IGBT SNUBBER CAPACITORS - DIRECT MOUNTING

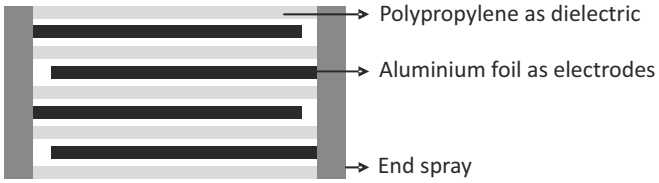
KP-3C

Highlights

- High DV/DT
- Low ESR
- Low loss polypropylene dielectric
- Impregnated elements eliminate corona
- Flame retardant UL94 - V0, ROHS compliant

Contruction

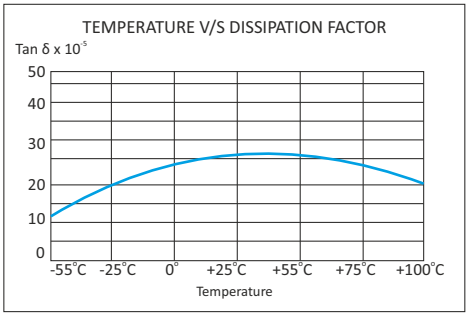
Extended foil electrodes and polypropylene film dielectric impregnated

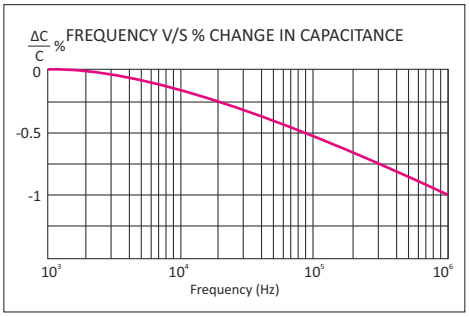


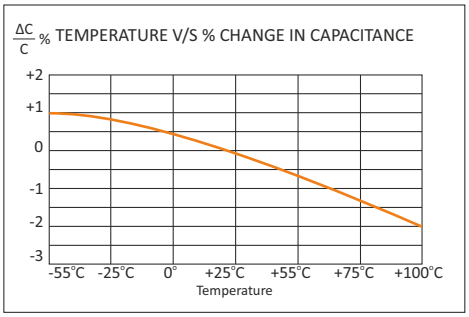
Applications

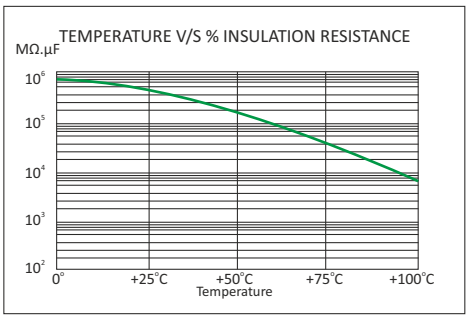
These capacitors are used in high voltage, high current and high pulse applications such as:

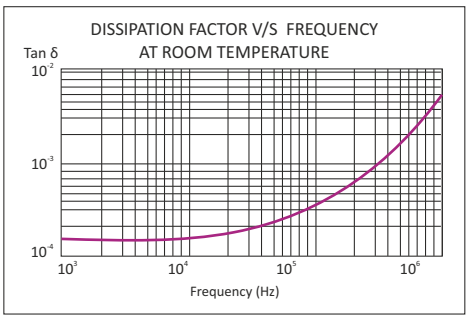
- IGBT protection circuits
- Snubber networks
- Low frequency tuning circuits











KP-3C

Technical Specifications

Physical Characteristics

▪ Dielectric material	Polypropylene film.
▪ Electrode material	Aluminium foil
▪ Winding construction	Extended foil electrodes and polypropylene film dielectric impregnated
▪ Enclosure	Preformed UL 94 V-0 plastic case with thermosetting resin-fill

