1.000	(25.40)	1164	1274	1384	–
CHR19A3NC825--	8.2	5	3	2.562	(65.07)	1.000	(25.40)	1165	1275	1385	–
CHR19A3NC825--	8.2	10	3	2.562	(65.07)	1.000	(25.40)	1166	1276	1386	–

* Complete type designation will include additional symbols for capacitance tolerance and failure rate level.

** FRL L for revision C only.

Type 127P

MIL-PRF-39022/2

CHR19

ELECTRICAL CHARACTERISTICS, DIMENSIONS, AND DASH NUMBERS

Type designation in MIL-C-39022/1B *	Nominal capacitance (µF)	Capacitance Tolerance (%)	Circuit diagram	Dimensions**				Dash number in			
				A ±0.062 (±1.57 mm)		B ±0.031 (±0.79 mm)		MIL-C-39022/1C thru MIL-PRF-39022/1G ** Failure rate level (%/1,000 hr)			MIL-C-39022/1A and /1
				Inches	(mm)	Inches	(mm)	M(1.0)	P(0.1)	R(0.01)	
Rated voltage 400 V_{DC}											
CHR19A1NE473--	0.047	5	1	1.125	(28.58)	0.400	(10.16)	1167	1277	1387	0101
CHR19A1NE473--	0.047	10	1	1.125	(28.58)	0.400	(10.16)	1168	1278	1388	0102
CHR19A3NE473--	0.047	5	3	1.062	(26.97)	0.400	(10.16)	1169	1279	1389	0103
CHR19A3NE473--	0.047	10	3	1.062	(26.97)	0.400	(10.16)	1170	1280	1390	0104
CHR19A1NE683--	0.068	5	1	1.125	(28.58)	0.400	(10.16)	1171	1281	1391	–
CHR19A1NE683--	0.068	10	1	1.125	(28.58)	0.400	(10.16)	1172	1282	1392	–
CHR19A3NE683--	0.068	5	3	1.062	(26.97)	0.400	(10.16)	1173	1283	1393	–
CHR19A3NE683--	0.068	10	3	1.062	(26.97)	0.400	(10.16)	1174	1284	1394	0105
CHR19A1NE104--	0.1	5	1	1.125	(28.58)	0.500	(12.70)	1175	1285	1395	0106
CHR19A1NE104--	0.1	10	1	1.125	(28.58)	0.500	(12.70)	1176	1286	1396	0107
CHR19A3NE104--	0.1	5	3	1.062	(26.97)	0.500	(12.70)	1177	1287	1397	0108
CHR19A3NE104--	0.1	10	3	1.062	(26.97)	0.500	(12.70)	1178	1288	1398	–
CHR19A1NE154--	0.15	5	1	1.125	(28.58)	0.562	(14.27)	1179	1289	1399	–
CHR19A1NE154--	0.15	10	1	1.125	(28.58)	0.562	(14.27)	1180	1290	1400	–
CHR19A3NE154--	0.15	5	3	1.062	(26.97)	0.562	(14.27)	1181	1291	1401	–
CHR19A3NE154--	0.15	10	3	1.062	(26.97)	0.562	(14.27)	1182	1292	1402	0109
CHR19A1NE224--	0.22	5	1	1.375	(34.93)	0.562	(14.27)	1183	1293	1403	0110
CHR19A1NE224--	0.22	10	1	1.375	(34.93)	0.562	(14.27)	1184	1294	1404	0111
CHR19A3NE224--	0.22	5	3	1.312	(33.32)	0.562	(14.27)	1185	1295	1405	0112
CHR19A3NE224--	0.22	10	3	1.312	(33.32)	0.562	(14.27)	1186	1296	1406	–
CHR19A1NE334--	0.33	5	1	1.375	(34.93)	0.672	(17.07)	1187	1297	1407	–
CHR19A1NE334--	0.33	10	1	1.375	(34.93)	0.672	(17.07)	1188	1298	1408	–
CHR19A3NE334--	0.33	5	3	1.312	(33.32)	0.672	(17.07)	1189	1299	1409	–
CHR19A3NE334--	0.33	10	3	1.312	(33.32)	0.672	(17.07)	1190	1300	1410	0113
CHR19A1NE474--	0.47	5	1	1.625	(41.28)	0.672	(17.07)	1191	1301	1411	0114
CHR19A1NE474--	0.47	10	1	1.625	(41.28)	0.672	(17.07)	1192	1302	1412	0115
CHR19A3NE474--	0.47	5	3	1.562	(39.67)	0.672	(17.07)	1193	1303	1413	0116
CHR19A3NE474--	0.47	10	3	1.562	(39.67)	0.672	(17.07)	1194	1304	1414	–
CHR19A1NE684--	0.68	5	1	1.625	(41.28)	0.750	(19.05)	1195	1305	1415	–
CHR19A1NE684--	0.68	10	1	1.625	(41.28)	0.750	(19.05)	1196	1306	1416	–
CHR19A3NE684--	0.68	5	3	1.562	(39.67)	0.750	(19.05)	1197	1307	1417	–
CHR19A3NE684--	0.68	10	3	1.562	(39.67)	0.750	(19.05)	1198	1308	1418	0117
CHR19A1NE105--	1.0	5	1	1.875	(47.63)	0.750	(19.05)	1199	1309	1419	0118
CHR19A1NE105--	1.0	10	1	1.875	(47.63)	0.750	(19.05)	1200	1310	1420	0119
CHR19A3NE105--	1.0	5	3	1.812	(46.02)	0.750	(19.05)	1201	1311	1421	0120
CHR19A3NE105--	1.0	10	3	1.812	(46.02)	0.750	(19.05)	1202	1312	1422	–
CHR19A1NE155--	1.5	5	1	1.625	(41.28)	1.000	(25.40)	1203	1313	1423	–
CHR19A1NE155--	1.5	10	1	1.625	(41.28)	1.000	(25.40)	1204	1314	1424	–
CHR19A3NE155--	1.5	5	3	1.562	(39.67)	1.000	(25.40)	1205	1315	1425	–
CHR19A3NE155--	1.5	10	3	1.562	(39.67)	1.000	(25.40)	1206	1316	1426	–
CHR19A1NE225--	2.2	5	1	2.125	(53.98)	1.000	(25.40)	1207	1317	1427	–
CHR19A1NE225--	2.2	10	1	2.125	(53.98)	1.000	(25.40)	1208	1318	1428	–
CHR19A3NE225--	2.2	5	3	2.062	(52.37)	1.000	(25.40)	1209	1319	1429	–
CHR19A3NE225--	2.2	10	3	2.062	(52.37)	1.000	(25.40)	1210	1320	1430	–
CHR19A1NE335--	3.3	5	1	2.625	(66.68)	1.000	(25.40)	1211	1321	1431	–
CHR19A1NE335--	3.3	10	1	2.625	(66.68)	1.000	(25.40)	1212	1322	1432	–
CHR19A3NE335--	3.3	5	3	2.562	(65.07)	1.000	(25.40)	1213	1323	1433	–
CHR19A3NE335--	3.3	10	3	2.562	(65.07)	1.000	(25.40)	1214	1324	1434	–

* Complete type designation will include additional symbols for capacitance tolerance and failure rate level.

** FRL L for revision C only.

CHR26

MIL-PRF-39022/12

Type 859P

Capacitor,
Fixed,
Metallized plastic film dielectric,
Alternating current (RMS),
Hermetically sealed in metal cases,
Nonmagnetic (end seal may be of magnetic material)
Established reliability.

GENERAL CHARACTERISTICS

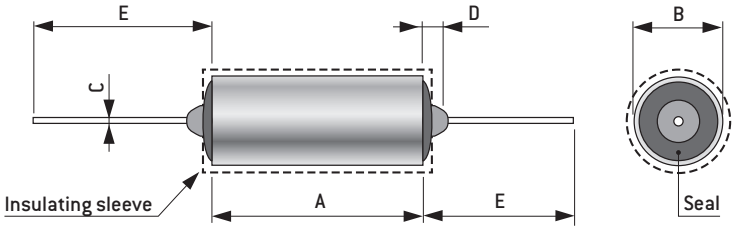
Dielectric material	Normally polyphenylene sulfide
Rated temperature	–55°C to +85°C.
Capacitance range	0.010μF to 10 μF
Voltage range	80 V to 400 V
Capacitance tolerance	±5%, ±10%
Failure rate level (% per 1,000 hours)	**M** (1%), **P** (0.1%), **R** (0.01%), and **S** (0.001%).

Full details and most up to date information found at government website.

DIMENSIONS

A	B
See tables on the next pages	

C		D		E	
Inches	(mm)	Inches	(mm)	Inches	(mm)
See note 1		0.172 max	(4.37 max)	1.50^{+1}_{-0}	$(38.10^{+25.4}_{-0})$



CIRCUIT DIAGRAM

NOTES

1. Number 20 AWG wire 0.032"$\pm$0.002 (0.81$\pm$0.05 mm) for case diameters of 0.312" (7.92 mm). Number 18 AWG wire 0.040"$\pm$0.002 (1.02$\pm$0.05 mm) for case diameters of 0.400" (10.16 mm) and over.
2. See table below for additional dimensions.
3. Dimensions are in inches.
4. Metric equivalents are given for general information only.
5. Metric equivalents are in parentheses.
6. Lead length may be a minimum of 1.0 inch (25.4 mm) long for use in tape and reel packaging when specified in the ordering data.

INSULATION RESISTANCE

In megohms: At +25°C ±3°C (need not exceed) At +125°C +4°C, –0°C (need not exceed)	 50,000 10,000
In megohms x microfarads (minimum): At +25°C ±3°C At +125°C +4°C, –0°C	 25,000 5,000

HOW TO ORDER

M39022	/12-	1171
Performance Specification number	Specification sheet number	Nonsignificant dash number

Type 859P

MIL-PRF-39022/12

CHR26

ELECTRICAL CHARACTERISTICS, DIMENSIONS, AND DASH NUMBERS

AC rated voltage (Vrms)	Nominal capacitance (µF)	Dimensions				Dash number in			
		A ±0.062(±1.57 mm)		B +0.031/–0.05(+0.79 / –1.30 mm)		Failure rate level (%/1,000 hr)			
		Inches	(mm)	Inches	(mm)	M (1.0)	P (0.1)	R (0.01)	S (0.001)
400	0.010	1.125	(28.58)	0.312	(7.92)	1171	1191	1211	1231
400	0.012	1.125	(28.58)	0.400	(10.16)	1270	1290	1310	1330
400	0.015	1.125	(28.58)	0.400	(10.16)	1172	1192	1212	1232
400	0.018	1.125	(28.58)	0.400	(10.16)	1271	1291	1311	1331
400	0.022	1.125	(28.58)	0.400	(10.16)	1173	1193	1213	1233
400	0.027	1.375	(34.93)	0.400	(10.16)	1272	1292	1312	1332
400	0.033	1.375	(34.93)	0.400	(10.16)	1174	1194	1214	1234
400	0.039	1.125	(28.58)	0.562	(14.27)	1273	1293	1313	1333
400	0.047	1.125	(28.58)	0.562	(14.27)	1175	1195	1215	1235
400	0.056	1.375	(34.93)	0.562	(14.27)	1274	1294	1314	1334
400	0.068	1.375	(34.93)	0.562	(14.27)	1176	1196	1216	1236
400	0.082	1.625	(41.28)	0.562	(14.27)	1275	1295	1315	1336
400	0.10	1.625	(41.28)	0.562	(14.27)	1177	1197	1217	1237
390	0.12	1.625	(41.28)	0.670	(17.02)	1178	1198	1218	1238
390	0.15	1.625	(41.28)	0.670	(17.02)	1179	1199	1219	1239
385	0.18	1.875	(47.63)	0.670	(17.02)	1276	1296	1316	1336
385	0.22	1.875	(47.63)	0.670	(17.02)	1180	1200	1220	1240
380	0.27	2.375	(60.33)	0.750	(19.05)	1277	1297	1317	1337
380	0.33	2.375	(60.33)	0.750	(19.05)	1183	1203	1223	1243
370	0.39	1.875	(47.63)	1.000	(25.40)	1278	1298	1318	1338
370	0.47	1.875	(47.63)	1.000	(25.40)	1181	1201	1221	1241
350	0.56	2.375	(60.33)	1.000	(25.40)	1279	1299	1319	1339
350	0.68	2.375	(60.33)	1.000	(25.40)	1182	1202	1222	1242
300	0.10	1.125	(28.58)	0.500	(12.70)	1044	1074	1104	1134
300	0.12	1.375	(34.93)	0.562	(14.27)	1340	1360	1380	1400
300	0.15	1.375	(34.93)	0.562	(14.27)	1045	1075	1105	1135
300	0.18	1.625	(41.28)	0.562	(14.27)	1341	1361	1381	1401
300	0.22	1.625	(41.28)	0.562	(14.27)	1046	1076	1106	1136
300	0.27	1.875	(47.63)	0.562	(14.27)	1342	1362	1382	1402
300	0.33	1.875	(47.63)	0.562	(14.27)	1047	1077	1107	1137
300	0.39	1.625	(41.28)	0.670	(17.02)	1343	1363	1383	1403
300	0.47	1.625	(41.28)	0.670	(17.02)	1048	1078	1108	1138
295	0.56	1.875	(47.63)	0.750	(19.05)	1344	1364	1384	1404
290	0.68	1.875	(47.63)	0.750	(19.05)	1049	1079	1109	1139
280	0.82	2.125	(53.98)	0.750	(19.05)	1345	1365	1385	1405
270	1.00	2.125	(53.98)	0.750	(19.05)	1050	1080	1110	1140
235	1.50	1.875	(47.63)	1.000	(25.40)	1051	1081	1111	1141
200	2.20	2.625	(66.68)	1.000	(25.40)	1052	1082	1112	1142
165	0.10	.875	(22.23)	0.312	(7.92)	1031	1061	1091	1121
165	0.12	1.125	(28.58)	0.312	(7.92)	1346	1366	1386	1406
165	0.15	1.125	(28.58)	0.312	(7.92)	1032	1062	1092	1122
165	0.18	0.875	(22.23)	0.400	(10.16)	1347	1367	1387	1407
165	0.22	0.875	(22.23)	0.400	(10.16)	1033	1063	1093	1123
165	0.27	1.125	(28.58)	0.400	(10.16)	1348	1368	1388	1408
165	0.33	1.125	(28.58)	0.400	(10.16)	1034	1064	1094	1124
165	0.39	1.375	(34.93)	0.400	(10.16)	1349	1369	1389	1409
165	0.47	1.375	(34.93)	0.400	(10.16)	1035	1065	1095	1125
165	0.56	1.125	(28.58)	0.562	(14.27)	1350	1370	1390	1410
165	0.68	1.125	(28.58)	0.562	(14.27)	1036	1066	1096	1126
165	0.82	1.375	(34.93)	0.562	(14.27)	1351	1371	1391	1411
165	1.00	1.375	(34.93)	0.562	(14.27)	1037	1067	1097	1127
155	1.50	1.625	(41.28)	0.562	(14.27)	1038	1068	1098	1128
150	2.20	1.625	(41.28)	0.670	(17.02)	1039	1069	1099	1129
145	2.50	1.875	(47.63)	0.670	(17.02)	1352	1372	1392	1412
140	3.30	1.875	(47.63)	0.750	(19.05)	1040	1070	1100	1130
135	4.00	2.125	(53.98)	0.750	(19.05)	1353	1373	1393	1413
130	4.70	2.375	(60.33)	0.750	(19.05)	1041	1071	1101	1131
110	6.80	1.875	(47.63)	1.000	(25.40)	1042	1072	1102	1132
100	8.00	2.125	(53.98)	1.000	(25.40)	1354	1374	1394	1414
90	9.00	2.375	(60.33)	1.000	(25.40)	1355	1375	1395	1415
80	10.00	2.625	(66.68)	1.000	(25.40)	1043	1073	1103	1133

CHR27

MIL-PRF-39022/13

Type 820P

Capacitor,
Fixed,
Metallized paper-plastic film dielectric,
Direct current
Hermetically sealed in metal cases,
Established reliability

GENERAL CHARACTERISTICS

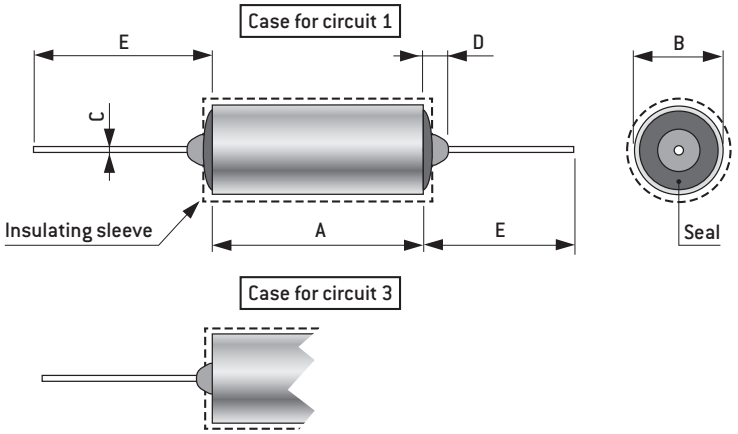
Dielectric material	Normally polyphenylene sulfide
Rated temperature	–55°C to +125°C.
Capacitance range	0.047µF to 22 µF
Voltage range	50 V to 600 V
Capacitance tolerance	±1%, ±2%, ±5%, ±10%
Failure rate level (% per 1,000 hours)	**M** (1%), **P** (0.1%), **R** (0.01%), and **S** (0.001%).

Full details and most up to date information found at government website.

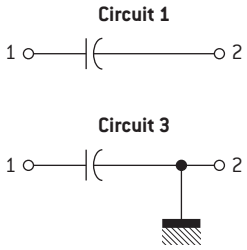
DIMENSIONS

A	B
See tables on the next pages	

C		D		E	
Inches	(mm)	Inches	(mm)	Inches	(mm)
See note 1		0.172 max	(4.37 max)	1.625 $^{+1}_{-0}$	(41.28 $^{+25.4}_{-0}$)



CIRCUIT DIAGRAM



INSULATION RESISTANCE

In megohms:	
At +25°C ±3°C (need not exceed)	250,000
At +85°C +4°C, –0°C (need not exceed)	25,000
At +125°C +4°C, –0°C (need not exceed)	15,000
In megohms x microfarads (minimum):	
At +25°C ±3°C	100,000
At +85°C +4°C, –0°C	6,000
At +125°C +4°C, –0°C	1,000

NOTES

1. Number 24 AWG wire 0.020"$^{\pm 0.002}$ (0.51$^{\pm 0.05}$ mm) for case diameters of 0.175" (4.45 mm) and .195 (4.95 mm).
   Number 22 AWG wire 0.025"$^{\pm 0.002}$ (0.64 $^{\pm 0.05}$ mm) for case diameters of .235" (5.97 mm) and .312 (7.92 mm).
   Number 20 AWG wire 0.032"$^{\pm 0.002}$ (0.81$^{\pm 0.05}$ mm) for case diameters of 0.400" (10.16 mm) and over.
   Number 18 AWG wire 0.040"$^{\pm 0.002}$ (1.02$^{\pm 0.05}$ mm) for case diameters of 1.0" (25.4 mm)
2. See table below for additional dimensions.
3. Dimensions are in inches.
4. Metric equivalents are given for general information only.
5. Insulating sleeve shall extend beyond the capacitor body but shall not exceed .031"(0.79 mm) on either end. Insulating sleeve thickness shall not exceed .016" (0.41 mm).
6. Plastic insulating sleeve shall be transparent; marking shall be placed on the capacitor case.
7. Lead length may be a minimum of 1.0" (25.4 mm) long for use in tape and reel packaging, when specified in the ordering data.

