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.

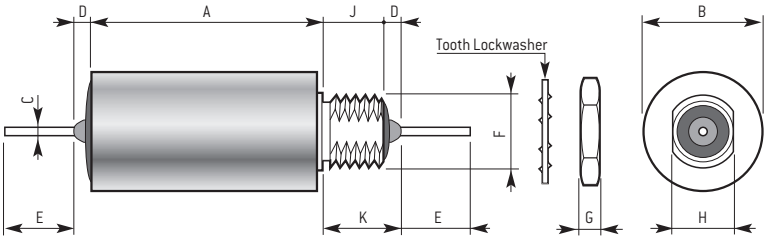
DIMENSIONS

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

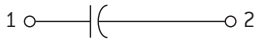


NOTES

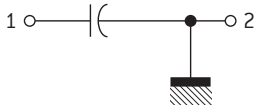
1. Dimensions are in Inches.
2. Metric equivalents are given for general information only.
3. Leads shall be of solder coated solid wire, 0.032" +0.004 / –0.001 ($0,81^{+0,10}_{-0,03}$ mm) (No. 20AWG).
4. Mounting nuts and lockwashers shall be supplied.

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

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.
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