Electrical Characteristics

▪ Capacitance range	0.1 MFD to 3.0 MFD
▪ Capacity tolerance	±5%(J), ±10%(K)
▪ Rated voltage VDC	1000, 1250, 1500, 2000
▪ Rated voltage VAC	480, 550, 630, 750
▪ Test voltage between terminals	2.5x rated voltage VDC for 10 seconds
▪ Test voltage terminal to case	3KVAC at 50Hz for 60 seconds
▪ Dissipation factor (Tan d)	$\leq$0.0005 at 1 Khz and 25°C
▪ Temperature range	-40°C to +85°C
▪ Insulation resistance at 25°C & at a test voltage of 500 VDC applied for 1 minute	C $\leq$ 0.33 MFD $\geq$100,000MΩ C > 0.33 MFD $\geq$30,000MΩ

Marking on Capacitors

Each capacitor will have the following information printed on it, sequentially:

- The Company's symbol followed by the words ALCON
- The capacitor grade viz KP-3C
- The capacitance value MFD
- The rated voltage VDC
- Capacity tolerance and manufacturing code
- Part number on non-standard capacitors

KP-3C

Standard Capacitor Values

Working Voltage 1000 VDC (480 VAC)

Rated Capacitance MFD	Case Code	DV/DT V/µ Sec	I Peak Amps	Irms Max at 100KHz & 55°C Amps	ESR Max at100KHz mΩ	Ordering Code*
0.100	K2	900	90.00	5.60	11.20	SI00U101000AG0K2_ _ _ _K01
0.150	K2	900	135.00	5.70	10.80	SI00U151000AG0K2_ _ _ _K01
0.220	K3	900	198.00	6.80	10.40	SI00U221000AG0K3_ _ _ _K01
0.220	B1,C1	900	198.00	18.20	4.20	SI00U221000AG_ _ _ _ _ _ _K01
0.270	B1,C1	900	243.00	18.70	4.00	SI00U271000AG_ _ _ _ _ _ _K01
0.330	B1,C1	900	297.00	19.70	3.70	SI00U331000AG_ _ _ _ _ _ _K01
0.390	B1	900	351.00	20.60	3.70	SI00U391000AG0B1_ _ _ _K01
0.390	C1	900	351.00	20.60	3.50	SI00U391000AG0C1_ _ _ _K01
0.470	B5	900	423.00	21.10	3.50	SI00U471000AG0B5_ _ _ _K01
0.560	B5	800	392.00	21.30	3.50	SI00U561000AG0B5_ _ _ _K01
0.680	B5	800	476.00	21.30	3.20	SI00U681000AG0B5_ _ _ _K01
0.750	B5,B2	800	525.00	25.60	3.00	SI00U751000AG_ _ _ _ _ _ _K01
0.820	B5	800	574.00	26.00	3.00	SI00U821000AG0B5_ _ _ _K01
1.000	B5	900	900.00	26.00	3.00	SI000011000AG0B5_ _ _ _K01
1.000	B3	800	900.00	26.00	3.00	SI000011000AG0B3_ _ _ _K01
1.200	B3	800	960.00	26.00	2.50	SI001U21000AG0B3_ _ _ _K01
1.500	B3	800	1200.00	26.00	2.50	SI01U501000AG0B3_ _ _ _K01
1.750	B4	500	875.00	28.00	2.50	SI01U751000AG0B4_ _ _ _K01
2.000	B4	500	1000.00	28.20	2.50	SI000021000AG0B4_ _ _ _K01
2.200	C2	400	880.00	28.50	2.40	SI002U21000AG0C2_ _ _ _K01
2.500	C2	400	1000.00	29.00	2.20	SI002U51000AG0C2_ _ _ _K01
3.000	C2	400	1200.00	30.00	2.00	SI000031000AG0C2_ _ _ _K01

Working Voltage 1250 VDC (550 VAC)