HOW TO ORDER

M39022	/13	A	473	F	M
Performance Specification number	Specification sheet number	Circuit and voltage code	Capacitance in code	Capacitance tolerance in code	Product level designator
		A, B, C, D, E, F, G, H, J, K, L, M (see page 6)	Examples: **101** = 100pF **472** = 4.7nF **473** = 47nF	**F** = ±1% **G** = ±2% **J** = ±5% **K** = ±10%	**M** = 1% /1,000 hours **P** = 0.1% /1,000 hours **R** = 0.01% /1,000 hours **S** = 0.001% /1,000 hours

Type 820P

MIL-PRF-39022/13

CHR27

ELECTRICAL CHARACTERISTICS, DIMENSIONS, AND DASH NUMBERS

Part or Identifying Number (PIN)*	Capacitance (µF)	Capacitance Tolerance (in code)	Failure rate Level (in code)	Dimensions**			
				A ±0.062(±1.57 mm)		B +0.031/–0.05(+0.79 / –1.30 mm)	
				Inches	(mm)	Inches	(mm)
Rated voltage 50 V_{DC}							
M39022/13 - 473 - -	0.047	F, G, J, K	M, P, R, S	0.531	(0.021)	0.174	(0.007)
M39022/13 - 563 - -	0.056	F, G, J, K	M, P, R, S	0.531	(0.021)	0.174	(0.007)
M39022/13 - 683 - -	0.068	F, G, J, K	M, P, R, S	0.625	(0.025)	0.174	(0.007)
M39022/13 - 823 - -	0.082	F, G, J, K	M, P, R, S	0.625	(0.025)	0.174	(0.007)
M39022/13 - 104 - -	0.10	F, G, J, K	M, P, R, S	0.625	(0.025)	0.174	(0.007)
M39022/13 - 124 - -	0.12	F, G, J, K	M, P, R, S	0.625	(0.025)	0.174	(0.007)
M39022/13 - 154 - -	0.15	F, G, J, K	M, P, R, S	0.625	(0.025)	0.193	(0.008)
M39022/13 - 184 - -	0.18	F, G, J, K	M, P, R, S	0.625	(0.025)	0.193	(0.008)
M39022/13 - 224 - -	0.22	F, G, J, K	M, P, R, S	0.625	(0.025)	0.235	(0.009)
M39022/13 - 274 - -	0.27	F, G, J, K	M, P, R, S	0.625	(0.025)	0.235	(0.009)
M39022/13 - 334 - -	0.33	F, G, J, K	M, P, R, S	0.625	(0.025)	0.312	(0.012)
M39022/13 - 394 - -	0.39	F, G, J, K	M, P, R, S	0.625	(0.025)	0.312	(0.012)
M39022/13 - 474 - -	0.47	F, G, J, K	M, P, R, S	0.625	(0.025)	0.312	(0.012)
M39022/13 - 564 - -	0.56	F, G, J, K	M, P, R, S	0.625	(0.025)	0.312	(0.012)
M39022/13 - 684 - -	0.68	F, G, J, K	M, P, R, S	0.843	(0.033)	0.312	(0.012)
M39022/13 - 824 - -	0.82	F, G, J, K	M, P, R, S	0.843	(0.033)	0.312	(0.012)
M39022/13 - 105 - -	1.0	F, G, J, K	M, P, R, S	0.843	(0.033)	0.312	(0.012)
M39022/13 - 125 - -	1.2	F, G, J, K	M, P, R, S	0.843	(0.033)	0.400	(0.016)
M39022/13 - 155 - -	1.5	F, G, J, K	M, P, R, S	0.843	(0.033)	0.400	(0.016)
M39022/13 - 185 - -	1.8	F, G, J, K	M, P, R, S	0.843	(0.033)	0.400	(0.016)
M39022/13 - 205 - -	2.0	F, G, J, K	M, P, R, S	0.843	(0.033)	0.400	(0.016)
M39022/13 - 225 - -	2.2	F, G, J, K	M, P, R, S	1.125	(0.044)	0.400	(0.016)
M39022/13 - 275 - -	2.7	F, G, J, K	M, P, R, S	1.125	(0.044)	0.400	(0.016)
M39022/13 - 305 - -	3.0	F, G, J, K	M, P, R, S	1.125	(0.044)	0.400	(0.016)
M39022/13 - 335 - -	3.3	F, G, J, K	M, P, R, S	1.125	(0.044)	0.400	(0.016)
M39022/13 - 395 - -	3.9	F, G, J, K	M, P, R, S	1.125	(0.044)	0.500	(0.020)
M39022/13 - 475 - -	4.7	F, G, J, K	M, P, R, S	1.125	(0.044)	0.500	(0.020)
M39022/13 - 505 - -	5.0	F, G, J, K	M, P, R, S	1.125	(0.044)	0.500	(0.020)
M39022/13 - 565 - -	5.6	F, G, J, K	M, P, R, S	1.125	(0.044)	0.500	(0.020)
M39022/13 - 685 - -	6.8	F, G, J, K	M, P, R, S	1.125	(0.044)	0.562	(0.022)
M39022/13 - 825 - -	8.2	F, G, J, K	M, P, R, S	1.312	(0.052)	0.562	(0.022)
M39022/13 - 106 - -	10.0	F, G, J, K	M, P, R, S	1.312	(0.052)	0.670	(0.026)
M39022/13 - 126 - -	12.0	F, G, J, K	M, P, R, S	1.312	(0.052)	0.670	(0.026)
M39022/13 - 156 - -	15.0	F, G, J, K	M, P, R, S	1.375	(0.054)	0.750	(0.030)
M39022/13 - 186 - -	18.0	F, G, J, K	M, P, R, S	1.375	(0.054)	0.750	(0.030)
M39022/13 - 206 - -	20.0	F, G, J, K	M, P, R, S	1.625	(0.064)	0.750	(0.030)
M39022/13 - 226 - -	22.0	F, G, J, K	M, P, R, S	1.625	(0.064)	0.750	(0.030)
Rated voltage 100 V_{DC}							
M39022/13 - 103 - -	0.01	F, G, J, K	M, P, R, S	0.625	(0.025)	0.174	(0.007)
M39022/13 - 123 - -	0.012	F, G, J, K	M, P, R, S	0.625	(0.025)	0.174	(0.007)
M39022/13 - 153 - -	0.015	F, G, J, K	M, P, R, S	0.625	(0.025)	0.174	(0.007)
M39022/13 - 183 - -	0.018	F, G, J, K	M, P, R, S	0.625	(0.025)	0.174	(0.007)
M39022/13 - 223 - -	0.022	F, G, J, K	M, P, R, S	0.625	(0.025)	0.174	(0.007)
M39022/13 - 273 - -	0.027	F, G, J, K	M, P, R, S	0.625	(0.025)	0.174	(0.007)
M39022/13 - 333 - -	0.033	F, G, J, K	M, P, R, S	0.625	(0.025)	0.174	(0.007)
M39022/13 - 393 - -	0.039	F, G, J, K	M, P, R, S	0.625	(0.025)	0.174	(0.007)
M39022/13 - 473 - -	0.047	F, G, J, K	M, P, R, S	0.625	(0.025)	0.193	(0.008)
M39022/13 - 563 - -	0.056	F, G, J, K	M, P, R, S	0.625	(0.025)	0.193	(0.008)
M39022/13 - 683 - -	0.068	F, G, J, K	M, P, R, S	0.625	(0.025)	0.235	(0.009)
M39022/13 - 823 - -	0.082	F, G, J, K	M, P, R, S	0.625	(0.025)	0.235	(0.009)
M39022/13 - 104 - -	0.10	F, G, J, K	M, P, R, S	0.688	(0.027)	0.235	(0.009)
M39022/13 - 124 - -	0.12	F, G, J, K	M, P, R, S	0.688	(0.027)	0.235	(0.009)

* The complete PIN will include additional symbols to indicate circuit and voltage code, capacitance tolerance (K, J, G, or F), and FRL (M, P, R, or S).

** Dimensions are for circuit 1. For circuit 3, deduct 0.062" (1.57 mm) from length.

ELECTRICAL CHARACTERISTICS, DIMENSIONS, AND DASH NUMBERS

Part or Identifying Number (PIN)*	Capacitance (µF)	Capacitance Tolerance (in code)	Failure rate Level (in code)	Dimensions**			
				A ±0.062(±1.57 mm)		B +0.031/–0.05(+0.79 / –1.30 mm)	
				Inches	(mm)	Inches	(mm)
Rated voltage 50 V_{DC}							
M39022/13 - 473 - -	0.047	F, G, J, K	M, P, R, S	0.531	(0.021)	0.174	(0.007)
M39022/13 - 563 - -	0.056	F, G, J, K	M, P, R, S	0.531	(0.021)	0.174	(0.007)
M39022/13 - 683 - -	0.068	F, G, J, K	M, P, R, S	0.625	(0.025)	0.174	(0.007)
M39022/13 - 823 - -	0.082	F, G, J, K	M, P, R, S	0.625	(0.025)	0.174	(0.007)
M39022/13 - 104 - -	0.10	F, G, J, K	M, P, R, S	0.625	(0.025)	0.174	(0.007)
M39022/13 - 124 - -	0.12	F, G, J, K	M, P, R, S	0.625	(0.025)	0.174	(0.007)
M39022/13 - 154 - -	0.15	F, G, J, K	M, P, R, S	0.625	(0.025)	0.193	(0.008)
M39022/13 - 184 - -	0.18	F, G, J, K	M, P, R, S	0.625	(0.025)	0.193	(0.008)
M39022/13 - 224 - -	0.22	F, G, J, K	M, P, R, S	0.625	(0.025)	0.235	(0.009)
M39022/13 - 274 - -	0.27	F, G, J, K	M, P, R, S	0.625	(0.025)	0.235	(0.009)
M39022/13 - 334 - -	0.33	F, G, J, K	M, P, R, S	0.625	(0.025)	0.312	(0.012)
M39022/13 - 394 - -	0.39	F, G, J, K	M, P, R, S	0.625	(0.025)	0.312	(0.012)
M39022/13 - 474 - -	0.47	F, G, J, K	M, P, R, S	0.625	(0.025)	0.312	(0.012)
M39022/13 - 564 - -	0.56	F, G, J, K	M, P, R, S	0.625	(0.025)	0.312	(0.012)
M39022/13 - 684 - -	0.68	F, G, J, K	M, P, R, S	0.843	(0.033)	0.312	(0.012)
M39022/13 - 824 - -	0.82	F, G, J, K	M, P, R, S	0.843	(0.033)	0.312	(0.012)
M39022/13 - 105 - -	1.0	F, G, J, K	M, P, R, S	0.843	(0.033)	0.312	(0.012)
M39022/13 - 125 - -	1.2	F, G, J, K	M, P, R, S	0.843	(0.033)	0.400	(0.016)
M39022/13 - 155 - -	1.5	F, G, J, K	M, P, R, S	0.843	(0.033)	0.400	(0.016)
M39022/13 - 185 - -	1.8	F, G, J, K	M, P, R, S	0.843	(0.033)	0.400	(0.016)
M39022/13 - 205 - -	2.0	F, G, J, K	M, P, R, S	0.843	(0.033)	0.400	(0.016)
M39022/13 - 225 - -	2.2	F, G, J, K	M, P, R, S	1.125	(0.044)	0.400	(0.016)
M39022/13 - 275 - -	2.7	F, G, J, K	M, P, R, S	1.125	(0.044)	0.400	(0.016)
M39022/13 - 305 - -	3.0	F, G, J, K	M, P, R, S	1.125	(0.044)	0.400	(0.016)
M39022/13 - 335 - -	3.3	F, G, J, K	M, P, R, S	1.125	(0.044)	0.400	(0.016)
M39022/13 - 395 - -	3.9	F, G, J, K	M, P, R, S	1.125	(0.044)	0.500	(0.020)
M39022/13 - 475 - -	4.7	F, G, J, K	M, P, R, S	1.125	(0.044)	0.500	(0.020)
M39022/13 - 505 - -	5.0	F, G, J, K	M, P, R, S	1.125	(0.044)	0.500	(0.020)
M39022/13 - 565 - -	5.6	F, G, J, K	M, P, R, S	1.125	(0.044)	0.500	(0.020)
M39022/13 - 685 - -	6.8	F, G, J, K	M, P, R, S	1.125	(0.044)	0.562	(0.022)
M39022/13 - 825 - -	8.2	F, G, J, K	M, P, R, S	1.312	(0.052)	0.562	(0.022)
M39022/13 - 106 - -	10.0	F, G, J, K	M, P, R, S	1.312	(0.052)	0.670	(0.026)
M39022/13 - 126 - -	12.0	F, G, J, K	M, P, R, S	1.312	(0.052)	0.670	(0.026)
M39022/13 - 156 - -	15.0	F, G, J, K	M, P, R, S	1.375	(0.054)	0.750	(0.030)
M39022/13 - 186 - -	18.0	F, G, J, K	M, P, R, S	1.375	(0.054)	0.750	(0.030)
M39022/13 - 206 - -	20.0	F, G, J, K	M, P, R, S	1.625	(0.064)	0.750	(0.030)
M39022/13 - 226 - -	22.0	F, G, J, K	M, P, R, S	1.625	(0.064)	0.750	(0.030)
Rated voltage 100 V_{DC}							
M39022/13 - 103 - -	0.01	F, G, J, K	M, P, R, S	0.625	(0.025)	0.174	(0.007)
M39022/13 - 123 - -	0.012	F, G, J, K	M, P, R, S	0.625	(0.025)	0.174	(0.007)
M39022/13 - 153 - -	0.015	F, G, J, K	M, P, R, S	0.625	(0.025)	0.174	(0.007)
M39022/13 - 183 - -	0.018	F, G, J, K	M, P, R, S	0.625	(0.025)	0.174	(0.007)
M39022/13 - 223 - -	0.022	F, G, J, K	M, P, R, S	0.625	(0.025)	0.174	(0.007)
M39022/13 - 273 - -	0.027	F, G, J, K	M, P, R, S	0.625	(0.025)	0.174	(0.007)
M39022/13 - 333 - -	0.033	F, G, J, K	M, P, R, S	0.625	(0.025)	0.174	(0.007)
M39022/13 - 393 - -	0.039	F, G, J, K	M, P, R, S	0.625	(0.025)	0.174	(0.007)
M39022/13 - 473 - -	0.047	F, G, J, K	M, P, R, S	0.625	(0.025)	0.193	(0.008)
M39022/13 - 563 - -	0.056	F, G, J, K	M, P, R, S	0.625	(0.025)	0.193	(0.008)
M39022/13 - 683 - -	0.068	F, G, J, K	M, P, R, S	0.625	(0.025)	0.235	(0.009)
M39022/13 - 823 - -	0.082	F, G, J, K	M, P, R, S	0.625	(0.025)	0.235	(0.009)
M39022/13 - 104 - -	0.10	F, G, J, K	M, P, R, S	0.688	(0.027)	0.235	(0.009)
M39022/13 - 124 - -	0.12	F, G, J, K	M, P, R, S	0.688	(0.027)	0.235	(0.009)

* The complete PIN will include additional symbols to indicate circuit and voltage code, capacitance tolerance (K, J, G, or F), and FRL (M, P, R, or S).

** Dimensions are for circuit 1. For circuit 3, deduct 0.062" (1.57 mm) from length.

Type 820P

MIL-PRF-39022/13

CHR27

ELECTRICAL CHARACTERISTICS, DIMENSIONS, AND DASH NUMBERS

Part or Identifying Number (PIN)*	Capacitance (µF)	Capacitance Tolerance (in code)	Failure rate Level (in code)	Dimensions**			
				A ±0.062(±1.57 mm)		B +0.031/–0.05(+0.79 / –1.30 mm)	
				Inches	(mm)	Inches	(mm)
Rated voltage 50 V_{DC}							
M39022/13 - 473 - -	0.047	F, G, J, K	M, P, R, S	0.531	(0.021)	0.174	(0.007)
M39022/13 - 563 - -	0.056	F, G, J, K	M, P, R, S	0.531	(0.021)	0.174	(0.007)
M39022/13 - 683 - -	0.068	F, G, J, K	M, P, R, S	0.625	(0.025)	0.174	(0.007)
M39022/13 - 823 - -	0.082	F, G, J, K	M, P, R, S	0.625	(0.025)	0.174	(0.007)
M39022/13 - 104 - -	0.10	F, G, J, K	M, P, R, S	0.625	(0.025)	0.174	(0.007)
M39022/13 - 124 - -	0.12	F, G, J, K	M, P, R, S	0.625	(0.025)	0.174	(0.007)
M39022/13 - 154 - -	0.15	F, G, J, K	M, P, R, S	0.625	(0.025)	0.193	(0.008)
M39022/13 - 184 - -	0.18	F, G, J, K	M, P, R, S	0.625	(0.025)	0.193	(0.008)
M39022/13 - 224 - -	0.22	F, G, J, K	M, P, R, S	0.625	(0.025)	0.235	(0.009)
M39022/13 - 274 - -	0.27	F, G, J, K	M, P, R, S	0.625	(0.025)	0.235	(0.009)
M39022/13 - 334 - -	0.33	F, G, J, K	M, P, R, S	0.625	(0.025)	0.312	(0.012)
M39022/13 - 394 - -	0.39	F, G, J, K	M, P, R, S	0.625	(0.025)	0.312	(0.012)
M39022/13 - 474 - -	0.47	F, G, J, K	M, P, R, S	0.625	(0.025)	0.312	(0.012)
M39022/13 - 564 - -	0.56	F, G, J, K	M, P, R, S	0.625	(0.025)	0.312	(0.012)
M39022/13 - 684 - -	0.68	F, G, J, K	M, P, R, S	0.843	(0.033)	0.312	(0.012)
M39022/13 - 824 - -	0.82	F, G, J, K	M, P, R, S	0.843	(0.033)	0.312	(0.012)
M39022/13 - 105 - -	1.0	F, G, J, K	M, P, R, S	0.843	(0.033)	0.312	(0.012)
M39022/13 - 125 - -	1.2	F, G, J, K	M, P, R, S	0.843	(0.033)	0.400	(0.016)
M39022/13 - 155 - -	1.5	F, G, J, K	M, P, R, S	0.843	(0.033)	0.400	(0.016)
M39022/13 - 185 - -	1.8	F, G, J, K	M, P, R, S	0.843	(0.033)	0.400	(0.016)
M39022/13 - 205 - -	2.0	F, G, J, K	M, P, R, S	0.843	(0.033)	0.400	(0.016)
M39022/13 - 225 - -	2.2	F, G, J, K	M, P, R, S	1.125	(0.044)	0.400	(0.016)
M39022/13 - 275 - -	2.7	F, G, J, K	M, P, R, S	1.125	(0.044)	0.400	(0.016)
M39022/13 - 305 - -	3.0	F, G, J, K	M, P, R, S	1.125	(0.044)	0.400	(0.016)
M39022/13 - 335 - -	3.3	F, G, J, K	M, P, R, S	1.125	(0.044)	0.400	(0.016)
M39022/13 - 395 - -	3.9	F, G, J, K	M, P, R, S	1.125	(0.044)	0.500	(0.020)
M39022/13 - 475 - -	4.7	F, G, J, K	M, P, R, S	1.125	(0.044)	0.500	(0.020)
M39022/13 - 505 - -	5.0	F, G, J, K	M, P, R, S	1.125	(0.044)	0.500	(0.020)
M39022/13 - 565 - -	5.6	F, G, J, K	M, P, R, S	1.125	(0.044)	0.500	(0.020)
M39022/13 - 685 - -	6.8	F, G, J, K	M, P, R, S	1.125	(0.044)	0.562	(0.022)
M39022/13 - 825 - -	8.2	F, G, J, K	M, P, R, S	1.312	(0.052)	0.562	(0.022)
M39022/13 - 106 - -	10.0	F, G, J, K	M, P, R, S	1.312	(0.052)	0.670	(0.026)
M39022/13 - 126 - -	12.0	F, G, J, K	M, P, R, S	1.312	(0.052)	0.670	(0.026)
M39022/13 - 156 - -	15.0	F, G, J, K	M, P, R, S	1.375	(0.054)	0.750	(0.030)
M39022/13 - 186 - -	18.0	F, G, J, K	M, P, R, S	1.375	(0.054)	0.750	(0.030)
M39022/13 - 206 - -	20.0	F, G, J, K	M, P, R, S	1.625	(0.064)	0.750	(0.030)
M39022/13 - 226 - -	22.0	F, G, J, K	M, P, R, S	1.625	(0.064)	0.750	(0.030)
Rated voltage 100 V_{DC}							
M39022/13 - 103 - -	0.01	F, G, J, K	M, P, R, S	0.625	(0.025)	0.174	(0.007)
M39022/13 - 123 - -	0.012	F, G, J, K	M, P, R, S	0.625	(0.025)	0.174	(0.007)
M39022/13 - 153 - -	0.015	F, G, J, K	M, P, R, S	0.625	(0.025)	0.174	(0.007)
M39022/13 - 183 - -	0.018	F, G, J, K	M, P, R, S	0.625	(0.025)	0.174	(0.007)
M39022/13 - 223 - -	0.022	F, G, J, K	M, P, R, S	0.625	(0.025)	0.174	(0.007)
M39022/13 - 273 - -	0.027	F, G, J, K	M, P, R, S	0.625	(0.025)	0.174	(0.007)
M39022/13 - 333 - -	0.033	F, G, J, K	M, P, R, S	0.625	(0.025)	0.174	(0.007)
M39022/13 - 393 - -	0.039	F, G, J, K	M, P, R, S	0.625	(0.025)	0.174	(0.007)
M39022/13 - 473 - -	0.047	F, G, J, K	M, P, R, S	0.625	(0.025)	0.193	(0.008)
M39022/13 - 563 - -	0.056	F, G, J, K	M, P, R, S	0.625	(0.025)	0.193	(0.008)
M39022/13 - 683 - -	0.068	F, G, J, K	M, P, R, S	0.625	(0.025)	0.235	(0.009)
M39022/13 - 823 - -	0.082	F, G, J, K	M, P, R, S	0.625	(0.025)	0.235	(0.009)
M39022/13 - 104 - -	0.10	F, G, J, K	M, P, R, S	0.688	(0.027)	0.235	(0.009)
M39022/13 - 124 - -	0.12	F, G, J, K	M, P, R, S	0.688	(0.027)	0.235	(0.009)

* The complete PIN will include additional symbols to indicate circuit and voltage code, capacitance tolerance (K, J, G, or F), and FRL (M, P, R, or S).

** Dimensions are for circuit 1. For circuit 3, deduct 0.062" (1.57 mm) from length.

CFR13 - CFR14

MIL-PRF-55514/9

Type 735P

Capacitor,
Fixed,
Metallized paper-plastic film dielectric,
Direct current
Hermetically sealed in metal cases,
Established reliability

GENERAL CHARACTERISTICS

Dielectric material	Normally polyphenylene sulfide
Rated temperature	–55°C to +125°C.
Capacitance range	10 nF to 22 µF
Voltage range	100 V to 400 V
Capacitance tolerance	±5%, ±10%, ±20%
Failure rate level (% per 1,000 hours)	**M** (1%), **P** (0.1%)

Full details and most up to date information found at government website.

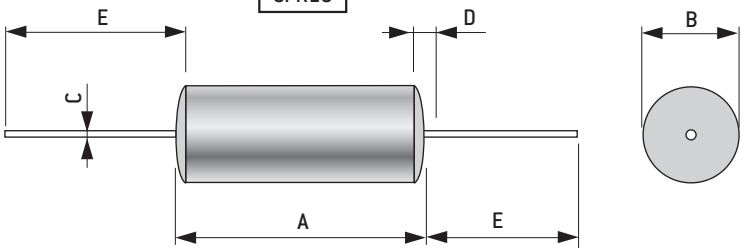
DIMENSIONS

A	A_1	B	C
See tables on the next pages			

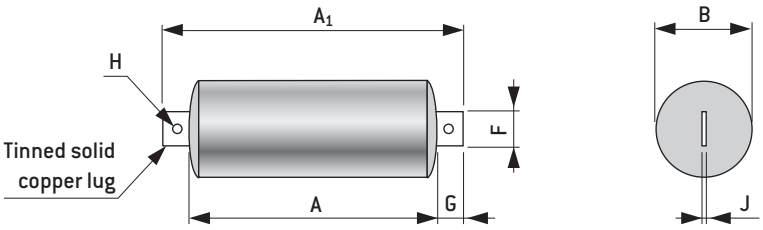
D		E		F	
Inches	(mm)	Inches	(mm)	Inches	(mm)
0.312 min	(7.92 min)	1.750 min	(44.45 min)	0.360 ±0,005	(9.14 ±0.13)

G		H		J	
Inches	(mm)	Inches	(mm)	Inches	(mm)
0.312 min	(7.92 min)	0.156 ±0.005	(3.96 ±0.13)	0.032 ±0,002	(0.81 ±0.05)

CFR13



CFR14



NOTES

1. Dimensions are in Inches.
2. Metric equivalents are given for general information only.

HOW TO ORDER

CFR••	L	L	B	105	J	M
ER Style	Terminal symbol	Characteristic	Voltage in code	Capacitance in code	Capacitance tolerance in code	Failure rate level
CFR13 **CFR14**	**A** = Axial wire-lead **R** = Radial wire-lead **L** = Lugs	**L** (see page 6)	**B, C, E** (see page 6)	Examples: **101** = 100pF **472** = 4.7nF **473** = 47nF	**J** = ±5% **K** = ±10% **M** = ±20%	**M** = 1% /1,000 hours **P** = 0.1% /1,000 hours

Type 735P

MIL-PRF-55514/9

CFR13 - CFR14

ELECTRICAL CHARACTERISTICS, DIMENSIONS, AND DASH NUMBERS

Style CFR13 (characteristic L)																
Part or Identifying Number (PIN)*	Capacitance (µF)	Capacitance tolerance available	Dimensions**						ESR 20 100 kHz Max	Maximum ripple current (AMPS RMS) 20-100 kHz case temperature						
			A ±0.062 (1.57 mm)		B		C*			+25°C	+35°C	+45°C	+55°C	+65°C	+75°C	+85°C
			Inches	(mm)	Inches	(mm)	Inches	(mm)								
Rated voltage at 105°C - 100 V_{DC}																
CFR13ALB105--	1.0	J, K, M	0.750	(19.05)	0.469 ±0.062	(11.91 ±1.57)	0.032	0.032	0.015	9.2	8.5	7.8	7.0	6.0	4.9	4.5
CFR13ALB205--	2.0	J, K, M	0.938	(23.81)	0.534 ±0.062	(13.56 ±1.57)	0.032	0.032	0.012	10.8	10.0	9.1	8.2	7.0	5.8	5.3
CFR13ALB305--	3.0	J, K, M	0.938	(23.81)	0.624 ±0.093	(15.85 ±2.36)	0.040	0.040	0.011	12.1	11.2	10.3	9.2	8.0	6.5	5.9
CFR13ALB505--	5.0	J, K, M	1.250	(31.75)	0.640 ±0.093	(16.26 ±2.36)	0.040	0.040	0.010	13.8	12.7	11.6	10.4	9.0	7.4	6.7
CFR13ALB106--	10.0	J, K, M	1.500	(38.10)	0.805 ±0.093	(20.45 ±2.36)	0.040	0.040	0.009	15.0	15.0	14.2	12.7	11.0	9.0	8.2
CFR13ALB206--	20.0	J, K, M	2.250	(57.15)	0.875 ±0.125	(22.23 ±3.18)	0.040	0.040	0.008	15.0	15.0	15.0	15.0	13.6	11.1	10.0
CFR13ALB306--	30.0	J, K, M	2.250	(57.15)	1.075 ±0.125	(27.31 ±3.18)	0.040	0.040	0.006	15.0	15.0	15.0	15.0	15.0	12.4	11.4
Rated voltage at 105°C - 200 V_{DC}																
CFR13ALC105--	1.0	J, K, M	1.250	(31.75)	0.450 ±0.062	(11.43 ±1.57)	0.032	0.032	0.020	7.3	7.3	7.3	7.3	7.2	5.9	5.4
CFR13ALC205--	2.0	J, K, M	1.250	(31.75)	0.605 ±0.093	(15.37 ±2.36)	0.032	0.032	0.015	12.0	12.0	11.3	10.1	8.7	7.1	6.5
CFR13ALC305--	3.0	J, K, M	1.500	(38.10)	0.654 ±0.093	(16.61 ±2.36)	0.040	0.040	0.013	15.0	13.8	12.6	11.3	9.8	8.0	7.3
CFR13ALC505--	5.0	J, K, M	1.750	(44.45)	0.769 ±0.093	(19.53 ±2.36)	0.040	0.040	0.011	15.0	15.0	14.7	13.1	11.4	9.3	8.5
CFR13ALC106--	10.0	J, K, M	2.250	(57.15)	0.905 ±0.125	(22.99 ±3.18)	0.040	0.040	0.009	15.0	15.0	15.0	15.0	13.8	11.3	10.3
CFR13ALC206--	20.0	J, K, M	2.250	(57.15)	1.315 ±0.125	(33.40 ±3.18)	0.040	0.040	0.006	15.0	15.0	15.0	15.0	15.0	14.1	12.8
Rated voltage at 105°C - 400 V_{DC}																
CFR13ALE105--	1.0	J, K, M	1.500	(38.10)	0.620 ±0.093	(15.75 ±2.36)	0.040	0.040	0.019	9.5	9.5	9.5	9.5	9.5	7.8	7.1
CFR13ALE205--	2.0	J, K, M	1.750	(44.45)	0.802 ±0.093	(20.37 ±2.36)	0.040	0.040	0.015	15.0	15.0	15.0	13.4	11.6	9.5	8.7
CFR13ALE305--	3.0	J, K, M	1.750	(44.45)	0.961 ±0.125	(24.41 ±3.18)	0.040	0.040	0.012	15.0	15.0	15.0	15.0	13.1	10.7	9.8
CFR13ALE505--	5.0	J, K, M	2.250	(57.15)	1.067 ±0.125	(27.10 ±3.18)	0.040	0.040	0.010	15.0	15.0	15.0	15.0	15.0	12.5	11.4
CFR13ALE106--	10.0	J, K, M	2.250	(57.15)	1.543 ±0.125	(39.19 ±3.18)	0.040	0.040	0.006	15.0	15.0	15.0	15.0	15.0	15.0	14.1

* The complete PIN will include additional symbols to indicate capacitance tolerance and product level (C, M, P, R, and S).

** Comparable AWG sizes are No. 20 AWG 0.032 inch (0.81 mm) and No. 18 AWG 0.040 inch (1.02 mm).

Style CFR14 (characteristic L)																
Part or Identifying Number (PIN)*	Capacitance (µF)	Capacitance tolerance available	Dimensions**						ESR 20 100 kHz Max	Maximum ripple current (AMPS RMS) 20-100 kHz case temperature						
			A ±0.062 (1.57 mm)		B		C*			+25°C	+35°C	+45°C	+55°C	+65°C	+75°C	+85°C
			Inches	(mm)	Inches	(mm)	Inches	(mm)								
Rated voltage at 105°C - 100 V_{DC}																
CFR14LLB105--	1.0	J, K, M	0.922	(23.42)	0.469 ±0.062	(11.91 ±1.57)	1.640	(41.66)	0.015	10.3	9.5	8.7	7.8	6.7	5.5	5.0
CFR14LLB205--	2.0	J, K, M	1.110	(28.19)	0.534 ±0.062	(13.56 ±1.57)	1.828	(46.43)	0.012	12.0	11.0	10.0	8.9	7.8	6.3	5.8
CFR14LLB305--	3.0	J, K, M	1.110	(28.19)	0.624 ±0.093	(15.85 ±2.36)	1.828	(46.43)	0.011	13.3	12.3	11.2	10.0	8.7	7.1	6.5
CFR14LLB505--	5.0	J, K, M	1.422	(36.12)	0.640 ±0.093	(16.26 ±2.36)	2.140	(54.36)	0.010	14.8	13.7	12.5	11.2	9.7	7.9	7.2
CFR14LLB106--	10.0	J, K, M	1.672	(42.47)	0.805 ±0.093	(20.45 ±2.36)	2.390	(60.71)	0.009	17.8	16.5	15.0	13.5	11.7	9.5	8.7
CFR14LLB206--	20.0	J, K, M	2.422	(61.52)	0.875 ±0.125	(22.23 ±3.18)	3.140	(79.76)	0.008	21.6	20.0	18.3	16.4	14.2	11.6	10.6
CFR14LLB306--	30.0	J, K, M	2.422	(61.52)	1.075 ±0.125	(27.31 ±3.18)	3.140	(79.76)	0.006	24.3	22.5	20.5	18.4	15.9	13.0	11.9
Rated voltage at 105°C - 200 V_{DC}																
CFR14LLC105--	1.0	J, K, M	1.422	(36.12)	0.450 ±0.062	(11.43 ±1.57)	2.140	(54.36)	0.020	7.3	7.3	7.3	7.3	7.2	6.4	5.8
CFR14LLC205--	2.0	J, K, M	1.422	(36.12)	0.605 ±0.093	(15.37 ±2.36)	2.140	(54.36)	0.015	14.3	13.3	12.1	10.8	8.7	7.7	7.0
CFR14LLC305--	3.0	J, K, M	1.672	(42.47)	0.654 ±0.093	(16.61 ±2.36)	2.390	(60.71)	0.013	15.9	14.7	13.5	12.0	9.8	8.5	7.8
CFR14LLC505--	5.0	J, K, M	1.922	(48.82)	0.769 ±0.093	(19.53 ±2.36)	2.640	(67.06)	0.011	18.3	17.0	15.5	13.9	11.4	9.8	8.9
CFR14LLC106--	10.0	J, K, M	2.422	(61.52)	0.905 ±0.125	(22.99 ±3.18)	3.140	(79.76)	0.009	22.4	20.7	18.9	16.9	13.8	12.0	10.9
CFR14LLC206--	20.0	J, K, M	2.422	(61.52)	1.315 ±0.125	(33.40 ±3.18)	3.140	(79.76)	0.006	27.4	25.4	23.2	20.7	15.0	14.7	13.4
Rated voltage at 105°C - 400 V_{DC}																
CFR14LLE105--	1.0	J, K, M	1.672	(42.47)	0.620 ±0.093	(15.75 ±2.36)	2.390	(60.71)	0.019	9.5	9.5	9.5	9.5	9.5	8.3	7.5
CFR14LLE205--	2.0	J, K, M	1.922	(48.82)	0.802 ±0.093	(20.37 ±2.36)	2.640	(67.06)	0.015	15.0	15.0	15.0	14.2	11.6	10.0	9.1
CFR14LLE305--	3.0	J, K, M	1.922	(48.82)	0.961 ±0.125	(24.41 ±3.18)	2.640	(67.06)	0.012	21.1	19.5	17.8	15.9	13.1	11.3	10.3
CFR14LLE505--	5.0	J, K, M	2.422	(61.52)	1.067 ±0.125	(27.10 ±3.18)	3.140	(79.76)	0.010	24.4	22.6	20.6	18.5	15.0	13.1	11.9
CFR14LLE106--	10.0	J, K, M	2.422	(61.52)	1.543 ±0.125	(39.19 ±3.18)	3.140	(79.76)	0.006	30.0	27.8	25.4	22.7	15.0	16.1	14.7

* The complete PIN will include additional symbols to indicate capacitance tolerance and product level (C, M, P, R, and S).

** Comparable AWG sizes are No. 20 AWG (0.032 inch (0.81 mm) and No. 18 AWG (0.040 inch (1.02 mm).

CFR15

MIL-PRF-55514/10

Type 710P

Capacitor,
Fixed,
Plastic film dielectric,
Direct current
In nonmetal cases,
Established reliability

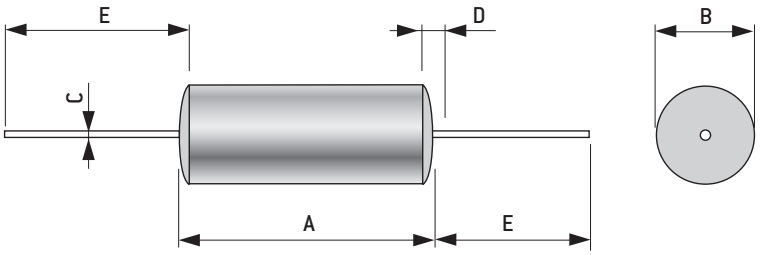
GENERAL CHARACTERISTICS

Dielectric material	Normally polyphenylene sulfide
Rated temperature	–55°C to +125°C.
Capacitance range	1 nF to 1 µF
Voltage range	200 V to 800 V
Capacitance tolerance	±5%, ±10%, ±20%
Failure rate level (% per 1,000 hours)	**M** (1%), **P** (0.1%)

Full details and most up to date information found at government website.

DIMENSIONS

A		B	
See tables on the next pages			
C		**E**	
Inches	**(mm)**	**Inches**	**(mm)**
See Note 1		1.750 min	(44.45 min)



NOTES

1. 0.32" (0.81 mm) nominal diameter (No 20AWG) solid tinned wire.
2. Dimensions are in Inches.
3. Metric equivalents are given for general information only.

CIRCUIT DIAGRAM

HOW TO ORDER

CFR15	A	M	C	682	J	M
ER Style	Terminal symbol	Characteristic	Voltage in code	Capacitance in code	Capacitance tolerance in code	Failure rate level
	A = Axial wire-lead **R** = Radial wire-lead **L** = Lugs	**K** (see page 6)	**C, E, F, L** (see page 6)	Examples: **101** = 100pF **472** = 4.7nF **473** = 47nF	**J** = ±5% **K** = ±10% **M** = ±20%	**M** = 1% /1,000 hours **P** = 0.1% /1,000 hours

Type 710P

MIL-PRF-55514/10

CFR15

ELECTRICAL CHARACTERISTICS, DIMENSIONS, AND DASH NUMBERS

Part or Identifying Number (PIN)*	Capacitance (µF)	Capacitance tolerance available	Voltage at +85°C at 20 kHz (volts)	dv/dt volt/µs (volts)	Dimensions			
					A ±0.062 (1.57 mm)		B	
					Inches	(mm)	Inches	(mm)
Rated voltage at 105°C - 200 V_{DC}								
CFR15AKC123--	0.012	J, K, M	60	300	0.750	(19.05)	0.179 ±0.047	(4.55 ±1.19)
CFR15AKC153--	0.015	J, K, M	60	300	0.750	(19.05)	0.197 ±0.047	(5.00 ±1.19)
CFR15AKC183--	0.018	J, K, M	60	300	0.750	(19.05)	0.212 ±0.047	(5.39 ±1.19)
CFR15AKC223--	0.022	J, K, M	60	300	0.750	(19.05)	0.232 ±0.047	(5.89 ±1.19)
CFR15AKC273--	0.027	J, K, M	60	300	0.750	(19.05)	0.251 ±0.062	(6.38 ±1.57)
CFR15AKC333--	0.033	J, K, M	60	300	0.750	(19.05)	0.263 ±0.062	(6.68 ±1.57)
CFR15AKC393--	0.039	J, K, M	60	300	0.938	(23.83)	0.242 ±0.062	(6.15 ±1.57)
CFR15AKC473--	0.047	J, K, M	60	300	0.938	(23.83)	0.261 ±0.062	(6.63 ±1.57)
CFR15AKC563--	0.056	J, K, M	60	300	0.938	(23.83)	0.270 ±0.062	(6.86 ±1.57)
CFR15AKC683--	0.068	J, K, M	60	300	0.938	(23.83)	0.297 ±0.062	(7.54 ±1.57)
CFR15AKC823--	0.082	J, K, M	40	300	1.250	(31.75)	0.259 ±0.062	(6.58 ±1.57)
CFR15AKC104--	0.10	J, K, M	40	300	1.250	(31.75)	0.284 ±0.062	(7.21 ±1.57)
CFR15AKC124--	0.12	J, K, M	40	300	1.250	(31.75)	0.310 ±0.062	(7.87 ±1.57)
CFR15AKC154--	0.15	J, K, M	40	300	1.250	(31.75)	0.345 ±0.062	(8.76 ±1.57)
CFR15AKC184--	0.18	J, K, M	40	300	1.250	(31.75)	0.377 ±0.062	(9.58 ±1.57)
CFR15AKC224--	0.22	J, K, M	40	300	1.250	(31.75)	0.416 ±0.062	(10.57 ±1.57)
CFR15AKC274--	0.27	J, K, M	40	300	1.688	(42.88)	0.389 ±0.062	(9.88 ±1.57)
CFR15AKC334--	0.33	J, K, M	40	300	1.688	(42.88)	0.427 ±0.062	(10.85 ±1.57)
CFR15AKC394--	0.39	J, K, M	40	300	1.688	(42.88)	0.462 ±0.062	(11.74 ±1.57)
CFR15AKC474--	0.47	J, K, M	40	300	1.688	(42.88)	0.501 ±0.093	(12.73 ±2.36)
CFR15AKC564--	0.56	J, K, M	40	300	1.688	(42.88)	0.635 ±0.093	(16.13 ±2.36)
CFR15AKC684--	0.68	J, K, M	40	300	1.688	(42.88)	0.706 ±0.093	(17.93 ±2.36)
CFR15AKC324--	0.82	J, K, M	40	300	2.063	(52.40)	0.675 ±0.093	(17.15 ±2.36)
CFR15AKC105--	1.00	J, K, M	40	300	2.063	(52.40)	0.748 ±0.093	(19.00 ±2.36)
Rated voltage at 105°C - 400 V_{DC}								
CFR15AKE682--	0.0068	J, K, M	95	400	0.750	(19.05)	0.217 ±0.047	(5.51 ±1.19)
CFR15AKE822--	0.0082	J, K, M	95	400	0.750	(19.05)	0.230 ±0.047	(5.84 ±1.19)
CFR15AKE103--	0.01	J, K, M	95	400	0.750	(19.05)	0.232 ±0.047	(5.89 ±1.19)
CFR15AKE123--	0.012	J, K, M	95	400	0.750	(19.05)	0.250 ±0.047	(6.35 ±1.19)
CFR15AKE153--	0.015	J, K, M	95	400	0.750	(19.05)	0.260 ±0.047	(6.60 ±1.57)
CFR15AKE183--	0.018	J, K, M	95	400	0.938	(23.83)	0.243 ±0.047	(6.17 ±1.19)
CFR15AKE223--	0.022	J, K, M	95	400	0.938	(23.83)	0.262 ±0.062	(6.66 ±1.57)
CFR15AKE273--	0.027	J, K, M	95	400	0.938	(23.83)	0.275 ±0.062	(6.98 ±1.57)
CFR15AKE333--	0.033	J, K, M	95	400	0.938	(23.83)	0.301 ±0.062	(7.65 ±1.57)
CFR15AKE393--	0.039	J, K, M	50	400	1.250	(31.75)	0.261 ±0.062	(6.63 ±1.57)
CFR15AKE473--	0.047	J, K, M	50	400	1.250	(31.75)	0.284 ±0.062	(7.21 ±1.57)
CFR15AKE563--	0.056	J, K, M	50	400	1.250	(31.75)	0.307 ±0.062	(7.80 ±1.57)
CFR15AKE683--	0.068	J, K, M	50	400	1.250	(31.75)	0.336 ±0.062	(8.53 ±1.57)
CFR15AKE823--	0.082	J, K, M	50	400	1.250	(31.75)	0.367 ±0.062	(9.32 ±1.57)
CFR15AKE104--	0.1	J, K, M	50	400	1.250	(31.75)	0.404 ±0.062	(10.26 ±1.57)
CFR15AKE124--	0.12	J, K, M	50	400	1.250	(31.75)	0.441 ±0.062	(11.20 ±1.57)
CFR15AKE154--	0.15	J, K, M	50	400	1.250	(31.75)	0.491 ±0.062	(12.47 ±1.57)
CFR15AKE184--	0.18	J, K, M	50	400	1.688	(42.88)	0.456 ±0.062	(11.58 ±1.57)
CFR15AKE224--	0.22	J, K, M	50	400	1.688	(42.88)	0.500 ±0.062	(12.73 ±1.57)
CFR15AKE274--	0.27	J, K, M	50	400	1.688	(42.88)	0.533 ±0.093	(13.54 ±2.36)
CFR15AKE334--	.33	J, K, M	50	400	1.688	(42.88)	0.591 ±0.093	(15.01 ±2.36)
CFR15AKE394--	.39	J, K, M	50	400	1.688	(42.88)	0.643 ±0.093	(16.33 ±2.36)
CFR15AKE474--	.47	J, K, M	50	400	1.688	(42.88)	0.708 ±0.093	(17.98 ±2.36)
CFR15AKE564--	.56	J, K, M	50	400	2.438	(61.93)	0.749 ±0.093	(19.02 ±2.36)
CFR15AKE684--	.68	J, K, M	50	400	2.438	(61.93)	0.818 ±0.093	(20.78 ±2.36)
CFR15AKE824--	.82	J, K, M	50	400	2.438	(61.93)	0.901 ±0.093	(22.89 ±2.36)
CFR15AKE105--	1.00	J, K, M	50	400	2.438	(61.93)	0.998 ±0.093	(25.35 ±2.36)

* The complete PIN will include additional symbols to indicate capacitance tolerance and product level (C, M).