Rated Capacitance MFD	Case Code	DV/DT V/µ Sec	I Peak Amps	Irms Max at 100KHz & 55°C Amps	ESR Max at100KHz mΩ	Ordering Code*
0.100	K2	1000	100.00	5.60	11.20	SI00U101250AG0K2_ _ _ _K01
0.150	K2	1000	150.00	5.70	10.80	SI00U151250AG0K2_ _ _ _K01
0.220	K3	1000	220.00	6.80	10.40	SI00U221250AG0K3_ _ _ _K01
0.220	B1,C1	1000	220.00	18.20	4.20	SI00U221250AG_ _ _ _ _ _ _K01
0.270	B1,C1	1000	270.00	18.70	4.00	SI00U271250AG_ _ _ _ _ _ _K01
0.330	B1,C1	1000	330.00	19.70	3.70	SI00U331250AG_ _ _ _ _ _ _K01
0.390	B1,C1	1000	390.00	20.60	3.70	SI00U391250AG_ _ _ _ _ _ _K01
0.470	B5	1000	470.00	21.10	3.50	SI00U471250AG0B5_ _ _ _K01
0.560	B5	1000	560.00	21.30	3.50	SI00U561250AG0B5_ _ _ _K01
0.680	B5	900	612.00	21.30	3.20	SI00U681250AG0B5_ _ _ _K01
0.750	B5,B2	900	675.00	25.60	3.00	SI00U751250AG_ _ _ _ _ _ _K01
0.820	B5	900	738.00	26.00	3.00	SI00U821250AG0B5_ _ _ _K01
1.000	B5	900	900.00	26.00	3.00	SI000011250AG0B5_ _ _ _K01
1.000	B3	1000	1000.00	26.00	3.00	SI000011250AG0B3_ _ _ _K01

Custom-designed capacitors are available on request
Refer to “Capacitor Drawing”on page 30 to 33

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Standard Capacitor Values

Working Voltage 1250 VDC (550 VAC)

Rated Capacitance MFD	Case Code	DV/DT V/µ Sec	I Peak Amps	Irms Max at 100KHz & 55°C Amps	ESR Max at100KHz mΩ	Ordering Code*
1.200	B3	900	1080.00	26.00	2.50	SI001U21250AG0B3_ _ _ _K01
1.500	B3	900	1350.00	26.00	2.50	SI01U501250AG0B3_ _ _ _K01
1.750	B4	600	1050.00	28.00	2.50	SI01U751250AG0B4_ _ _ _K01
2.000	B4	600	1100.00	28.20	2.50	SI000021250AG0B4_ _ _ _K01
2.200	C2	500	880.00	28.50	2.40	SI002U21250AG0C2_ _ _ _K01
2.500	C2	500	1250.00	29.00	2.20	SI002U51250AG0C2_ _ _ _K01
3.000	C2	500	1500.00	30.00	2.00	SI000031250AG0C2_ _ _ _K01

Working Voltage 1500 VDC (630 VAC)

Rated Capacitance MFD	Case Code	DV/DT V/µ Sec	I Peak Amps	Irms Max at 100KHz & 55°C Amps	ESR Max at100KHz mΩ	Ordering Code*
0.100	K2	1100	110.00	5.60	11.20	SI00U101500AG0K2_ _ _ _K01
0.150	K2	1100	165.00	5.70	10.80	SI01U501500AG0K2_ _ _ _K01
0.220	K4	1100	242.00	6.80	10.40	SI00U221500AG0K4_ _ _ _K01
0.220	B1,C1	1100	242.00	18.20	4.20	SI00U221500AG0_ _ _ _ _ _K01
0.270	B1,C1	1100	297.00	18.70	4.00	SI00U271500AG_ _ _ _ _ _ _K01
0.330	B1,C1	1100	363.00	19.70	3.70	SI00U331500AG_ _ _ _ _ _ _K01
0.390	B1	1100	429.00	20.60	3.70	SI00U391500AG0B1_ _ _ _K01
0.390	C1	1100	429.00	20.60	3.50	SI00U391500AG0C1_ _ _ _K01
0.470	B5	1100	517.00	21.10	3.50	SI00U471500AG0B5_ _ _ _K01
0.560	B5	1000	560.00	21.30	3.50	SI00U561500AG0B5_ _ _ _K01
0.680	B5	1000	680.00	21.30	3.20	SI00U681500AG0B5_ _ _ _K01
0.750	B5,B2	1000	750.00	25.60	3.00	SI00U751500AG_ _ _ _ _ _ _K01
0.820	B5	1000	820.00	26.00	3.00	SI00U821500AG0B5_ _ _ _K01
1.000	B3	1000	1000.00	26.00	3.00	SI000011500AG0B3_ _ _ _K01
1.200	B3	1000	1200.00	26.00	2.50	SI001U21500AG0B3_ _ _ _K01
1.500	B3	1000	1500.00	26.00	2.50	SI001U51500AG0B3_ _ _ _K01
1.750	B4	700	1225.00	28.00	2.50	SI01U751500AG0B4_ _ _ _K01
2.000	B4	700	1400.00	28.20	2.50	SI000021500AG0B4_ _ _ _K01
2.200	C2	600	1320.00	28.50	2.40	SI002U21500AG0C2_ _ _ _K01
2.500	C2	600	1500.00	29.00	2.20	SI002U51500AG0C2_ _ _ _K01
3.000	C2	600	1800.00	30.00	2.00	SI000031500AG0C2_ _ _ _K01