ELECTRICAL CHARACTERISTICS, DIMENSIONS, AND DASH NUMBERS

Part or Identifying Number (PIN)*	Capacitance (µF)	Capacitance tolerance available	Voltage at +85°C at 20 kHz (volts)	dv/dt volt/µs (volts)	Dimensions			
					A ±0.062 (1.57 mm)		B	
					Inches	(mm)	Inches	(mm)
Rated voltage at 105°C - 600 V_{DC}								
CFR15AKF102--	0.001	J, K, M	110	500	0.750	(19.05)	0.243 ±0.047	(6.17 ±1.19)
CFR15AKF122--	0.0012	J, K, M	110	500	0.750	(19.05)	0.253 ±0.062	(6.53 ±1.57)
CFR15AKF152--	0.0015	J, K, M	110	500	0.750	(19.05)	0.261 ±0.062	(6.63 ±1.57)
CFR15AKF182--	0.0018	J, K, M	110	500	0.750	(19.05)	0.299 ±0.062	(7.60 ±1.57)
CFR15AKF222--	0.0022	J, K, M	110	500	0.750	(19.05)	0.257 ±0.062	(6.53 ±1.57)
CFR15AKF272--	0.0027	J, K, M	110	500	0.750	(19.05)	0.265 ±0.062	(6.73 ±1.57)
CFR15AKF332--	0.0033	J, K, M	110	500	0.750	(19.05)	0.240 ±0.047	(6.10 ±1.19)
CFR15AKF392--	0.0039	J, K, M	110	500	0.750	(19.05)	0.253 ±0.062	(6.43 ±1.57)
CFR15AKF472--	0.0047	J, K, M	110	500	0.750	(19.05)	0.258 ±0.062	(6.55 ±1.57)
CFR15AKF562--	0.0056	J, K, M	110	500	0.750	(19.05)	0.265 ±0.062	(6.73 ±1.57)
CFR15AKF682--	0.0068	J, K, M	110	500	0.750	(19.05)	0.268 ±0.062	(6.81 ±1.57)
CFR15AKF822--	0.0082	J, K, M	110	500	0.938	(23.83)	0.257 ±0.062	(6.53 ±1.57)
CFR15AKF103--	0.01	J, K, M	110	500	0.938	(23.83)	0.267 ±0.062	(6.78 ±1.57)
CFR15AKF123--	0.012	J, K, M	110	500	0.938	(23.83)	0.290 ±0.062	(7.37 ±1.57)
CFR15AKF153--	0.015	J, K, M	110	500	0.938	(23.83)	0.320 ±0.062	(8.13 ±1.57)
CFR15AKF183--	0.018	J, K, M	110	500	0.938	(23.83)	0.347 ±0.062	(8.81 ±1.57)
CFR15AKF223--	0.022	J, K, M	110	500	0.938	(23.83)	0.381 ±0.062	(9.68 ±1.57)
CFR15AKF273--	0.027	J, K, M	110	500	1.250	(31.75)	0.328 ±0.062	(8.33 ±1.57)
CFR15AKF333--	0.033	J, K, M	110	500	1.250	(31.75)	0.358 ±0.062	(9.09 ±1.57)
CFR15AKF393--	0.039	J, K, M	65	500	1.250	(31.75)	0.387 ±0.062	(9.83 ±1.57)
CFR15AKF473--	0.047	J, K, M	65	500	1.250	(31.75)	0.421 ±0.062	(10.69 ±1.57)
CFR15AKF563--	0.056	J, K, M	65	500	1.250	(31.75)	0.457 ±0.062	(11.61 ±1.57)
CFR15AKF683--	0.068	J, K, M	65	500	1.250	(31.75)	0.501 ±0.093	(12.73 ±2.36)
CFR15AKF823--	0.082	J, K, M	65	500	1.250	(31.75)	0.516 ±0.093	(13.11 ±2.36)
CFR15AKF104--	0.1	J, K, M	65	500	1.250	(31.75)	0.571 ±0.093	(14.50 ±2.36)
CFR15AKF124--	0.12	J, K, M	65	500	1.688	(42.88)	0.501 ±0.093	(12.73 ±2.36)
CFR15AKF154--	0.15	J, K, M	65	500	1.688	(42.88)	0.559 ±0.093	(14.20 ±2.36)
CFR15AKF184--	0.18	J, K, M	65	500	1.688	(42.88)	0.613 ±0.093	(15.57 ±2.36)
CFR15AKF224--	0.22	J, K, M	65	500	1.688	(42.88)	0.677 ±0.093	(17.20 ±2.36)
CFR15AKF274--	0.27	J, K, M	60	500	2.063	(52.40)	0.706 ±0.093	(17.93 ±2.36)
CFR15AKF334--	0.33	J, K, M	60	500	2.063	(52.40)	0.783 ±0.093	(19.89 ±2.36)
CFR15AKF394--	0.39	J, K, M	60	500	2.063	(52.40)	0.854 ±0.093	(21.69 ±2.36)
CFR15AKF474--	0.47	J, K, M	60	500	2.063	(52.40)	0.939 ±0.093	(23.85 ±2.36)
CFR15AKF564--	0.56	J, K, M	60	500	2.438	(61.93)	0.908 ±0.093	(23.06 ±2.36)
CFR15AKF684--	0.68	J, K, M	60	500	2.438	(61.93)	1.003 ±0.093	(25.48 ±2.36)
CFR15AKF824--	0.82	J, K, M	60	500	2.438	(61.93)	1.005 ±0.093	(28.07 ±2.36)
CFR15AKF105--	1.00	J, K, M	60	500	2.438	(61.93)	1.223 ±0.093	(31.06 ±2.36)
Rated voltage at 105°C - 800 V_{DC}								
CFR15AKL562--	0.0056	J, K, M	405	600	1.250	(31.75)	0.201 ±0.047	(5.10 ±1.19)
CFR15AKL682--	0.0068	J, K, M	405	600	1.250	(31.75)	0.217 ±0.047	(5.51 ±1.19)
CFR15AKL822--	0.0082	J, K, M	405	600	1.250	(31.75)	0.236 ±0.047	(5.99 ±1.19)
CFR15AKL103--	0.01	J, K, M	405	600	1.250	(31.75)	0.251 ±0.062	(6.38 ±1.57)
CFR15AKL123--	0.012	J, K, M	405	600	1.250	(31.75)	0.264 ±0.062	(6.71 ±1.57)
CFR15AKL153--	0.015	J, K, M	405	600	1.250	(31.75)	0.294 ±0.062	(7.47 ±1.57)
CFR15AKL183--	0.018	J, K, M	405	600	1.250	(31.75)	0.321 ±0.062	(8.15 ±1.57)
CFR15AKL223--	0.022	J, K, M	405	600	1.250	(31.75)	0.354 ±0.062	(8.99 ±1.57)
CFR15AKL273--	0.027	J, K, M	405	600	1.250	(31.75)	0.392 ±0.062	(9.96 ±1.57)
CFR15AKL333--	0.033	J, K, M	405	600	1.250	(31.75)	0.433 ±0.062	(11.00 ±1.57)
CFR15AKL393--	0.039	J, K, M	140	600	1.688	(42.88)	0.380 ±0.062	(9.65 ±1.57)
CFR15AKL473--	0.047	J, K, M	140	600	1.688	(42.88)	0.414 ±0.062	(10.51 ±1.57)
CFR15AKL563--	0.056	J, K, M	140	600	1.688	(42.88)	0.451 ±0.062	(11.46 ±1.57)
CFR15AKL683--	0.068	J, K, M	140	600	1.688	(42.88)	0.501 ±0.093	(12.73 ±2.36)
CFR15AKL823--	0.082	J, K, M	140	600	1.688	(42.88)	0.523 ±0.093	(13.28 ±2.36)
CFR15AKL104--	0.1	J, K, M	140	600	1.688	(42.88)	0.579 ±0.093	(14.71 ±2.36)
CFR15AKL124--	0.12	J, K, M	85	600	2.063	(52.40)	0.582 ±0.093	(14.78 ±2.36)
CFR15AKL154--	0.15	J, K, M	85	600	2.063	(52.40)	0.652 ±0.093	(16.56 ±2.36)
CFR15AKL184--	0.18	J, K, M	85	600	2.063	(52.40)	0.716 ±0.093	(18.19 ±2.36)
CFR15AKL224--	0.22	J, K, M	85	600	2.063	(52.40)	0.793 ±0.093	(20.14 ±2.36)
CFR15AKL274--	0.27	J, K, M	85	600	2.438	(61.93)	0.779 ±0.093	(19.79 ±2.36)
CFR15AKL334--	0.33	J, K, M	85	600	2.438	(61.93)	0.863 ±0.093	(21.42 ±2.36)
CFR15AKL394--	0.39	J, K, M	85	600	2.438	(61.93)	0.940 ±0.093	(23.88 ±2.36)
CFR15AKL474--	0.47	J, K, M	85	600	2.438	(61.93)	1.034 ±0.093	(26.26 ±2.36)
CFR15AKL564--	0.56	J, K, M	85	600	2.438	(61.93)	1.131 ±0.093	(28.73 ±2.36)

* The complete PIN will include additional symbols to indicate capacitance tolerance and product level (C, M,).

Type 846P

MIL-PRF-55514/13

CFR30

Capacitor,
Fixed,
Metalized plastic dielectric,
DC-AC,
In nonmetal cases,
Established reliability

GENERAL CHARACTERISTICS

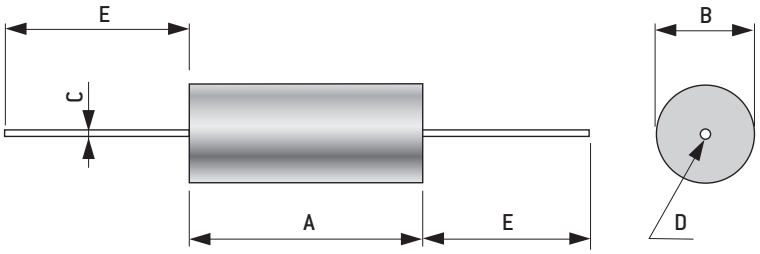
Dielectric material	Normally polyphenylene sulfide, metalized
Rated temperature	−55°C to +125°C. −55°C to +105°C for AC operation
Capacitance range	0.01 µF to 18 µF
Voltage range	50 V to 200 V
Capacitance tolerance	±1%, ±2%, ±5%, ±10%
Failure rate level (% per 1,000 hours)	**M** (1%), **P** (0.1%)

Full details and most up to date information found at government website.

DIMENSIONS

A	B	C
See tables on the next pages		

D		E	
Inches	(mm)	Inches	(mm)
See Note 2		1.625 min	(41.28 min)



NOTES

1. Dimensions are in inches.
2. Leads shall be of solid wire and located on centerline within ± 0.062" (1.57 mm) but not less than 0.03 inch (0.8 mm) from edge of capacitor.
3. Millimeters are in parentheses.
4. Metric equivalents are given for general information only.
5. Lead length may be a minimum of 1" long for use in tape and reel packaging when specified in the ordering data.

HOW TO ORDER

CFR30	A	M	C	682	J	M
ER Style	Terminal symbol	Characteristic	Voltage in code	Capacitance in code	Capacitance tolerance in code	Failure rate level
	A = Axial wire-lead **R** = Radial wire-lead **L** = Lugs	**K, L, M, N, Q, R,U, V** (see page 6)	**A, B, C, G, H** (see page 6)	Examples: **101** = 100pF **472** = 4.7nF **473** = 47nF	**F** = ±1% **G** = ±2% **J** = ±5% **K** = ±10%	**M** = 1% /1,000 hours **P** = 0.1% /1,000 hours

ELECTRICAL CHARACTERISTICS, DIMENSIONS, AND DASH NUMBERS

Part or Identifying Number (PIN)*	Nominale Capacitance (µF)	Capacitance tolerance available	Dimensions						AC ratings (sinusoidal operation -55°C +105°C)***		
			A ± .050 (1.27)		B ± .050 (1.27)		C**		RMS current (A)	RMS voltage - Volts	
			Inches	(mm)	Inches	(mm)	Inches	(mm)		0-400 Hz	4 kHz
Rated voltage 50 V_{DC}											
CFR30AUA563--	0.056	F, G, J, K	0.400	(10.16)	0.170	(4.32)	0.020	(0.51)	0.180	25.0	25.0
CFR30AUA683--	0.068	F, G, J, K	0.400	(10.16)	0.170	(4.32)	0.020	(0.51)	0.220	25.0	25.0
CFR30AUA823--	0.082	F, G, J, K	0.400	(10.16)	0.190	(4.83)	0.020	(0.51)	0.264	25.0	25.0
CFR30AUA104--	0.10	F, G, J, K	0.400	(10.16)	0.230	(5.84)	0.025	(0.64)	0.364	25.0	25.0
CFR30AUA124--	0.12	F, G, J, K	0.400	(10.16)	0.230	(5.84)	0.025	(0.64)	0.388	25.0	25.0
CFR30AUA154--	0.15	F, G, J, K	0.400	(10.16)	0.230	(5.84)	0.025	(0.64)	0.488	25.0	25.0
CFR30AUA184--	0.18	F, G, J, K	0.400	(10.16)	0.260	(6.60)	0.025	(0.64)	0.584	25.0	25.0
CFR30AUA224--	0.22	F, G, J, K	0.400	(10.16)	0.260	(6.60)	0.025	(0.64)	0.712	25.0	25.0
CFR30AUA274--	0.27	F, G, J, K	0.530	(13.46)	0.230	(5.84)	0.025	(0.64)	0.376	25.0	24.0
CFR30AUA334--	0.33	F, G, J, K	0.530	(13.46)	0.260	(6.60)	0.025	(0.64)	0.460	25.0	22.0
CFR30AUA394--	0.39	F, G, J, K	0.530	(13.46)	0.260	(6.60)	0.025	(0.64)	0.540	25.0	21.5
CFR30AUA474--	0.47	F, G, J, K	0.530	(13.46)	0.310	(7.87)	0.025	(0.64)	0.652	25.0	20.0
CFR30AUA564--	0.56	F, G, J, K	0.530	(13.46)	0.310	(7.87)	0.025	(0.64)	0.780	25.0	19.0
CFR30AUA684--	0.68	F, G, J, K	0.530	(13.46)	0.350	(8.89)	0.025	(0.64)	1.434	25.0	18.0
CFR30AUA824--	0.82	F, G, J, K	0.530	(13.46)	0.350	(8.89)	0.025	(0.64)	1.710	25.0	17.0
CFR30AUA105--	1.0	F, G, J, K	0.750	(19.05)	0.310	(7.87)	0.025	(0.64)	0.884	25.0	15.0
CFR30AUA125--	1.2	F, G, J, K	0.750	(19.05)	0.310	(7.87)	0.025	(0.64)	1.060	25.0	14.5
CFR30AUA155--	1.5	F, G, J, K	0.750	(19.05)	0.350	(8.89)	0.025	(0.64)	2.004	25.0	13.0
CFR30AUA185--	1.8	F, G, J, K	0.750	(19.05)	0.400	(10.16)	0.025	(0.64)	2.388	25.0	12.0
CFR30AUA205--	2.0	F, G, J, K	0.750	(19.05)	0.400	(10.16)	0.025	(0.64)	2.652	25.0	11.5
CFR30AUA225--	2.2	F, G, J, K	0.750	(19.05)	0.400	(10.16)	0.025	(0.64)	2.484	25.0	11.0
CFR30AUA275--	2.7	F, G, J, K	1.030	(26.16)	0.350	(8.89)	0.025	(0.64)	2.076	25.0	10.5
CFR30AUA305--	3.0	F, G, J, K	1.030	(26.16)	0.400	(10.16)	0.025	(0.64)	2.305	25.0	10.0
CFR30AUA335--	3.3	F, G, J, K	1.030	(26.16)	0.400	(10.16)	0.025	(0.64)	2.550	25.0	9.5
CFR30AUA395--	3.9	F, G, J, K	1.030	(26.16)	0.440	(11.18)	0.032	(0.81)	2.994	25.0	8.5
CFR30AUA475--	4.7	F, G, J, K	1.030	(26.16)	0.440	(11.18)	0.032	(0.81)	3.264	25.0	8.0
CFR30AUA505--	5.0	F, G, J, K	1.030	(26.16)	0.490	(12.45)	0.032	(0.81)	3.834	25.0	7.5
CFR30AUA565--	5.6	F, G, J, K	1.030	(26.16)	0.490	(12.45)	0.032	(0.81)	4.000	25.0	7.0
CFR30AUA685--	6.8	F, G, J, K	1.250	(31.75)	0.490	(12.45)	0.032	(0.81)	4.000	25.0	6.5
CFR30AUA825--	8.2	F, G, J, K	1.250	(31.75)	0.560	(14.22)	0.032	(0.81)	4.000	25.0	5.5
CFR30AUA106--	10.0	F, G, J, K	1.250	(31.75)	0.610	(15.49)	0.032	(0.81)	4.000	25.0	5.0
CFR30AUA126--	12.0	F, G, J, K	1.500	(38.10)	0.610	(15.49)	0.032	(0.81)	4.000	25.0	4.5
CFR30AUA156--	15.0	F, G, J, K	1.500	(38.10)	0.610	(15.49)	0.032	(0.81)	4.000	25.0	4.0
CFR30AUA186--	18.0	F, G, J, K	1.500	(38.10)	0.670	(17.02)	0.032	(0.81)	4.000	25.0	3.5
Rated voltage 75 V_{DC}											
CFR30AUG333--	0.033	F, G, J, K	0.400	(10.16)	0.170	(4.32)	0.020	(0.51)	0.140	39.0	39.0
CFR30AUG393--	0.039	F, G, J, K	0.400	(10.16)	0.170	(4.32)	0.020	(0.51)	0.168	39.0	39.0
CFR30AUG473--	0.047	F, G, J, K	0.400	(10.16)	0.190	(4.83)	0.020	(0.51)	0.200	39.0	39.0
CFR30AUG563--	0.056	F, G, J, K	0.400	(10.16)	0.190	(4.83)	0.020	(0.51)	0.240	39.0	39.0
CFR30AUG683--	0.068	F, G, J, K	0.400	(10.16)	0.230	(5.84)	0.025	(0.64)	0.288	39.0	39.0
CFR30AUG823--	0.082	F, G, J, K	0.400	(10.16)	0.230	(5.84)	0.025	(0.64)	0.384	39.0	39.0
CFR30AUG104--	0.10	F, G, J, K	0.400	(10.16)	0.260	(6.60)	0.025	(0.64)	0.424	39.0	37.0
CFR30AUG124--	0.12	F, G, J, K	0.400	(10.16)	0.260	(6.60)	0.025	(0.64)	0.512	39.0	35.0
CFR30AUG154--	0.15	F, G, J, K	0.530	(13.46)	0.230	(5.84)	0.025	(0.64)	0.276	39.0	33.0
CFR30AUG184--	0.18	F, G, J, K	0.530	(13.46)	0.230	(5.84)	0.025	(0.64)	0.328	39.0	31.0
CFR30AUG224--	0.22	F, G, J, K	0.530	(13.46)	0.260	(6.60)	0.025	(0.64)	0.404	39.0	29.0
CFR30AUG274--	0.27	F, G, J, K	0.530	(13.46)	0.260	(6.60)	0.025	(0.64)	0.496	39.0	27.0
CFR30AUG334--	0.33	F, G, J, K	0.530	(13.46)	0.310	(7.87)	0.025	(0.64)	0.604	39.0	25.0
CFR30AUG394--	0.39	F, G, J, K	0.530	(13.46)	0.310	(7.87)	0.025	(0.64)	0.716	39.0	24.0
CFR30AUG474--	0.47	F, G, J, K	0.530	(13.46)	0.350	(8.89)	0.025	(0.64)	1.290	39.0	22.5
CFR30AUG564--	0.56	F, G, J, K	0.750	(19.05)	.310	(7.87)	0.020	(0.51)	0.240	39.0	39.0
CFR30AUG684--	0.68	F, G, J, K	0.750	(19.05)	.310	(7.87)	0.025	(0.64)	0.288	39.0	39.0
CFR30AUG824--	0.82	F, G, J, K	0.750	(19.05)	.350	(8.89)	0.025	(0.64)	0.384	39.0	39.0
CFR30AUG105--	1.0	F, G, J, K	0.750	(19.05)	.350	(8.89)	0.025	(0.64)	0.424	39.0	37.0
CFR30AUG125--	1.2	F, G, J, K	0.750	(19.05)	.400	(10.16)	0.025	(0.64)	0.512	39.0	35.0

* The completePIN will include additional symbols to indicate capacitance tolerance (F, G, J, or K) and FRL (M, P, R, or S).

** Tolerances on lead wire diameters are +0.005", –0.003" on 0.032" diameter (No. 20 AWG) and 0.025" diameter (No. 22 AWG); and +0.004", –0.001" on 0.020" diameter (No. 24 AWG).

*** These ratings are maximum ac currents and ac voltages. Under no condition should either of these values be exceeded.

Type 846P

MIL-PRF-55514/13

CFR30

ELECTRICAL CHARACTERISTICS, DIMENSIONS, AND DASH NUMBERS

Part or Identifying Number (PIN)*	Nominale Capacitance (µF)	Capacitance tolerance available	Dimensions						AC ratings (sinusoidal operation -55°C +105°C)***		
			A ±0.050 (±1.27 mm)		B ±0.050 (±1.27 mm)		C**		RMS current (A)	RMS voltage - Volts	
			Inches	(mm)	Inches	(mm)	Inches	(mm)		0-400 Hz	4 kHz
Rated voltage 75 V_{DC}											
CFR30AUG155--	1.5	F, G, J, K	1.030	(26.16)	0.350	(8.89)	0.025	(0.64)	0.276	39.0	33.0
CFR30AUG185--	1.8	F, G, J, K	1.030	(26.16)	0.400	(10.16)	0.025	(0.64)	0.328	39.0	31.0
CFR30AUG205--	2.0	F, G, J, K	1.030	(26.16)	0.400	(10.16)	0.025	(0.64)	0.404	39.0	29.0
CFR30AUG225--	2.2	F, G, J, K	1.030	(26.16)	0.400	(10.16)	0.025	(0.64)	2.010	39.0	12.0
CFR30AUG275--	2.7	F, G, J, K	1.030	(26.16)	0.440	(11.18)	0.032	(0.81)	2.466	39.0	11.5
CFR30AUG305--	3.0	F, G, J, K	1.030	(26.16)	0.490	(12.45)	0.032	(0.81)	2.742	39.0	11.0
CFR30AUG335--	3.3	F, G, J, K	1.030	(26.16)	0.490	(12.45)	0.032	(0.81)	3.018	39.0	10.5
CFR30AUG395--	3.9	F, G, J, K	1.030	(26.16)	0.560	(14.22)	0.032	(0.81)	3.942	39.0	10.0
CFR30AUG475--	4.7	F, G, J, K	1.030	(26.16)	0.560	(14.22)	0.032	(0.81)	4.000	39.0	9.0
CFR30AUG505--	5.0	F, G, J, K	1.250	(31.75)	0.560	(14.22)	0.032	(0.81)	3.558	39.0	8.5
CFR30AUG565--	5.6	F, G, J, K	1.250	(31.75)	0.560	(14.22)	0.032	(0.81)	3.984	39.0	8.0
CFR30AUG685--	6.8	F, G, J, K	1.250	(31.75)	0.610	(15.49)	0.032	(0.81)	4.000	39.0	7.0
CFR30AUG825--	8.2	F, G, J, K	1.250	(31.75)	0.670	(17.02)	0.032	(0.81)	4.000	39.0	6.5
CFR30AUG106--	10.0	F, G, J, K	1.500	(38.10)	0.670	(17.02)	0.032	(0.81)	4.000	39.0	5.5
CFR30AUG126--	12.0	F, G, J, K	1.500	(38.10)	0.740	(18.80)	0.032	(0.81)	4.000	39.0	4.5
CFR30AUG156--	15.0	F, G, J, K	1.500	(38.10)	0.740	(18.80)	0.032	(0.81)	4.000	37.0	3.5
Rated voltage 100 V_{DC}											
CFR30AUB273--	0.027	F, G, J, K	0.400	(10.16)	0.170	(4.32)	0.020	(0.51)	0.128	53.0	53.0
CFR30AUB333--	0.033	F, G, J, K	0.400	(10.16)	0.190	(4.83)	0.020	(0.51)	0.168	53.0	53.0
CFR30AUB393--	0.039	F, G, J, K	0.400	(10.16)	0.190	(4.83)	0.020	(0.51)	0.200	53.0	53.0
CFR30AUB473--	0.047	F, G, J, K	0.400	(10.16)	0.230	(5.84)	0.025	(0.64)	0.240	53.0	53.0
CFR30AUB563--	0.056	F, G, J, K	0.400	(10.16)	0.230	(5.84)	0.025	(0.64)	0.288	53.0	53.0
CFR30AUB683--	0.068	F, G, J, K	0.400	(10.16)	0.260	(6.60)	0.025	(0.64)	0.348	53.0	52.0
CFR30AUB823--	0.082	F, G, J, K	0.400	(10.16)	0.260	(6.60)	0.025	(0.64)	0.420	53.0	49.0
CFR30AUB104--	0.10	F, G, J, K	0.530	(13.46)	0.230	(5.84)	0.025	(0.64)	0.308	53.0	46.0
CFR30AUB124--	0.12	F, G, J, K	0.530	(13.46)	0.230	(5.84)	0.025	(0.64)	0.300	53.0	44.0
CFR30AUB154--	0.15	F, G, J, K	0.530	(13.46)	0.260	(6.60)	0.025	(0.64)	0.460	53.0	41.0
CFR30AUB184--	0.18	F, G, J, K	0.530	(13.46)	0.260	(6.60)	0.025	(0.64)	0.396	53.0	38.0
CFR30AUB224--	0.22	F, G, J, K	0.530	(13.46)	0.310	(7.87)	0.025	(0.64)	0.484	53.0	35.0
CFR30AUB274--	0.27	F, G, J, K	0.530	(13.46)	0.310	(7.87)	0.025	(0.64)	0.592	53.0	33.0
CFR30AUB334--	0.33	F, G, J, K	0.530	(13.46)	0.350	(8.89)	0.025	(0.64)	1.086	53.0	30.0
CFR30AUB394--	0.39	F, G, J, K	0.750	(19.05)	0.310	(7.87)	0.025	(0.64)	0.544	53.0	28.0
CFR30AUB474--	0.47	F, G, J, K	0.750	(19.05)	0.310	(7.87)	0.025	(0.64)	0.666	53.0	26.0
CFR30AUB564--	0.56	F, G, J, K	0.750	(19.05)	0.350	(8.89)	0.025	(0.64)	1.170	53.0	24.0
CFR30AUB684--	0.68	F, G, J, K	0.750	(19.05)	0.350	(8.89)	0.025	(0.64)	1.422	53.0	22.0
CFR30AUB824--	0.82	F, G, J, K	0.750	(19.05)	0.400	(10.16)	0.025	(0.64)	1.716	53.0	20.0
CFR30AUB105--	1.0	F, G, J, K	0.750	(19.05)	0.400	(10.16)	0.025	(0.64)	1.770	53.0	18.5
CFR30AUB125--	1.2	F, G, J, K	1.030	(26.16)	0.350	(8.89)	0.025	(0.64)	1.314	53.0	17.0
CFR30AUB155--	1.5	F, G, J, K	1.030	(26.16)	0.400	(10.16)	0.025	(0.64)	1.818	53.0	15.0
CFR30AUB185--	1.8	F, G, J, K	1.030	(26.16)	0.440	(11.18)	0.032	(0.81)	2.184	53.0	13.5
CFR30AUB205--	2.0	F, G, J, K	1.030	(26.16)	0.440	(11.18)	0.032	(0.81)	2.430	53.0	12.5
CFR30AUB225--	2.2	F, G, J, K	1.030	(26.16)	0.490	(12.45)	0.032	(0.81)	2.670	53.0	12.0
CFR30AUB275--	2.7	F, G, J, K	1.030	(26.16)	0.490	(12.45)	0.032	(0.81)	2.964	53.0	10.5
CFR30AUB305--	3.0	F, G, J, K	1.250	(31.75)	0.490	(12.45)	0.032	(0.81)	2.562	53.0	10.0
CFR30AUB335--	3.3	F, G, J, K	1.250	(31.75)	0.490	(12.45)	0.032	(0.81)	2.820	53.0	9.5
CFR30AUH395--	3.9	F, G, J, K	1.500	(38.10)	0.670	(17.02)	0.032	(0.81)	3.636	76.0	8.0
CFR30AUH475--	4.7	F, G, J, K	1.500	(38.10)	0.740	(18.80)	0.032	(0.81)	4.000	72.0	7.0
CFR30AUH505--	5.0	F, G, J, K	1.500	(38.10)	0.740	(18.80)	0.032	(0.81)	4.000	71.0	6.0
CFR30AUB565--	5.6	F, G, J, K	1.500	(38.10)	0.560	(14.22)	0.032	(0.81)	3.684	53.0	6.5
CFR30AUB685--	6.8	F, G, J, K	1.500	(38.10)	0.610	(15.49)	0.032	(0.81)	4.000	51.0	6.0
CFR30AUB825--	8.2	F, G, J, K	1.500	(38.10)	0.670	(17.02)	0.032	(0.81)	4.000	48.0	5.5
CFR30AUB106--	10.0	F, G, J, K	1.500	(38.10)	0.740	(18.80)	0.032	(0.81)	4.000	46.0	4.0

* The completePIN will include additional symbols to indicate capacitance tolerance (F, G, J, or K) and FRL (M, P, R, or S).

** Tolerances on lead wire diameters are $^{+0.005"}_{-0.003"}$ on 0.032" diameter (No. 20 AWG) and 0.025" diameter (No. 22 AWG); and $^{+0.004"}_{-0.001"}$ on 0.020" diameter (No. 24 AWG).

*** These ratings are maximum ac currents and ac voltages. Under no condition should either of these values be exceeded.

ELECTRICAL CHARACTERISTICS, DIMENSIONS, AND DASH NUMBERS

Part or Identifying Number (PIN)*	Nominale Capacitance (µF)	Capacitance tolerance available	Dimensions						AC ratings (sinusoidal operation -55°C +105°C)***		
			A ±0.050 (±1.27 mm)		B ±0.050 (±1.27 mm)		C**		RMS current (A)	RMS voltage - Volts	
			Inches	(mm)	Inches	(mm)	Inches	(mm)		0-400 Hz	4 kHz
Rated voltage 150 V_{DC}											
CFR30AUH153--	.015	F, G, J, K	0.400	(10.16)	0.170	(4.32)	0.020	(0.51)	0.108	79.0	79.0
CFR30AUH183--	.018	F, G, J, K	0.400	(10.16)	0.190	(4.83)	0.020	(0.51)	0.128	79.0	79.0
CFR30AUH223--	.022	F, G, J, K	0.400	(10.16)	0.230	(5.84)	0.025	(0.64)	0.160	79.0	79.0
CFR30AUH273--	.027	F, G, J, K	0.400	(10.16)	0.230	(5.84)	0.025	(0.64)	0.196	79.0	79.0
CFR30AUH333--	.033	F, G, J, K	0.400	(10.16)	0.230	(5.84)	0.025	(0.64)	0.240	79.0	75.0
CFR30AUH393--	.039	F, G, J, K	0.400	(10.16)	0.260	(6.60)	0.025	(0.64)	0.284	79.0	71.0
CFR30AUH473--	.047	F, G, J, K	0.400	(10.16)	0.260	(6.60)	0.025	(0.64)	0.340	79.0	68.0
CFR30AUH563--	.056	F, G, J, K	0.530	(13.46)	0.230	(5.84)	0.025	(0.64)	0.176	79.0	65.0
CFR30AUA683--	0.068	F, G, J, K	0.530	(13.46)	0.230	(5.84)	0.025	(0.64)	0.212	79.0	61.0
CFR30AUA823--	0.082	F, G, J, K	0.530	(13.46)	0.260	(6.60)	0.025	(0.64)	0.252	79.0	58.0
CFR30AUA104--	0.10	F, G, J, K	0.530	(13.46)	0.260	(6.60)	0.025	(0.64)	0.312	79.0	55.0
CFR30AUA124--	0.12	F, G, J, K	0.530	(13.46)	0.310	(7.87)	0.025	(0.64)	0.372	79.0	51.0
CFR30AUA154--	0.15	F, G, J, K	0.530	(13.46)	0.350	(8.89)	0.025	(0.64)	0.702	79.0	48.0
CFR30AUA184--	0.18	F, G, J, K	0.530	(13.46)	0.350	(8.89)	0.025	(0.64)	0.840	79.0	45.0
CFR30AUA224--	0.22	F, G, J, K	0.750	(19.05)	0.310	(7.87)	0.025	(0.64)	0.436	79.0	42.0
CFR30AUA274--	0.27	F, G, J, K	0.750	(19.05)	0.310	(7.87)	0.025	(0.64)	0.536	79.0	39.0
CFR30AUA334--	0.33	F, G, J, K	0.750	(19.05)	0.350	(8.89)	0.025	(0.64)	0.978	79.0	35.0
CFR30AUA394--	0.39	F, G, J, K	0.750	(19.05)	0.400	(10.16)	0.025	(0.64)	1.158	79.0	32.0
CFR30AUA474--	0.47	F, G, J, K	0.750	(19.05)	0.400	(10.16)	0.025	(0.64)	1.182	79.0	30.0
CFR30AUA564--	0.56	F, G, J, K	1.030	(26.16)	0.350	(8.89)	0.025	(0.64)	0.960	79.0	28.0
CFR30AUA684--	0.68	F, G, J, K	1.030	(26.16)	0.400	(10.16)	0.025	(0.64)	1.170	79.0	26.0
CFR30AUA824--	0.82	F, G, J, K	1.030	(26.16)	0.400	(10.16)	0.025	(0.64)	1.272	79.0	24.0
CFR30AUA105--	1.0	F, G, J, K	1.030	(26.16)	0.440	(11.18)	0.032	(0.81)	1.554	79.0	22.0
CFR30AUA125--	1.2	F, G, J, K	1.030	(26.16)	0.490	(12.45)	0.032	(0.81)	2.064	79.0	19.0
CFR30AUA155--	1.5	F, G, J, K	1.250	(31.75)	0.490	(12.45)	0.032	(0.81)	1.812	79.0	17.0
CFR30AUA185--	1.8	F, G, J, K	1.250	(31.75)	0.560	(14.22)	0.032	(0.81)	2.178	79.0	15.0
CFR30AUA205--	2.0	F, G, J, K	1.250	(31.75)	0.560	(14.22)	0.032	(0.81)	2.418	79.0	14.0
CFR30AUA225--	2.2	F, G, J, K	1.250	(31.75)	0.560	(14.22)	0.032	(0.81)	2.658	79.0	12.5
CFR30AUA275--	2.7	F, G, J, K	1.250	(31.75)	0.610	(15.49)	0.032	(0.81)	3.264	79.0	11.0
CFR30AUA305--	3.0	F, G, J, K	1.500	(38.10)	0.610	(15.49)	0.032	(0.81)	2.796	79.0	10.0
CFR30AUA335--	3.3	F, G, J, K	1.500	(38.10)	0.610	(15.49)	0.032	(0.81)	3.078	79.0	9.0
CFR30AUA395--	3.9	F, G, J, K	1.500	(38.10)	0.670	(17.02)	0.032	(0.81)	3.636	76.0	8.0
CFR30AUA475--	4.7	F, G, J, K	1.500	(38.10)	0.740	(18.80)	0.032	(0.81)	4.000	72.0	7.0
CFR30AUA505--	5.0	F, G, J, K	1.500	(38.10)	0.740	(18.80)	0.032	(0.81)	4.000	71.0	6.0

* The completePIN will include additional symbols to indicate capacitance tolerance (F, G, J, or K) and FRL (M, P, R, or S).

** Tolerances on lead wire diameters are +0.005", –0.003" on 0.032" diameter (No. 20 AWG) and 0.025" diameter (No. 22 AWG); and +0.004", –0.001" on 0.020" diameter (No. 24 AWG).

*** These ratings are maximum ac currents and ac voltages. Under no condition should either of these values be exceeded.

Type 846P

MIL-PRF-55514/13

CFR30

ELECTRICAL CHARACTERISTICS, DIMENSIONS, AND DASH NUMBERS

Part or Identifying Number (PIN)*	Nominale Capacitance (µF)	Capacitance tolerance available	Dimensions						AC ratings (sinusoidal operation -55°C +105°C)***		
			A ±0.050 (±1.27 mm)		B ±0.050 (±1.27 mm)		C**		RMS current (A)	RMS voltage - Volts	
			Inches	(mm)	Inches	(mm)	Inches	(mm)		0-400 Hz	4 kHz
Rated voltage 200 V_{DC}											
CFR30AUC103--	0.010	F, G, J, K	0.400	(10.16)	0.170	(4.32)	0.020	(0.51)	0.088	106.0	106.0
CFR30AUC123--	0.012	F, G, J, K	0.400	(10.16)	0.190	(4.83)	0.020	(0.51)	0.104	106.0	103.0
CFR30AUC153--	0.015	F, G, J, K	0.400	(10.16)	0.190	(4.83)	0.020	(0.51)	0.132	106.0	98.0
CFR30AUC183--	0.018	F, G, J, K	0.400	(10.16)	0.230	(5.84)	0.025	(0.64)	0.156	106.0	93.0
CFR30AUC223--	0.022	F, G, J, K	0.400	(10.16)	0.230	(5.84)	0.025	(0.64)	0.192	106.0	89.0
CFR30AUC273--	0.027	F, G, J, K	0.400	(10.16)	0.260	(6.60)	0.025	(0.64)	0.232	106.0	84.0
CFR30AUC333--	.033	F, G, J, K	0.400	(10.16)	0.260	(6.60)	0.025	(0.64)	0.288	106.0	106.0
CFR30AUC393--	.039	F, G, J, K	0.530	(13.46)	0.230	(5.84)	0.025	(0.64)	0.144	106.0	106.0
CFR30AUC473--	.047	F, G, J, K	0.530	(13.46)	0.230	(5.84)	0.025	(0.64)	0.176	106.0	106.0
CFR30AUC563--	.056	F, G, J, K	0.530	(13.46)	0.260	(6.60)	0.025	(0.64)	0.208	106.0	106.0
CFR30AUC683--	.068	F, G, J, K	0.530	(13.46)	0.260	(6.60)	0.025	(0.64)	0.252	106.0	106.0
CFR30AUC823--	.082	F, G, J, K	0.530	(13.46)	0.310	(7.87)	0.025	(0.64)	0.304	106.0	106.0
CFR30AUC104--	.10	F, G, J, K	0.530	(13.46)	0.310	(7.87)	0.025	(0.64)	0.372	106.0	106.0
CFR30AUC124--	.12	F, G, J, K	0.530	(13.46)	0.350	(8.89)	0.025	(0.64)	0.672	106.0	106.0
CFR30AUC154--	.15	F, G, J, K	0.750	(19.05)	0.310	(7.87)	0.025	(0.64)	0.356	106.0	106.0
CFR30AUC184--	.18	F, G, J, K	0.750	(19.05)	0.310	(7.87)	0.025	(0.64)	0.360	106.0	106.0
CFR30AUC224--	.22	F, G, J, K	0.750	(19.05)	0.350	(8.89)	0.025	(0.64)	0.786	106.0	106.0
CFR30AUC274--	.27	F, G, J, K	0.750	(19.05)	0.350	(8.89)	0.025	(0.64)	0.810	106.0	106.0
CFR30AUC334--	.33	F, G, J, K	0.750	(19.05)	0.400	(10.16)	0.025	(0.64)	0.993	106.0	106.0
CFR30AUC394--	.39	F, G, J, K	1.030	(26.16)	0.350	(8.89)	0.025	(0.64)	0.804	106.0	106.0
CFR30AUC474--	.47	F, G, J, K	1.030	(26.16)	0.400	(10.16)	0.025	(0.64)	0.996	106.0	106.0
CFR30AUC564--	.56	F, G, J, K	1.030	(26.16)	0.400	(10.16)	0.025	(0.64)	1.152	106.0	106.0
CFR30AUC684--	.68	F, G, J, K	1.030	(26.16)	0.440	(11.18)	0.032	(0.81)	1.404	106.0	106.0
CFR30AUC824--	.82	F, G, J, K	1.030	(26.16)	0.490	(12.45)	0.032	(0.81)	1.692	106.0	106.0
CFR30AUC105--	1.0	F, G, J, K	1.250	(31.75)	0.490	(12.45)	0.032	(0.81)	1.452	106.0	106.0
CFR30AUC125--	1.2	F, G, J, K	1.250	(31.75)	0.490	(12.45)	0.032	(0.81)	1.740	106.0	106.0
CFR30AUC155--	1.5	F, G, J, K	1.250	(31.75)	0.560	(14.22)	0.032	(0.81)	2.178	105.0	105.0
CFR30AUC185--	1.8	F, G, J, K	1.500	(38.10)	0.560	(14.22)	0.032	(0.81)	2.010	102.0	102.0
CFR30AUC205--	2.0	F, G, J, K	1.500	(38.10)	0.560	(14.22)	0.032	(0.81)	2.238	102.0	102.0
CFR30AUC225--	2.2	F, G, J, K	1.500	(38.10)	0.610	(15.49)	0.032	(0.81)	2.460	99.0	99.0
CFR30AUC275--	2.7	F, G, J, K	1.500	(38.10)	0.670	(15.49)	0.032	(0.81)	3.024	94.0	94.0
CFR30AUC305--	3.0	F, G, J, K	1.500	(38.10)	0.670	(15.49)	0.032	(0.81)	3.360	91.0	91.0
CFR30AUC335--	3.3	F, G, J, K	1.500	(38.10)	0.740	(18.80)	0.032	(0.81)	3.690	89.0	89.0
CFR30AUC395--	3.9	F, G, J, K	1.500	(38.10)	0.740	(18.80)	0.032	(0.81)	4.000	85.0	85.0

* The completePIN will include additional symbols to indicate capacitance tolerance (F, G, J, or K) and FRL (M, P, R, or S).

** Tolerances on lead wire diameters are $^{+0.005"}_{-0.003"}$ on 0.032" diameter (No. 20 AWG) and 0.025" diameter (No. 22 AWG); and $^{+0.004"}_{-0.001"}$ on 0.020" diameter (No. 24 AWG).

*** These ratings are maximum ac currents and ac voltages. Under no condition should either of these values be exceeded.

CRH11-12-13

MIL-PRF-83421/2

Type 720P

Capacitors,
Fixed,
Metallized plastic film dielectric,
(DC, AC, or DC and AC),
Hermetically sealed in metal cases,
Established reliability.

GENERAL CHARACTERISTICS

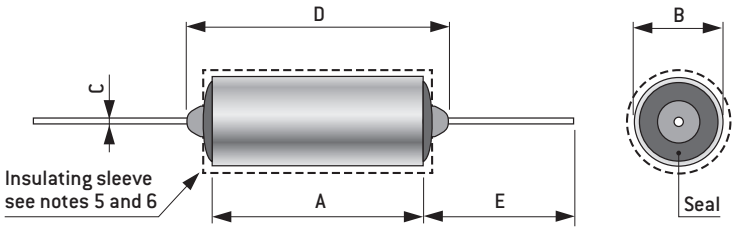
Dielectric material	Normally polypropylene, metallized
Rated temperature	–55°C to +105°C.
Capacitance range	1 nF to 2 µF
Voltage range	100 V to 400 V
Capacitance tolerance	±0.25%, ±0.5%, ±1%, ±2%, ±5%, ±10%
Failure rate level	**M** (1% / 1,000 hours), **P** (0.1% / 1,000 hours), **R** (0.01% / 1,000 hours), and **S** (0.001% / 1,000 hours).
Dielectric withstanding voltage (DWV)	Terminal to terminal **AC**: 100 Hz ± 10 Hz square wave, peak-to-peak voltage, three times dc rated voltage for 60 to 90 seconds, not to exceed 800 V p/p. **DC**: 200 percent of dc rated voltage for 60 seconds minimum.
Insulation resistance (IR)	Charge to rated voltage, +105°C for 5 minutes maximum; however, for capacitance values greater than 1.0 µF, an additional 1 minute per µF is permitted.

Full details and most up to date information found at government website.

DIMENSIONS

A	B
See tables on the next pages	

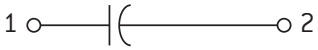
C		D		E	
Inches	(mm)	Inches	(mm)	Inches	(mm)
See note 1		See tables on the next pages		1.625 min.	(41.28 min.)



NOTES

1. Number 18 AWG wire .040 inch ± .002 inch (1.02 mm ± 0.05 mm).
2. Dimensions are in inches.
3. Metric equivalents are in parentheses and are given for general information only.
4. See table below for additional dimensions.
5. Insulating sleeve shall extend beyond the capacitor body. Insulating sleeve thickness shall not exceed .005 inch (0.13 mm).
6. Plastic insulating sleeve shall be transparent; marking shall be applied to the capacitor case.