Working Voltage 2000 VDC (750 VAC)

Rated Capacitance MFD	Case Code	DV/DT V/µ Sec	I Peak Amps	Irms Max at 100KHz & 55°C Amps	ESR Max at100KHz mΩ	Ordering Code*
0.100	B1	1300	130.00	13.20	8.40	SI00U102000AG0B1_ _ _ _K01
0.150	B5	1200	180.00	15.11	7.00	SI01U502000AG0B5_ _ _ _K01
0.220	B5	1200	264.00	19.80	4.50	SI00U222000AG0B5_ _ _ _K01
0.270	B5	1200	324.00	21.70	4.30	SI00U272000AG0B5_ _ _ _K01
0.330	B3	1200	396.00	22.20	4.10	SI00U332000AG0B3_ _ _ _K01
0.390	B3	1200	468.00	22.50	4.00	SI00U392000AG0B3_ _ _ _K01
0.470	B3	1200	564.00	22.50	4.00	SI00U472000AG0B3_ _ _ _K01
0.560	B4	1000	560.00	22.70	3.80	SI00U562000AG0B4_ _ _ _K01
0.680	B4	1000	680.00	22.80	3.70	SI00U682000AG0B4_ _ _ _K01
0.750	C2	800	600.00	23.20	3.40	SI00U752000AG0C2_ _ _ _K01
0.820	C2	800	656.00	23.20	3.30	SI00U822000AG0C2_ _ _ _K01
1.000	C2	800	800.00	23.30	3.20	SI000012000AG0C2_ _ _ _K01

Custom-designed capacitors are available on request

Refer to “Capacitor Drawing”on page 30 to 33

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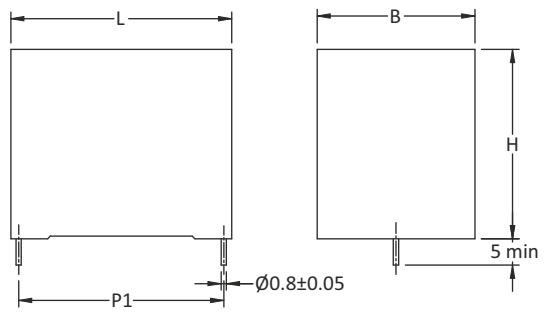
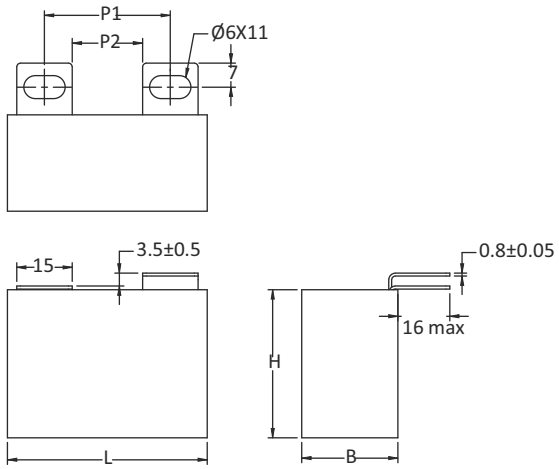
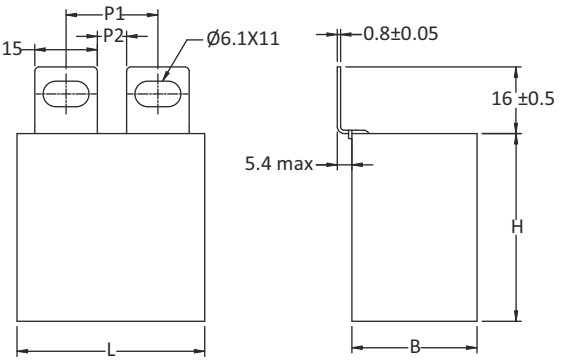
Capacitor Drawings and Terminal Styles