CIRCUIT DIAGRAM



M83421/	01	–	1	123	M
Performance specification number	Specification sheet number	Dash	Single digit designating style	Nonsignificant dash number	Failure rate level
		– = Standard product **H** = Random vibration option			**M** = 1% /1,000 hours **P** = 0.1% /1,000 hours

Type 720P

MIL-PRF-83421/2

CRH11-12-13

ELECTRICAL CHARACTERISTICS, DIMENSIONS, AND DASH NUMBERS

Capacitance value (nom) (in µf)	Dimensions*						Dash number**						ESR 20 kHz 100 kHz (Ω max.)	AC Rating max. 400 Hz (volts rms)	Ripple current 20 kHz to 100 kHz (amperes rms) max. case temperature °C		
	A ±0.030 (±0.76mm)		B +0.020/–0.010 (+0.51/–0.25)		G max.		Capacitance tolerance value (in %)										
	Inches	(mm)	Inches	(mm)	Inches	(mm)	±0.25	±0.5	±1.0	±2.0	±5.0	±10.0					
CRH11 - Rated voltage 100 V_{DC}																	
0.47	0.875	(22,23)	0.400	(10,16)	1.075	(27,31)	1001-	1002-	1003-	1004-	1005-	1006-	0.025	60	5.3	2.6	0.8
0.56	0.875	(22,23)	0.500	(12,70)	1.075	(27,31)	1007-	1008-	1009-	1010-	1011-	1012-	0.024	60	6.0	3.0	1.0
0.68	0.875	(22,23)	0.500	(12,70)	1.075	(27,31)	1013-	1014-	1015-	1016-	1017-	1018-	0.023	60	6.2	3.1	1.0
0.82	0.875	(22,23)	0.500	(12,70)	1.075	(27,31)	1019-	1020-	1021-	1022-	1023-	1024-	0.022	60	6.3	3.2	1.0
1.0	0.906	(23,01)	0.562	(14,27)	1.106	(28,09)	1025-	1026-	1027-	1028-	1029-	1030-	0.017	60	7.7	3.9	1.2
2.0	1.094	(27,80)	0.670	(17,02)	1.294	(32,87)	1031-	1032-	1033-	1034-	1035-	1036-	0.014	60	10.3	5.2	1.6
3.0	1.094	(27,80)	0.750	(19,05)	1.294	(32,87)	1037-	1038-	1039-	1040-	1041-	1042-	0.013	60	11.4	5.7	1.8
5.0	1.406	(35,70)	0.750	(19,05)	1.606	(40,79)	1043-	1044-	1045-	1046-	1047-	1048-	0.012	60	13.6	6.8	2.1
10.0	1.687	(42,85)	1.000	(25,40)	1.887	(47,93)	1049-	1050-	1051-	1052-	1053-	1054-	0.010	60	15.0	9.1	2.9
20.0	2.437	(61,90)	1.000	(25,40)	2.637	(66,98)	1055-	1056-	1057-	1058-	1059-	1060-	0.009	60	15.0	11.5	3.6
25.0	2.437	(61,90)	1.000	(25,40)	2.637	(66,98)	1061-	1062-	1063-	1064-	1065-	1066-	0.008	60	15.0	11.7	3.7
CRH12 - Rated voltage 200 V_{DC}																	
0.18	0.875	(22,23)	0.400	(10,16)	1.075	(27,31)	2001-	2002-	2003-	2004-	2005-	2006-	0.031	120	4.8	2.4	0.8
0.22	0.875	(22,23)	0.500	(4,32)	1.075	(27,31)	2007-	2008-	2009-	2010-	2011-	2012-	0.030	120	5.4	2.7	0.9
0.27	0.875	(22,23)	0.500	(4,32)	1.075	(27,31)	2013-	2014-	2015-	2016-	2017-	2018-	0.029	120	5.5	2.8	0.9
0.33	0.875	(22,23)	0.500	(4,32)	1.075	(27,31)	2019-	2020-	2021-	2022-	2023-	2024-	0.028	120	5.6	2.8	0.9
0.39	0.906	(23,01)	0.562	(14,27)	1.106	(28,09)	2025-	2026-	2027-	2028-	2029-	2030-	0.026	120	6.2	3.1	1.0
0.47	1.094	(27,80)	0.562	(14,27)	1.294	(32,87)	2031-	2032-	2033-	2034-	2035-	2036-	0.025	120	7.0	3.5	1.1
0.56	1.094	(27,80)	0.562	(14,27)	1.294	(32,87)	2037-	2038-	2039-	2040-	2041-	2042-	0.024	120	7.2	3.6	1.1
0.68	1.094	(27,80)	0.670	(17,02)	1.294	(32,87)	2043-	2044-	2045-	2046-	2047-	2048-	0.023	120	8.0	4.0	1.3
0.82	1.094	(27,80)	0.670	(17,02)	1.294	(32,87)	2049-	2050-	2051-	2052-	2053-	2054-	0.022	120	8.2	4.1	1.3
1.0	1.094	(27,80)	0.670	(17,02)	1.294	(32,87)	2055-	2056-	2057-	2058-	2059-	2060-	0.021	120	8.4	4.2	1.3
2.0	1.406	(35,70)	0.750	(19,05)	1.606	(40,79)	2061-	2062-	2063-	2064-	2065-	2066-	0.017	120	11.1	5.5	1.8
3.0	1.437	(36,50)	1.000	(25,40)	1.637	(41,58)	2067-	2068-	2069-	2070-	2071-	2072-	0.015	120	13.9	7.0	2.2
5.0	1.687	(42,85)	1.000	(25,40)	1.887	(47,93)	2073-	2074-	2075-	2076-	2077-	2078-	0.013	120	15.0	8.2	2.6

* L and D dimensions are bare case dimensions.

** The complete dash number will include the applicable letter completing the FR level symbol (M, P, R, or S).

*** This is the ambient case temperature prior to the application of current.

CRH11-12-13

MIL-PRF-83421/2

Type 720P

ELECTRICAL CHARACTERISTICS, DIMENSIONS, AND DASH NUMBERS

Capacitance value (nom) (in µf)	Dimensions**						Dash number in						ESR 20 kHz 100 kHz (Ω max.)	AC Rating max. 400 Hz (volts rms)	Ripple current 20 kHz to 100 kHz (A rms) max. case temp. (°C)***		
	A ±0.030 (±0.76mm)		B +0.020/–0.010 (+0.51/–0.25)		G max.		Capacitance tolerance value (in %)										
	Inches	(mm)	Inches	(mm)	Inches	(mm)	±0.25	±0.5	±1.0	±2.0	±5.0	±10.0					
CRH13 - Rated voltage 400 V_{DC}****																	
0.001	0.562	(14,27)	0.235	(5,97)	0.762	(19,35)	3103	3104	3105	3106	3107	3108	1.00	240	0.49	0.25	0.08
0.0012	0.562	(14,27)	0.235	(5,97)	0.762	(19,35)	3109	3110	3111	3112	3113	3114	0.95	240	0.50	0.25	0.08
0.0015	0.562	(14,27)	0.235	(5,97)	0.762	(19,35)	3115	3116	3117	3118	3119	3120	0.90	240	0.52	0.26	0.08
0.0018	0.562	(14,27)	0.235	(5,97)	0.762	(19,35)	3121	3122	3123	3124	3125	3126	0.85	240	0.53	0.27	0.08
0.002	0.562	(14,27)	0.235	(5,97)	0.762	(19,35)	3127	3128	3129	3130	3131	3132	0.75	240	0.57	0.28	0.09
0.0022	0.562	(14,27)	0.235	(5,97)	0.762	(19,35)	3133	3134	3135	3136	3137	3138	0.70	240	0.59	0.29	0.09
0.0027	0.562	(14,27)	0.235	(5,97)	0.762	(19,35)	3139	3140	3141	3142	3143	3144	0.65	240	0.61	0.30	0.10
0.0033	0.562	(14,27)	0.235	(5,97)	0.762	(19,35)	3145	3146	3147	3148	3149	3150	0.60	240	0.63	0.32	0.10
0.0039	0.562	(14,27)	0.235	(5,97)	0.762	(19,35)	3151	3152	3153	3154	3155	3156	0.55	240	0.66	0.33	0.10
0.0047	0.562	(14,27)	0.235	(5,97)	0.762	(19,35)	3157	3158	3159	3160	3161	3162	0.50	240	0.69	0.35	0.11
0.0056	0.687	(17,45)	0.235	(5,97)	0.887	(22,53)	3163	3164	3165	3166	3167	3168	0.45	240	0.80	0.40	0.13
0.0068	0.687	(17,45)	0.235	(5,97)	0.887	(22,53)	3169	3170	3171	3172	3173	3174	0.35	240	0.90	0.45	0.14
0.0082	0.687	(17,45)	0.235	(5,97)	0.887	(22,53)	3175	3176	3177	3178	3179	3180	0.30	240	0.97	0.49	0.15
0.01	0.687	(17,45)	0.235	(5,97)	0.887	(22,53)	3181	3182	3183	3184	3185	3186	0.26	240	1.05	0.52	0.17
0.012	0.687	(17,45)	0.235	(5,97)	0.887	(22,53)	3187	3188	3189	3190	3191	3192-	0.20	240	1.19	0.60	0.19
0.15	0.813	(20,65)	0.312	(7,92)	1.013	(25,73)	3193	3194	3195	3196	3197	3198	0.12	240	1.95	0.97	0.31
0.018	0.813	(20,65)	0.312	(7,92)	1.013	(25,73)	3199	3200	3201	3202	3203	3204	0.11	240	2.04	1.02	0.32
0.02	0.813	(20,65)	0.312	(7,92)	1.013	(25,73)	3205	3206	3207	3208	3209	3210	0.10	240	2.14	1.07	0.34
0.022	0.813	(20,65)	0.312	(7,92)	1.013	(25,73)	3211	3212	3213	3214	3215	3216	0.09	240	2.25	1.13	0.36
0.027	0.813	(20,65)	0.312	(7,92)	1.013	(25,73)	3217	3218	3219	3220	3221	3222	0.09	240	2.32	1.16	0.37
0.033	0.875	(22,23)	0.400	(10,16)	1.075	(27,31)	3223-	3224-	3225-	3226-	3227-	3228-	0.08	240	2.85	1.42	0.45
0.039	0.875	(22,23)	0.400	(10,16)	1.075	(27,31)	3229-	3230-	3231-	3232-	3233-	3234-	0.07	240	3.04	1.52	0.48
0.047	0.875	(22,23)	0.400	(10,16)	1.075	(27,31)	3235-	3236-	3237-	3238-	3239-	3240-	0.06	240	3.29	1.64	0.52
0.056	0.875	(22,23)	0.400	(10,16)	1.075	(27,31)	3001-	3002-	3003-	3004-	3005-	3006-	0.058	240	3.5	1.7	0.6
0.068	0.875	(22,23)	0.500	(12,70)	1.075	(27,31)	3007-	3008-	3009-	3010-	3011-	3012-	0.046	240	4.4	2.2	0.7
0.082	0.875	(22,23)	0.500	(12,70)	1.075	(27,31)	3013-	3014-	3015-	3016-	3017-	3018-	0.039	240	4.7	2.4	0.7
0.10	0.875	(22,23)	0.500	(12,70)	1.075	(27,31)	3019-	3020-	3021-	3022-	3023-	3024-	0.035	240	5.0	2.5	0.8
0.12	0.906	(23,01)	0.562	(14,27)	1.106	(28,09)	3025-	3026-	3027-	3028-	3029-	3030-	0.033	240	5.5	2.8	0.9
0.15	0.906	(23,01)	0.670	(17,02)	1.106	(28,09)	3031-	3032-	3033-	3034-	3035-	3036-	0.032	240	6.2	3.1	1.0
0.18	0.906	(23,01)	0.670	(17,02)	1.106	(28,09)	3037-	3038-	3039-	3040-	3041-	3042-	0.031	240	6.3	3.1	1.0
0.22	1.094	(27,80)	0.670	(17,02)	1.294	(32,87)	3043-	3044-	3045-	3046-	3047-	3048-	0.030	240	7.0	3.5	1.1
0.27	1.094	(27,80)	0.670	(17,02)	1.294	(32,87)	3049-	3050-	3051-	3052-	3053-	3054-	0.029	240	7.2	3.6	1.1
0.33	1.094	(27,80)	0.670	(17,02)	1.294	(32,87)	3055-	3056-	3057-	3058-	3059-	3060-	0.028	240	7.3	3.7	1.2
0.39	1.094	(27,80)	0.750	(19,05)	1.294	(32,87)	3061-	3062-	3063-	3064-	3065-	3066-	0.026	240	7.9	3.9	1.2
0.47	1.094	(27,80)	0.750	(19,05)	1.294	(32,87)	3067-	3068-	3069-	3070-	3071-	3072-	0.025	240	8.1	4.0	1.3
0.56	1.406	(35,70)	0.750	(19,05)	1.606	(40,79)	3073-	3074-	3075-	3076-	3077-	3078-	0.025	240	9.2	4.6	1.4
0.68	1.406	(35,70)	0.750	(19,05)	1.606	(40,79)	3079-	3080-	3081-	3082-	3083-	3084-	0.024	240	9.4	4.7	1.5
0.82	1.656	(42,06)	0.750	(19,05)	1.856	(47,14)	3085-	3086-	3087-	3088-	3089-	3090-	0.023	240	10.4	5.2	1.6
1.0	1.656	(42,06)	0.750	(19,05)	1.856	(47,14)	3091-	3092-	3093-	3094-	3095-	3096-	0.022	240	10.7	5.3	1.7
2.0	1.938	(49,23)	1.000	(25,40)	2.138	(54,31)	3097-	3098	3099-	3100-	3101-	3102-	0.017	240	15.0	7.5	2.4

* L and D dimensions are bare case dimensions.

** The complete dash number will include the applicable letter completing the FR level symbol (M, P, R, or S).

*** This is the ambient case temperature prior to the application of current.

****400V PINs with values less than 0.033 µF (dash numbers -3103 through -3222) are no longer available.

Type 871P

MIL-PRF-83421/6

CRH31, CRH32, CRH33, CHR34

Capacitor,
Fixed,
Metallized plastic film dielectric,
DC and AC,
Hermetically sealed in metal cases,
Established reliability

GENERAL CHARACTERISTICS

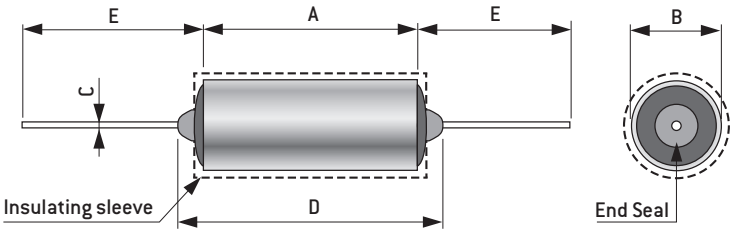
Dielectric material	Normally polyphenylene sulfide
Rated temperature	−55°C to +125°C.
Capacitance range	1 nF to 22 µF
Voltage range	30 V to 400 V
Capacitance tolerance	±0.25%, ±0.5%, ±1%, ±2%, ±5%, ±10%
Failure rate level (% per 1,000 hours)	**M** (1%), **P** (0.1%), **R** (0.01%), and **S** (0.001%).

Full details and most up to date information found at government website.

DIMENSIONS

A	B	D
See tables on the next pages		

C		E	
Inches	(mm)	Inches	(mm)
See Note 1		1.625 min	(41.28 min)



NOTES

1. Number 22 AWG wire 0.025"$^{\pm 0.002"}$ (0.64$^{\pm 0.05}$ mm) for case diameters of 0.312" (7.92 mm) and less.

   Number 20 AWG wire 0.032"$^{\pm 0.002"}$(0.81$^{\pm 0.05}$mm) for case diameters of 0.4"(10.16 mm) and 0.5" (12.70 mm). Number 18 AWG wire 0.04"$^{\pm 0.002"}$ (1.02$^{\pm 0.05}$ mm) for case diameters of 0.562" (14.27 mm) and over.
2. Dimensions are in inches.
3. Metric equivalents are given for general information only and are in parentheses.
4. See table I for additional dimensions.
5. Insulating sleeve shall extend beyond the capacitor body. Insulating sleeve thickness shall not exceed 0.005" (0.13 mm).
6. Plastic insulating sleeve shall be transparent; marking shall be applied to the capacitor case.
7. Lead length may be a minimum of one inch (25.4 mm) long for use in tape and reel packaging, when specified in the ordering data

CIRCUIT DIAGRAM

HOW TO ORDER

M83421/	01	–	1	123	M
Performance specification number	Specification sheet number	Dash.	Single digit designating style	Nonsignificant dash number	Failure rate level
		– = Standard product **H** = Random vibration option.			**M** = 1% /1,000 hours **P** = 0.1% /1,000 hours **R** = 0.01% /1,000 hours **S** = 0.001% /1,000 hours

CRH31, CRH32, CRH33, CHR34

MIL-PRF-83421/6

Type 871P

ELECTRICAL CHARACTERISTICS, DIMENSIONS, AND DASH NUMBERS

Capacitance	Dimensions*						DASH NUMBERS**						AC Ratings (sinusoidal operation –65° to +85°C)***					
	A±0.030 (1.57 mm)		B+0.020 –0.010(+0.51 –0.25 mm)		D max		Capacitance tolerance value (in %)						0 to 400Hz		4 KHz		40 KHz	
(μF)	Inches	(mm)	Inches	(mm)	Inches	(mm)	±0.25	±0.5	±1	±2	±5	±10	Volts	Amp.	Volts	Amp.	Volts	Amp.
CRH31 - 30 VOLTS (DC RATING)																		
0.001	0.500	(12.70)	0.170	(4.32)	0.700	(17.78)	1001-	1002-	1003-	1004-	1005-	1006-	22.0	0.001	22.0	0.001	22.0	0.006
0.0012	0.500	(12.70)	0.170	(4.32)	0.700	(17.78)	1007-	1008-	1009-	1010-	1011-	1012-	22.0	0.001	22.0	0.001	22.0	0.007
0.0015	0.500	(12.70)	0.170	(4.32)	0.700	(17.78)	1013-	1014-	1015-	1016-	1017-	1018-	22.0	0.001	22.0	0.001	22.0	0.008
0.0018	0.500	(12.70)	0.170	(4.32)	0.700	(17.78)	1019-	1020-	1021-	1022-	1023-	1024-	22.0	0.001	22.0	0.001	22.0	0.010
0.002	0.500	(12.70)	0.170	(4.32)	0.700	(17.78)	1025-	1026-	1027-	1028-	1029-	1030-	22.0	0.001	22.0	0.001	22.0	0.011
0.0022	0.500	(12.70)	0.170	(4.32)	0.700	(17.78)	1031-	1032-	1033-	1034-	1035-	1036-	22.0	0.001	22.0	0.001	22.0	0.012
0.0027	0.500	(12.70)	0.170	(4.32)	0.700	(17.78)	1037-	1038-	1039-	1040-	1041-	1042-	22.0	0.001	22.0	0.002	22.0	0.015
0.0033	0.500	(12.70)	0.170	(4.32)	0.700	(17.78)	1043-	1044-	1045-	1046-	1047-	1048-	22.0	0.001	22.0	0.002	22.0	0.018
0.0039	0.500	(12.70)	0.170	(4.32)	0.700	(17.78)	1049-	1050-	1051-	1052-	1053-	1054-	22.0	0.001	22.0	0.002	22.0	0.021
0.0047	0.500	(12.70)	0.170	(4.32)	0.700	(17.78)	1055-	1056-	1057-	1058-	1059-	1060-	22.0	0.001	22.0	0.003	22.0	0.026
0.005	0.500	(12.70)	0.170	(4.32)	0.700	(17.78)	1061-	1062-	1063-	1064-	1065-	1066-	22.0	0.001	22.0	0.003	22.0	0.028
0.0056	0.500	(12.70)	0.170	(4.32)	0.700	(17.78)	1067-	1068-	1069-	1070-	1071-	1072-	22.0	0.001	22.0	0.003	22.0	0.031
0.0068	0.500	(12.70)	0.170	(4.32)	0.700	(17.78)	1073-	1074-	1075-	1076-	1077-	1078-	22.0	0.001	22.0	0.004	22.0	0.037
0.0082	0.500	(12.70)	0.170	(4.32)	0.700	(17.78)	1079-	1080-	1081-	1082-	1083-	1084-	22.0	0.001	22.0	0.005	22.0	0.045
0.01	0.500	(12.70)	0.170	(4.32)	0.700	(17.78)	1085-	1086-	1087-	1088-	1089-	1090-	22.0	0.001	22.0	0.006	22.0	0.055
0.012	0.500	(12.70)	0.170	(4.32)	0.700	(17.78)	1091-	1092-	1093-	1094-	1095-	1096-	22.0	0.001	22.0	0.007	22.0	0.066
0.015	0.500	(12.70)	0.170	(4.32)	0.700	(17.78)	1097-	1098-	1099-	1100-	1101-	1102-	22.0	0.001	22.0	0.008	22.0	0.082
0.018	0.500	(12.70)	0.170	(4.32)	0.700	(17.78)	1103-	1104-	1105-	1106-	1107-	1108-	22.0	0.001	22.0	0.010	22.0	0.100
0.02	0.500	(12.70)	0.170	(4.32)	0.700	(17.78)	1109-	1110-	1111-	1112-	1113-	1114-	22.0	0.001	22.0	0.011	22.0	0.110
0.022	0.500	(12.70)	0.170	(4.32)	0.700	(17.78)	1115-	1116-	1117-	1118-	1119-	1120-	22.0	0.001	22.0	0.012	22.0	0.120
0.027	0.562	(14.27)	0.170	(4.32)	0.762	(19.35)	1121-	1122-	1123-	1124-	1125-	1126-	22.0	0.002	22.0	0.015	22.0	0.150
0.033	0.562	(14.27)	0.170	(4.32)	0.762	(19.35)	1127-	1128-	1129-	1130-	1131-	1132-	22.0	0.002	22.0	0.018	22.0	0.180
0.039	0.562	(14.27)	0.170	(4.32)	0.762	(19.35)	1133-	1134-	1135-	1136-	1137-	1138-	22.0	0.002	22.0	0.021	22.0	0.220
0.047	0.562	(14.27)	0.170	(4.32)	0.762	(19.35)	1139-	1140-	1141-	1142-	1143-	1144-	22.0	0.003	22.0	0.026	22.0	0.260
0.05	0.562	(14.27)	0.170	(4.32)	0.762	(19.35)	1145-	1146-	1147-	1148-	1149-	1150-	22.0	0.003	22.0	0.028	22.0	0.280
0.056	0.562	(14.27)	0.170	(4.32)	0.762	(19.35)	1151-	1152-	1153-	1154-	1155-	1156-	22.0	0.003	22.0	0.031	22.0	0.310
0.068	0.687	(17.45)	0.170	(4.32)	0.887	(22.53)	1157-	1158-	1159-	1160-	1161-	1162-	22.0	0.004	22.0	0.037	22.0	0.370
0.082	0.687	(17.45)	0.170	(4.32)	0.887	(22.53)	1163-	1164-	1165-	1166-	1167-	1168-	22.0	0.005	22.0	0.045	22.0	0.450
0.1	0.687	(17.45)	0.193	(4.90)	0.887	(22.53)	1169-	1170-	1171-	1172-	1173-	1174-	22.0	0.006	22.0	0.055	22.0	0.550
0.12	0.687	(17.45)	0.193	(4.90)	0.887	(22.53)	1175-	1176-	1177-	1178-	1179-	1180-	22.0	0.007	22.0	0.066	22.0	0.660
0.15	0.562	(14.27)	0.235	(5.97)	0.762	(19.35)	1181-	1182-	1183-	1184-	1185-	1186-	22.0	0.008	22.0	0.082	22.0	0.830
0.18	0.687	(17.45)	0.235	(5.97)	0.887	(22.53)	1187-	1188-	1189-	1190-	1191-	1192-	22.0	0.010	22.0	0.100	22.0	1.000
0.20	0.687	(17.45)	0.235	(5.97)	0.887	(22.53)	1193-	1194-	1195-	1196-	1197-	1198-	22.0	0.011	22.0	0.110	20.0	1.000
0.22	0.687	(17.45)	0.235	(5.97)	0.887	(22.53)	1199-	1200-	1201-	1202-	1203-	1204-	22.0	0.012	22.0	0.120	18.5	1.020
0.27	0.687	(17.45)	0.235	(5.97)	0.887	(22.53)	1205-	1206-	1207-	1208-	1209-	1210-	22.0	0.015	22.0	0.150	17.0	1.150
0.33	0.687	(17.45)	0.235	(5.97)	0.887	(22.53)	1211-	1212-	1213-	1214-	1215-	1216-	22.0	0.018	22.0	0.180	16.0	1.320
0.39	0.687	(17.45)	0.235	(5.97)	0.887	(22.53)	1217-	1218-	1219-	1220-	1221-	1222-	22.0	0.021	22.0	0.210	15.0	1.460
0.47	0.687	(17.45)	0.312	(7.92)	0.887	(22.53)	1223-	1224-	1225-	1226-	1227-	1228-	22.0	0.026	22.0	0.260	14.0	1.650
0.50	0.687	(17.45)	0.312	(7.92)	0.887	(22.53)	1229-	1230-	1231-	1232-	1233-	1234-	22.0	0.028	22.0	0.280	13.5	1.690
0.56	0.687	(17.45)	0.312	(7.92)	0.887	(22.53)	1235-	1236-	1237-	1238-	1239-	1240-	22.0	0.031	22.0	0.310	12.9	1.810
0.68	0.687	(17.45)	0.312	(7.92)	0.887	(22.53)	1241-	1242-	1243-	1244-	1245-	1246-	22.0	0.037	22.0	0.370	12.0	2.040
0.82	0.813	(20.65)	0.312	(7.92)	1.013	(25.73)	1247-	1248-	1249-	1250-	1251-	1252-	22.0	0.045	22.0	0.450	10.0	2.050
1.0	0.813	(20.65)	0.312	(7.92)	1.013	(25.73)	1253-	1254-	1255-	1256-	1257-	1258-	22.0	0.055	22.0	0.550	8.4	2.100
1.2	0.813	(20.65)	0.312	(7.92)	1.013	(25.73)	1259-	1260-	1261-	1262-	1263-	1264-	22.0	0.066	22.0	0.660	7.2	2.150
1.5	0.813	(20.65)	0.400	(10.16)	1.013	(25.73)	1265-	1266-	1267-	1268-	1269-	1270-	22.0	0.082	22.0	0.830	5.8	2.170
1.8	0.813	(20.65)	0.400	(10.16)	1.013	(25.73)	1271-	1272-	1273-	1274-	1275-	1276-	22.0	0.099	22.0	0.990	4.8	2.200
2.0	0.813	(20.65)	0.400	(10.16)	1.013	(25.73)	1277-	1278-	1279-	1280-	1281-	1282-	22.0	0.110	22.0	1.100	4.4	2.200
2.2	0.813	(20.65)	0.400	(10.16)	1.013	(25.73)	1283-	1284-	1285-	1286-	1287-	1288-	22.0	0.120	22.0	1.210	4.0	2.200
2.7	1.063	(27.00)	0.400	(10.16)	1.263	(32.08)	1289-	1290-	1291-	1292-	1293-	1294-	22.0	0.15	22.0	1.490	3.3	2.200
3.0	1.063	(27.00)	0.400	(10.16)	1.263	(32.08)	1295-	1296-	1297-	1298-	1299-	1300-	22.0	0.17	22.0	1.650	2.9	2.200
3.3	1.063	(27.00)	0.400	(10.16)	1.263	(32.08)	1301-	1302-	1303-	1304-	1305-	1306-	22.0	0.18	22.0	1.820	2.7	2.200
3.9	1.375	(34.93)	0.400	(10.16)	1.575	(40.01)	1307-	1308-	1309-	1310-	1311-	1312-	22.0	0.21	22.0	2.140	2.3	2.200
4.7	1.375	(34.93)	0.500	(12.70)	1.575	(40.01)	1313-	1314-	1315-	1316-	1317-	1318-	22.0	0.26	18.7	2.200	1.9	2.200
5.0	1.375	(34.93)	0.500	(12.70)	1.575	(40.01)	1319-	1320-	1321-	1322-	1323-	1324-	22.0	0.28	17.6	2.200	1.8	2.200
5.6	1.375	(34.93)	0.500	(12.70)	1.575	(40.01)	1325-	1326-	1327-	1328-	1329-	1330-	22.0	0.31	15.7	2.200	1.6	2.200
6.8	1.375	(34.93)	0.562	(14.27)	1.575	(40.01)	1331-	1332-	1333-	1334-	1335-	1336-	22.0	0.37	13.0	2.200	1.3	2.200
8.0	1.375	(34.93)	0.562	(14.27)	1.575	(40.01)	1337-	1338-	1339-	1340-	1341-	1342-	22.0	0.44	11.0	2.200	1.1	2.200
8.2	1.375	(34.93)	0.562	(14.27)	1.575	(40.01)	1343-	1344-	1345-	1346-	1347-	1348-	22.0	0.45	10.7	2.200	1.1	2.200
10.0	1.375	(34.93)	0.562	(14.27)	1.575	(40.01)	1349-	1350-	1351-	1352-	1353-	1354-	22.0	0.55	8.8	2.200	0.88	2.200
12.0	1.875	(47.63)	0.562	(14.27)	2.075	(52.71)	1355-	1356-	1357-	1358-	1359-	1360-	22.0	0.66	7.3	2.200	0.73	2.200
15.0	1.875	(47.63)	0.562	(14.27)	2.075	(52.71)	1361-	1362-	1363-	1364-	1365-	1366-	22.0	0.83	5.9	2.200	0.59	2.200
20.0	1.875	(47.63)	0.670	(17.02)	2.075	(52.71)	1367-	1368-	1369-	1370-	1371-	1372-	22.0	1.10	4.4	2.200	0.44	2.200
22.0	1.875	(47.63)	0.670	(17.02)	2.075	(52.71)	1373-	1374-	1375-	1376-	1377-	1378-	22.0	1.21	4.0	2.200	0.40	2.200

* A and B dimensions are bare case dimensions.

** The complete dash number will include the applicable FR level symbol (M, P, R, or S) as a suffix.

*** For +100°C operation, linearly derate +85°C rating by 50 percent.

Type 871P

MIL-PRF-83421/6

CRH31, CRH32, CRH33, CHR34

ELECTRICAL CHARACTERISTICS, DIMENSIONS, AND DASH NUMBERS

Capacitance	Dimensions*						DASH NUMBERS**						AC Ratings (sinusoidal operation –65° to +85°C)***					
	A±0.030 (1.57 mm)		B+0.020 –0.010(+0.51 –0.25 mm)		D max		Capacitance tolerance value (in %)						0 to 400Hz		4 KHz		40 KHz	
(μF)	Inches	(mm)	Inches	(mm)	Inches	(mm)	±0.25	±0.5	±1	±2	±5	±10	Volts	Amp.	Volts	Amp.	Volts	Amp.
CRH32 - 50 VOLTS (DC RATING)																		
0.001	0.500	(12.70)	0.170	(4.32)	0.700	(17.78)	2001-	2002-	2003-	2004-	2005-	2006-	36.0	0.001	36.0	0.001	36.0	0.009
0.0012	0.500	(12.70)	0.170	(4.32)	0.700	(17.78)	2007-	2008-	2009-	2010-	2011-	2012-	36.0	0.001	36.0	0.001	36.0	0.011
0.0015	0.500	(12.70)	0.170	(4.32)	0.700	(17.78)	2013-	2014-	2015-	2016-	2017-	2018-	36.0	0.001	36.0	0.001	36.0	0.013
0.0018	0.500	(12.70)	0.170	(4.32)	0.700	(17.78)	2019-	2020-	2021-	2022-	2023-	2024-	36.0	0.001	36.0	0.002	36.0	0.016
0.002	0.500	(12.70)	0.170	(4.32)	0.700	(17.78)	2025-	2026-	2027-	2028-	2029-	2030-	36.0	0.001	36.0	0.002	36.0	0.018
0.0022	0.500	(12.70)	0.170	(4.32)	0.700	(17.78)	2031-	2032-	2033-	2034-	2035-	2036-	36.0	0.001	36.0	0.002	36.0	0.020
0.0027	0.500	(12.70)	0.170	(4.32)	0.700	(17.78)	2037-	2038-	2039-	2040-	2041-	2042-	36.0	0.001	36.0	0.002	36.0	0.024
0.0033	0.500	(12.70)	0.170	(4.32)	0.700	(17.78)	2043-	2044-	2045-	2046-	2047-	2048-	36.0	0.001	36.0	0.003	36.0	0.030
0.0039	0.500	(12.70)	0.170	(4.32)	0.700	(17.78)	2049-	2050-	2051-	2052-	2053-	2054-	36.0	0.001	36.0	0.004	36.0	0.035
0.0047	0.500	(12.70)	0.170	(4.32)	0.700	(17.78)	2055-	2056-	2057-	2058-	2059-	2060-	36.0	0.001	36.0	0.004	36.0	0.042
0.005	0.500	(12.70)	0.170	(4.32)	0.700	(17.78)	2061-	2062-	2063-	2064-	2065-	2066-	36.0	0.001	36.0	0.005	36.0	0.045
0.0056	0.500	(12.70)	0.170	(4.32)	0.700	(17.78)	2067-	2068-	2069-	2070-	2071-	2072-	36.0	0.001	36.0	0.005	36.0	0.050
0.0068	0.500	(12.70)	0.170	(4.32)	0.700	(17.78)	2073-	2074-	2075-	2076-	2077-	2078-	36.0	0.001	36.0	0.006	36.0	0.061
0.0082	0.562	(14.27)	0.170	(4.32)	0.762	(19.35)	2079-	2080-	2081-	2082-	2083-	2084-	36.0	0.001	36.0	0.007	36.0	0.074
0.01	0.562	(14.27)	0.170	(4.32)	0.762	(19.35)	2085-	2086-	2087-	2088-	2089-	2090-	36.0	0.001	36.0	0.009	36.0	0.090
0.012	0.562	(14.27)	0.170	(4.32)	0.762	(19.35)	2091-	2092-	2093-	2094-	2095-	2096-	36.0	0.001	36.0	0.011	36.0	0.110
0.015	0.562	(14.27)	0.170	(4.32)	0.762	(19.35)	2097-	2098-	2099-	2100-	2101-	2102-	36.0	0.001	36.0	0.013	36.0	0.140
0.018	0.562	(14.27)	0.193	(4.90)	0.762	(19.35)	2103-	2104-	2105-	2106-	2107-	2108-	36.0	0.002	36.0	0.016	36.0	0.160
0.02	0.562	(14.27)	0.193	(4.90)	0.762	(19.35)	2109-	2110-	2111-	2112-	2113-	2114-	36.0	0.002	36.0	0.018	36.0	0.180
0.022	0.562	(14.27)	0.193	(4.90)	0.762	(19.35)	2115-	2116-	2117-	2118-	2119-	2120-	36.0	0.002	36.0	0.020	36.0	0.200
0.027	0.562	(14.27)	0.193	(4.90)	0.762	(19.35)	2121-	2122-	2123-	2124-	2125-	2126-	36.0	0.002	36.0	0.024	36.0	0.240
0.033	0.562	(14.27)	0.193	(4.90)	0.762	(19.35)	2127-	2128-	2129-	2130-	2131-	2132-	36.0	0.003	36.0	0.030	36.0	0.300
0.039	0.687	(17.45)	0.170	(4.32)	0.887	(22.53)	2133-	2134-	2135-	2136-	2137-	2138-	36.0	0.004	36.0	0.035	36.0	0.350
0.047	0.687	(17.45)	0.170	(4.32)	0.887	(22.53)	2139-	2140-	2141-	2142-	2143-	2144-	36.0	0.004	36.0	0.042	36.0	0.420
0.05	0.687	(17.45)	0.170	(4.32)	0.887	(22.53)	2145-	2146-	2147-	2148-	2149-	2150-	36.0	0.005	36.0	0.045	36.0	0.450
0.056	0.687	(17.45)	0.193	(4.90)	0.887	(22.53)	2151-	2152-	2153-	2154-	2155-	2156-	36.0	0.005	36.0	0.050	36.0	0.500
0.068	0.687	(17.45)	0.193	(4.90)	0.887	(22.53)	2157-	2158-	2159-	2160-	2161-	2162-	36.0	0.006	36.0	0.061	34.0	0.580
0.082	0.813	(20.65)	0.193	(4.90)	1.013	(25.73)	2163-	2164-	2165-	2166-	2167-	2168-	36.0	0.007	36.0	0.074	32.0	0.660
0.1	0.813	(20.65)	0.193	(4.90)	1.013	(25.73)	2169-	2170-	2171-	2172-	2173-	2174-	36.0	0.009	36.0	0.090	30.0	0.750
0.12	0.687	(17.45)	0.235	(5.97)	0.887	(22.53)	2175-	2176-	2177-	2178-	2179-	2180-	36.0	0.011	36.0	0.110	30.0	0.900
0.15	0.687	(17.45)	0.235	(5.97)	0.887	(22.53)	2181-	2182-	2183-	2184-	2185-	2186-	36.0	0.013	36.0	0.140	26.0	0.980
0.18	0.813	(20.65)	0.235	(5.97)	1.013	(25.73)	2187-	2188-	2189-	2190-	2191-	2192-	36.0	0.016	36.0	0.160	25.0	1.130
0.20	0.813	(20.65)	0.235	(5.97)	1.013	(25.73)	2193-	2194-	2195-	2196-	2197-	2198-	36.0	0.018	36.0	0.180	24.0	1.200
0.22	0.813	(20.65)	0.235	(5.97)	1.013	(25.73)	2199-	2200-	2201-	2202-	2203-	2204-	36.0	0.020	36.0	0.200	23.0	1.270
0.27	0.687	(17.45)	0.312	(7.92)	0.887	(22.53)	2205-	2206-	2207-	2208-	2209-	2210-	36.0	0.024	36.0	0.240	19.0	1.280
0.33	0.687	(17.45)	0.312	(7.92)	0.887	(22.53)	2211-	2212-	2213-	2214-	2215-	2216-	36.0	0.030	36.0	0.300	18.0	1.480
0.39	0.813	(20.65)	0.312	(7.92)	1.013	(25.73)	2217-	2218-	2219-	2220-	2221-	2222-	36.0	0.035	36.0	0.350	17.0	1.660
0.47	0.813	(20.65)	0.312	(7.92)	1.013	(25.73)	2223-	2224-	2225-	2226-	2227-	2228-	36.0	0.042	36.0	0.420	15.7	1.850
0.50	0.813	(20.65)	0.312	(7.92)	1.013	(25.73)	2229-	2230-	2231-	2232-	2233-	2234-	36.0	0.045	36.0	0.450	15.2	1.900
0.56	0.813	(20.65)	0.400	(10.16)	1.013	(25.73)	2235-	2236-	2237-	2238-	2239-	2240-	36.0	0.050	36.0	0.500	14.4	2.010
0.68	0.813	(20.65)	0.400	(10.16)	1.013	(25.73)	2241-	2242-	2243-	2244-	2245-	2246-	36.0	0.061	36.0	0.610	14.0	2.380
0.82	1.063	(27.00)	0.400	(10.16)	1.263	(32.08)	2247-	2248-	2249-	2250-	2251-	2252-	36.0	0.074	36.0	0.740	12.0	2.460
1.0	1.063	(27.00)	0.400	(10.16)	1.263	(32.08)	2253-	2254-	2255-	2256-	2257-	2258-	36.0	0.09	36.0	0.900	10.0	2.500
1.2	1.063	(27.00)	0.400	(10.16)	1.263	(32.08)	2259-	2260-	2261-	2262-	2263-	2264-	36.0	0.11	36.0	1.080	9.1	2.730
1.5	1.063	(27.00)	0.400	(10.16)	1.263	(32.08)	2265-	2266-	2267-	2268-	2269-	2270-	36.0	0.14	36.0	1.350	7.7	2.900
1.8	1.063	(27.00)	0.400	(10.16)	1.263	(32.08)	2271-	2272-	2273-	2274-	2275-	2276-	36.0	0.16	36.0	1.620	6.6	3.000
2.0	1.125	(28.58)	0.500	(12.70)	1.325	(33.66)	2277-	2278-	2279-	2280-	2281-	2282-	36.0	0.18	36.0	1.800	6.2	3.100
2.2	1.125	(28.58)	0.500	(12.70)	1.325	(33.66)	2283-	2284-	2285-	2286-	2287-	2288-	36.0	0.20	36.0	1.980	5.8	3.200
2.7	1.375	(34.93)	0.500	(12.70)	1.575	(40.01)	2289-	2290-	2291-	2292-	2293-	2294-	36.0	0.24	36.0	2.430	5.0	3.340
3.0	1.375	(34.93)	0.500	(12.70)	1.575	(40.01)	2295-	2296-	2297-	2298-	2299-	2300-	36.0	0.27	36.0	2.700	4.5	3.400
3.3	1.375	(34.93)	0.500	(12.70)	1.575	(40.01)	2301-	2302-	2303-	2304-	2305-	2306-	36.0	0.30	36.0	2.970	4.2	3.500
3.9	1.375	(34.93)	0.562	(14.27)	1.575	(40.01)	2307-	2308-	2309-	2310-	2311-	2312-	36.0	0.35	36.0	3.510	3.7	3.600
4.7	1.375	(34.93)	0.670	(17.02)	1.575	(40.01)	2313-	2314-	2315-	2316-	2317-	2318-	36.0	0.42	31.0	3.600	3.1	3.600
5.0	1.375	(34.93)	0.670	(17.02)	1.575	(40.01)	2319-	2320-	2321-	2322-	2323-	2324-	36.0	0.45	29.0	3.600	2.9	3.600
5.6	1.375	(34.93)	0.670	(17.02)	1.575	(40.01)	2325-	2326-	2327-	2328-	2329-	2330-	36.0	0.50	26.0	3.600	2.6	3.600
6.8	1.875	(47.63)	0.670	(17.02)	2.075	(52.71)	2331-	2332-	2333-	2334-	2335-	2336-	36.0	0.61	21.2	3.600	2.1	3.600
8.0	1.875	(47.63)	0.670	(17.02)	2.075	(52.71)	2337-	2338-	2339-	2340-	2341-	2342-	36.0	0.72	18.0	3.600	1.8	3.600
8.2	1.875	(47.63)	0.670	(17.02)	2.075	(52.71)	2343-	2344-	2345-	2346-	2347-	2348-	36.0	0.74	17.6	3.600	1.8	3.600
10.0	1.875	(47.63)	0.670	(17.02)	2.075	(52.71)	2349-	2350-	2351-	2352-	2353-	2354-	36.0	0.90	14.4	3.600	1.4	3.600

* A and B dimensions are bare case dimensions.

** The complete dash number will include the applicable FR level symbol (M, P, R, or S) as a suffix.

*** For +100°C operation, linearly derate +85°C rating by 50.

CRH31, CRH32, CRH33, CHR34

MIL-PRF-83421/6

Type 871P

ELECTRICAL CHARACTERISTICS, DIMENSIONS, AND DASH NUMBERS

Capacitance	Dimensions						DASH NUMBERS 2/ Capacitance tolerance value (in %)						AC Ratings (sinusoidal operation -65° to 85°C)***					
	A±0.030 (1.57 mm)		B+0.020 –0.010(+0.51 –0.25 mm)		D max								0 to 400Hz		4 KHz		40 KHz	
(µF)	Inches	(mm)	Inches	(mm)	Inches	(mm)	±0.25	±0.5	±1	±2	±5	±10	Volts	Amp.	Volts	Amp.	Volts	Amp.
CRH33 - 100 VOLTS (DC RATING)																		
0.001	0.500	(12.70)	0.170	(4.32)	0.700	(17.78)	3001-	3002-	3003-	3004-	3005-	3006-	60.0	0.001	60.0	0.002	60.0	0.015
0.0012	0.500	(12.70)	0.170	(4.32)	0.700	(17.78)	3007-	3008-	3009-	3010-	3011-	3012-	60.0	0.001	60.0	0.002	60.0	0.018
0.0015	0.500	(12.70)	0.170	(4.32)	0.700	(17.78)	3013-	3014-	3015-	3016-	3017-	3018-	60.0	0.001	60.0	0.002	60.0	0.022
0.0018	0.500	(12.70)	0.170	(4.32)	0.700	(17.78)	3019-	3020-	3021-	3022-	3023-	3024	60.0	0.001	60.0	0.003	60.0	0.027
0.002	0.500	(12.70)	0.170	(4.32)	0.700	(17.78)	3025-	3026-	3027-	3028-	3029-	3030-	60.0	0.001	60.0	0.003	60.0	0.030
0.0022	0.500	(12.70)	0.170	(4.32)	0.700	(17.78)	3031-	3032-	3033-	3034-	3035-	3036-	60.0	0.001	60.0	0.003	60.0	0.033
0.0027	0.500	(12.70)	0.170	(4.32)	0.700	(17.78)	3037-	3038-	3039-	3040-	3041-	3042-	60.0	0.001	60.0	0.004	60.0	0.041
0.0033	0.500	(12.70)	0.170	(4.32)	0.700	(17.78)	3043-	3044-	3045-	3046-	3047-	3048-	60.0	0.001	60.0	0.005	60.0	0.050
0.0039	0.500	(12.70)	0.170	(4.32)	0.700	(17.78)	3049-	3050-	3051-	3052-	3053-	3054-	60.0	0.001	60.0	0.006	60.0	0.058
0.0047	0.500	(12.70)	0.170	(4.32)	0.700	(17.78)	3055-	3056-	3057-	3058-	3059-	3060-	60.0	0.001	60.0	0.007	60.0	0.071
0.005	0.500	(12.70)	0.170	(4.32)	0.700	(17.78)	3061-	3062-	3063-	3064-	3065-	3066-	60.0	0.001	60.0	0.008	60.0	0.075
0.0056	0.500	(12.70)	0.170	(4.32)	0.700	(17.78)	3067-	3068-	3069-	3070-	3071-	3072-	60.0	0.001	60.0	0.008	60.0	0.084
0.0068	0.562	(14.27)	0.170	(4.32)	0.762	(19.35)	3073-	3074-	3075-	3076-	3077-	3078-	60.0	0.001	60.0	0.010	60.0	0.10
0.0082	0.562	(14.27)	0.170	(4.32)	0.762	(19.35)	3079-	3080-	3081-	3082-	3083-	3084-	60.0	0.001	60.0	0.012	60.0	0.12
0.01	0.687	(17.45)	0.170	(4.32)	0.887	(22.53)	3085-	3086-	3087-	3088-	3089-	3090-	60.0	0.002	60.0	0.015	60.0	0.15
0.012	0.687	(17.45)	0.170	(4.32)	0.887	(22.53)	3091-	3092-	3093-	3094-	3095-	3096-	60.0	0.002	60.0	0.018	59.0	0.18
0.015	0.687	(17.45)	0.170	(4.32)	0.887	(22.53)	3097-	3098-	3099-	3100-	3101-	3102-	60.0	0.002	60.0	0.022	58.0	0.22
0.018	0.687	(17.45)	0.193	(4.90)	0.887	(22.53)	3103-	3104-	3105-	3106-	3107-	3108-	60.0	0.003	60.0	0.027	57.0	0.26
0.02	0.687	(17.45)	0.193	(4.90)	0.887	(22.53)	3109-	3110-	3111-	3112-	3113-	3114-	60.0	0.003	60.0	0.030	55.0	0.28
0.022	0.687	(17.45)	0.193	(4.90)	0.887	(22.53)	3115-	3116-	3117-	3118-	3119-	3120-	60.0	0.003	60.0	0.033	53.0	0.29
0.027	0.687	(17.45)	0.193	(4.90)	0.887	(22.53)	3121-	3122-	3123-	3124-	3125-	3126-	60.0	0.004	60.0	0.041	51.0	0.34
0.033	0.687	(17.45)	0.193	(4.90)	0.887	(22.53)	3127-	3128-	3129-	3130-	3131-	3132-	60.0	0.005	60.0	0.050	50.0	0.41
0.039	0.687	(17.45)	0.235	(5.97)	0.887	(22.53)	3133-	3134-	3135-	3136-	3137-	3138-	60.0	0.006	60.0	0.059	48.0	0.47
0.047	0.687	(17.45)	0.235	(5.97)	0.887	(22.53)	3139-	3140-	3141-	3142-	3143-	3144-	60.0	0.007	60.0	0.070	47.0	0.55
0.05	0.687	(17.45)	0.235	(5.97)	0.887	(22.53)	3145-	3146-	3147-	3148-	3149-	3150-	60.0	0.008	60.0	0.075	46.0	0.58
0.056	0.687	(17.45)	0.235	(5.97)	0.887	(22.53)	3151-	3152-	3153-	3154-	3155-	3156-	60.0	0.008	60.0	0.084	46.0	0.64
0.068	0.813	(20.65)	0.235	(5.97)	1.013	(25.73)	3157-	3158-	3159-	3160-	3161-	3162-	60.0	0.010	60.0	0.10	42.0	0.71
0.082	0.687	(17.45)	0.312	(7.92)	0.887	(22.53)	3163-	3164-	3165-	3166-	3167-	3168-	60.0	0.012	60.0	0.12	38.0	0.78
0.1	0.687	(17.45)	0.312	(7.92)	0.887	(22.53)	3169-	3170-	3171-	3172-	3173-	3174-	60.0	0.015	60.0	0.15	36.0	0.90
0.12	0.687	(17.45)	0.312	(7.92)	0.887	(22.53)	3175-	3176-	3177-	3178-	3179-	3180-	60.0	0.018	60.0	0.18	35.0	1.05
0.15	0.813	(20.65)	0.312	(7.92)	1.013	(25.73)	3181-	3182-	3183-	3184-	3185-	3186-	60.0	0.022	60.0	0.23	33.0	1.24
0.18	0.813	(20.65)	0.312	(7.92)	1.013	(25.73)	3187-	3188-	3189-	3190-	3191-	3192-	60.0	0.027	60.0	0.27	31.0	1.40
0.20	0.813	(20.65)	0.312	(7.92)	1.013	(25.73)	3193-	3194-	3195-	3196-	3197-	3198-	60.0	0.030	60.0	0.30	30.0	1.50
0.22	0.813	(20.65)	0.312	(7.92)	1.013	(25.73)	3199-	3200-	3201-	3202-	3203-	3204-	60.0	0.033	60.0	0.33	27.0	1.50
0.27	1.063	(27.00)	0.312	(7.92)	1.263	(32.08)	3205-	3206-	3207-	3208-	3209-	3210-	60.0	0.041	60.0	0.41	24.0	1.62
0.33	1.063	(27.00)	0.312	(7.92)	1.263	(32.08)	3211-	3212-	3213-	3214-	3215-	3216-	60.0	0.050	60.0	0.50	23.0	1.90
0.39	1.063	(27.00)	0.400	(10.16)	1.263	(32.08)	3217-	3218-	3219-	3220-	3221-	3222-	60.0	0.058	60.0	0.59	22.0	2.15
0.47	1.063	(27.00)	0.400	(10.16)	1.263	(32.08)	3223-	3224-	3225-	3226-	3227-	3228-	60.0	0.071	60.0	0.71	21.0	2.47
0.50	1.063	(27.00)	0.400	(10.16)	1.263	(32.08)	3229-	3230-	3231-	3232-	3233-	3234-	60.0	0.075	60.0	0.75	20.0	2.50
0.56	1.063	(27.00)	0.400	(10.16)	1.263	(32.08)	3235-	3236-	3237-	3238-	3239-	3240-	60.0	0.084	60.0	0.84	19.0	2.64
0.68	1.125	(28.58)	0.500	(12.70)	1.325	(33.66)	3241-	3242-	3243-	3244-	3245-	3246-	60.0	0.10	60.0	1.02	16.0	2.72
0.82	1.125	(28.58)	0.500	(12.70)	1.325	(33.66)	3247-	3248-	3249-	3250-	3251-	3252-	60.0	0.12	60.0	1.23	14.0	2.87
1.0	1.125	(28.58)	0.562	(14.27)	1.325	(33.66)	3253-	3254-	3255-	3256-	3257-	3258-	60.0	0.15	60.0	1.50	12.0	3.00
1.2	1.125	(28.58)	0.562	(14.27)	1.325	(33.66)	3259-	3260-	3261-	3262-	3263-	3264-	60.0	0.18	60.0	1.80	11.0	3.25
1.5	1.375	(34.93)	0.562	(14.27)	1.575	(40.01)	3265-	3266-	3267-	3268-	3269-	3270-	60.0	0.23	60.0	2.26	10.0	3.75
1.8	1.375	(34.93)	0.670	(17.02)	1.575	(40.01)	3271-	3272-	3273-	3274-	3275-	3276-	60.0	0.27	60.0	2.70	8.5	3.96
2.0	1.375	(34.93)	0.670	(17.02)	1.575	(40.01)	3277-	3278-	3279-	3280-	3281-	3282-	60.0	0.30	60.0	3.00	8.1	4.10
2.2	1.375	(34.93)	0.670	(17.02)	1.575	(40.01)	3283-	3284-	3285-	3286-	3287-	3288-	60.0	0.33	60.0	3.31	7.5	4.12
2.7	1.875	(47.63)	0.670	(17.02)	2.075	(52.71)	3289-	3290-	3291-	3292-	3293-	3294-	60.0	0.41	60.0	4.05	6.5	4.40
3.0	1.875	(47.63)	0.670	(17.02)	2.075	(52.71)	3295-	3296-	3297-	3298-	3299-	3300-	60.0	0.45	60.0	4.51	6.0	4.51
3.3	1.875	(47.63)	0.670	(17.02)	2.075	(52.71)	3301-	3302-	3303-	3304-	3305-	3306-	60.0	0.50	55.0	4.73	5.5	4.55
3.9	1.875	(47.63)	0.750	(19.05)	2.075	(52.71)	3307-	3308-	3309-	3310-	3311-	3312-	60.0	0.59	49.0	4.90	5.0	4.90
4.7	1.875	(47.63)	0.750	(19.05)	2.075	(52.71)	3313-	3314-	3315-	3316-	3317-	3318-	60.0	0.71	43.0	5.0	4.3	5.0
5.0	1.875	(47.63)	0.750	(19.05)	2.075	(52.71)	3319-	3320-	3321-	3322-	3323-	3324-	60.0	0.75	40.0	5.0	4.0	5.0
5.6	1.875	(47.63)	0.750	(19.05)	2.075	(52.71)	3325-	3326-	3327-	3328-	3329-	3330-	60.0	0.84	36.0	5.0	3.6	5.0
6.8	2.375	(60.33)	1.000	(25.4)	2.575	(65.41)	3331-	3332-	3333-	3334-	3335-	3336-	60.0	1.02	29.0	5.0	3.0	5.0
8.0	2.375	(60.33)	1.000	(25.4)	2.575	(65.41)	3337-	3338-	3339-	3340-	3341-	3342-	60.0	1.20	25.0	5.0	2.5	5.0
8.2	2.375	(60.33)	1.000	(25.4)	2.575	(65.41)	3343-	3344-	3345-	3346-	3347-	3348-	60.0	1.23	24.4	5.0	2.4	5.0
10.0	2.375	(60.33)	1.000	(25.4)	2.575	(65.41)	3349-	3350-	3351-	3352-	3353-	3354-	60.0	1.50	20.0	5.0	2.0	5.0

* A and B dimensions are bare case dimensions.

** The complete dash number will include the applicable FR level symbol (M, P, R, or S) as a suffix.

*** For +100°C operation, linearly derate +85°C rating by 50 percent.

Type 871P

MIL-PRF-83421/6

CRH31, CRH32, CRH33, CHR34

ELECTRICAL CHARACTERISTICS, DIMENSIONS, AND DASH NUMBERS

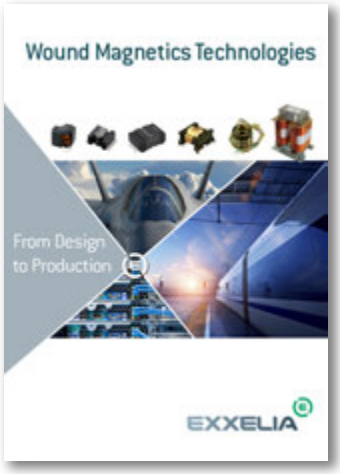
Capacitance	Dimensions*						DASH NUMBERS**						AC Ratings (sinusoidal operation –65° to +85°C)***					
	A±0.030 (1.57 mm)		B+0.020 –0.010(+0.51 –0.25 mm)		D max		Capacitance tolerance value (in %)						0 to 400Hz		4 KHz		40 KHz	
(μF)	Inches	(mm)	Inches	(mm)	Inches	(mm)	±0.25	±0.5	±1	±2	±5	±10	Volts	Amp.	Volts	Amp.	Volts	Amp.
CRH34 - 200 VOLTS (DC RATING)																		
0.001	0.562	(14.27)	0.170	(4.32)	0.762	(19.35)	4001-	4002-	4003-	4004-	4005-	4006-	120	.001	120	0.003	80	0.020
0.0012	0.562	(14.27)	0.170	(4.32)	0.762	(19.35)	4007-	4008-	4009-	4010-	4011-	4012-	120	.001	120	0.004	80	0.024
0.0015	0.562	(14.27)	0.170	(4.32)	0.762	(19.35)	4013-	4014-	4015-	4016-	4017-	4018-	120	.001	120	0.004	80	0.030
0.0018	0.562	(14.27)	0.170	(4.32)	0.762	(19.35)	4019-	4020-	4021-	4022-	4023-	4024-	120	.001	120	0.005	80	0.036
0.002	0.562	(14.27)	0.170	(4.32)	0.762	(19.35)	4025-	4026-	4027-	4028-	4029-	4030-	120	.001	120	0.006	80	0.040
0.0022	0.562	(14.27)	0.170	(4.32)	0.762	(19.35)	4031-	4032-	4033-	4034-	4035-	4036-	120	.001	120	0.007	80	0.044
0.0027	0.562	(14.27)	0.170	(4.32)	0.762	(19.35)	4037-	4038-	4039-	4040-	4041-	4042-	120	.001	120	0.008	80	0.054
0.0033	0.562	(14.27)	0.170	(4.32)	0.762	(19.35)	4043-	4044-	4045-	4046-	4047-	4048-	120	.001	120	0.010	80	0.066
0.0039	0.562	(14.27)	0.170	(4.32)	0.762	(19.35)	4049-	4050-	4051-	4052-	4053-	4054-	120	.001	120	0.012	80	0.078
0.0047	0.562	(14.27)	0.170	(4.32)	0.762	(19.35)	4055-	4056-	4057-	4058-	4059-	4060-	120	.001	120	0.014	80	0.094
0.005	0.562	(14.27)	0.170	(4.32)	0.762	(19.35)	4061-	4062-	4063-	4064-	4065-	4066-	120	.002	120	0.015	80	0.10
0.0056	0.562	(14.27)	0.170	(4.32)	0.762	(19.35)	4067-	4068-	4069-	4070-	4071-	4072-	120	.002	120	0.017	80	0.11
0.0068	0.562	(14.27)	0.170	(4.32)	0.762	(19.35)	4073-	4074-	4075-	4076-	4077-	4078-	120	.002	120	0.020	80	0.14
0.0082	0.562	(14.27)	0.193	(4.90)	0.762	(19.35)	4079-	4080-	4081-	4082-	4083-	4084-	120	.002	120	0.025	80	0.16
0.01	0.562	(14.27)	0.193	(4.90)	0.762	(19.35)	4085-	4086-	4087-	4088-	4089-	4090-	120	.003	120	0.030	80	0.20
0.012	0.562	(14.27)	0.193	(4.90)	0.762	(19.35)	4091-	4092-	4093-	4094-	4095-	4096-	120	.004	120	0.036	78	0.23
0.015	0.562	(14.27)	0.235	(5.97)	0.762	(19.35)	4097-	4098-	4099-	4100-	4101-	4102-	120	.004	120	0.045	76	0.29
0.018	0.687	(17.45)	0.235	(5.97)	0.887	(22.53)	4103-	4104-	4105-	4106-	4107-	4108-	120	.005	120	0.054	74	0.33
0.02	0.687	(17.45)	0.235	(5.97)	0.887	(22.53)	4109-	4110-	4111-	4112-	4113-	4114-	120	.006	120	0.060	71	0.36
0.022	0.687	(17.45)	0.235	(5.97)	0.887	(22.53)	4115-	4116-	4117-	4118-	4119-	4120-	120	.007	120	0.066	68	0.37
0.027	0.687	(17.45)	0.312	(7.92)	0.887	(22.53)	4121-	4122-	4123-	4124-	4125-	4126-	120	.008	120	0.081	65	0.44
0.033	0.687	(17.45)	0.312	(7.92)	0.887	(22.53)	4127-	4128-	4129-	4130-	4131-	4132-	120	.010	120	0.099	62	0.51
0.039	0.687	(17.45)	0.312	(7.92)	0.887	(22.53)	4133-	4134-	4135-	4136-	4137-	4138-	120	.012	120	0.12	60	0.59
0.047	0.687	(17.45)	0.312	(7.92)	0.887	(22.53)	4139-	4140-	4141-	4142-	4143-	4144-	120	.014	120	0.14	57	0.67
0.05	0.687	(17.45)	0.312	(7.92)	0.887	(22.53)	4145-	4146-	4147-	4148-	4149-	4150-	120	.015	120	0.15	56	0.70
0.056	0.813	(20.65)	0.312	(7.92)	1.013	(20.65)	4151-	4152-	4153-	4154-	4155-	4156-	120	.017	120	0.17	56	0.78
0.068	0.813	(20.65)	0.312	(7.92)	1.013	(20.65)	4157-	4158-	4159-	4160-	4161-	4162-	120	.020	120	0.20	50	0.85
0.082	0.813	(20.65)	0.312	(7.92)	1.013	(20.65)	4163-	4164-	4165-	4166-	4167-	4168-	120	.025	120	0.25	44	0.90
0.1	0.813	(20.65)	0.312	(7.92)	1.013	(20.65)	4169-	4170-	4171-	4172-	4173-	4174-	120	.030	120	0.30	42	1.10
0.12	0.813	(20.65)	0.312	(7.92)	1.013	(20.65)	4175-	4176-	4177-	4178-	4179-	4180-	120	.036	120	0.36	40	1.20
0.15	1.063	(27.00)	0.400	(10.16)	1.263	(32.08)	4181-	4182-	4183-	4184-	4185-	4186-	120	.045	120	0.45	36	1.34
0.18	1.375	(34.93)	0.400	(10.16)	1.575	(40.01)	4187-	4188-	4189-	4190-	4191-	4192-	120	.054	120	0.54	34	1.54
0.20	1.375	(34.93)	0.400	(10.16)	1.575	(40.01)	4193-	4194-	4195-	4196-	4197-	4198-	120	.060	120	0.60	33	1.65
0.22	1.375	(34.93)	0.400	(10.16)	1.575	(40.01)	4199-	4200-	4201-	4202-	4203-	4204-	120	.066	120	0.66	32	1.76
0.27	1.375	(34.93)	0.500	(12.70)	1.575	(40.01)	4205-	4206-	4207-	4208-	4209-	4210-	120	.081	120	0.81	29	1.96
0.33	1.375	(34.93)	0.500	(12.70)	1.575	(40.01)	4211-	4212-	4213-	4214-	4215-	4216-	120	.099	120	0.99	28	2.31
0.39	1.375	(34.93)	0.500	(12.70)	1.575	(40.01)	4217-	4218-	4219-	4220-	4221-	4222-	120	.12	120	1.17	27	2.63
0.47	1.375	(34.93)	0.500	(12.70)	1.575	(40.01)	4223-	4224-	4225-	4226-	4227-	4228-	120	.14	120	1.41	26	3.06
0.50	1.375	(34.93)	0.500	(12.70)	1.575	(40.01)	4229-	4230-	4231-	4232-	4233-	4234-	120	.15	120	1.50	25	3.13
0.56	1.375	(34.93)	0.500	(12.70)	1.575	(40.01)	4235-	4236-	4237-	4238-	4239-	4240-	120	.17	120	1.61	23	3.17
0.68	1.375	(34.93)	0.562	(14.27)	1.575	(40.01)	4241-	4242-	4243-	4244-	4245-	4246-	120	.20	120	1.87	20	3.40
0.82	1.875	(47.63)	0.562	(14.27)	2.075	(52.71)	4247-	4248-	4249-	4250-	4251-	4252-	120	.25	120	2.05	18	3.70
1.0	1.875	(47.63)	0.562	(14.27)	2.075	(52.71)	4253-	4254-	4255-	4256-	4257-	4258-	120	.30	120	2.25	15	3.75
1.2	1.875	(47.63)	0.562	(14.27)	2.075	(52.71)	4259-	4260-	4261-	4262-	4263-	4264-	120	.36	120	2.61	13.5	4.05
1.5	1.875	(47.63)	0.670	(17.02)	2.075	(52.71)	4265-	4266-	4267-	4268-	4269-	4270-	120	.45	120	3.20	12	4.50
1.8	1.875	(47.63)	0.750	(19.05)	2.075	(52.71)	4271-	4272-	4273-	4274-	4275-	4276-	120	.54	110	3.74	11	5.00
2.0	1.875	(47.63)	0.750	(19.05)	2.075	(52.71)	4277-	4278-	4279-	4280-	4281-	4282-	120	.60	100	4.05	10	5.00
2.2	1.875	(47.63)	0.750	(19.05)	2.075	(52.71)	4283-	4284-	4285-	4286-	4287-	4288-	120	.66	90.5	4.20	9.1	5.00
2.5	1.875	(47.63)	0.750	(19.05)	2.075	(52.71)	4289-	4290-	4291-	4292-	4293-	4294-	120	.75	80	4.31	8	5.00
2.7	1.875	(47.63)	0.750	(19.05)	2.075	(52.71)	4295-	4296-	4297-	4298-	4299-	4300-	120	.81	77	4.60	7.7	5.20
3.0	1.875	(47.63)	1.000	(25.40)	2.075	(52.71)	4301-	4302-	4303-	4304-	4305-	4306-	120	.90	70	5.04	7	5.27
3.3	1.875	(47.63)	1.000	(25.40)	2.075	(52.71)	4307-	4308-	4309-	4310-	4311-	4312-	120	.99	65	5.21	6.5	5.36
3.9	2.375	(60.33)	1.000	(25.40)	2.575	(65.41)	4313-	4314-	4315-	4316-	4317-	4318-	120	1.20	55	5.39	5.5	5.40

* A and B dimensions are bare case dimensions.

** The complete dash number will include the applicable FR level symbol (M, P, R, or S) as a suffix.

*** For +100°C operation, linearly derate +85°C rating by 50 percent.

EXXELIA Components Portfolio



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