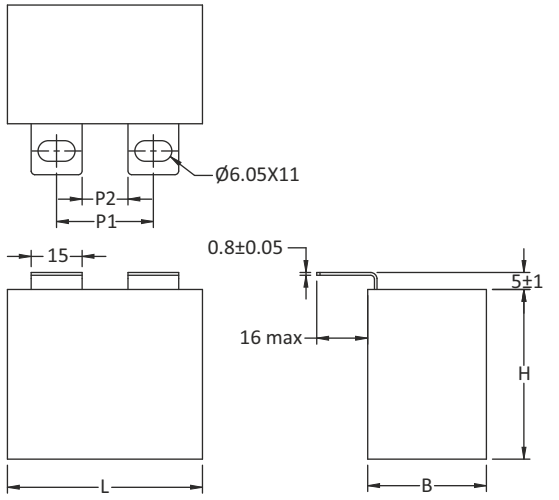
Terminal style : DL
Case code : K2,K3,K4



Terminal style : SL
Case code : B1,B2,B3,B4,B5,C2



Terminal style : TL
Case code : B1,B2,B3,B4,B5,C2



Terminal style : RL
Case code : B1,B2,B3,B4,B5,C2

Dimensions in mm
For details see Case Code table on page 34

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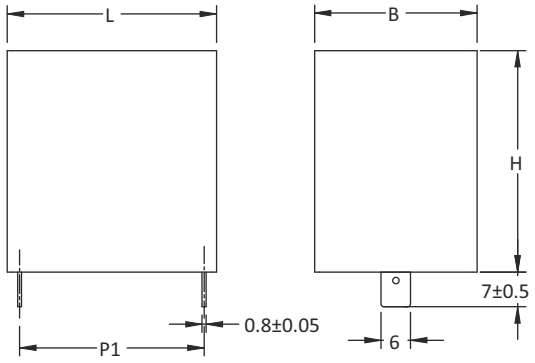
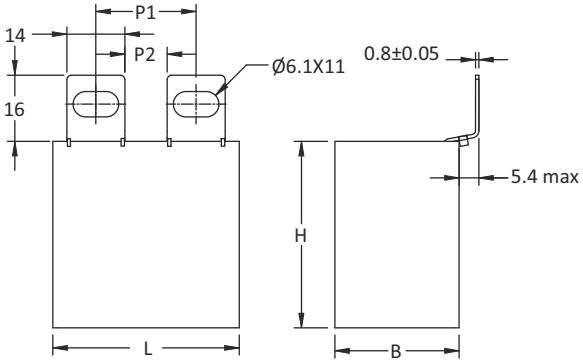
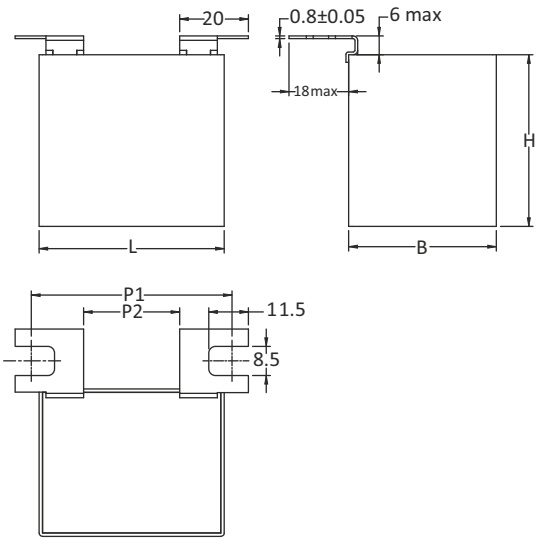
Capacitor Drawings and Terminal Styles



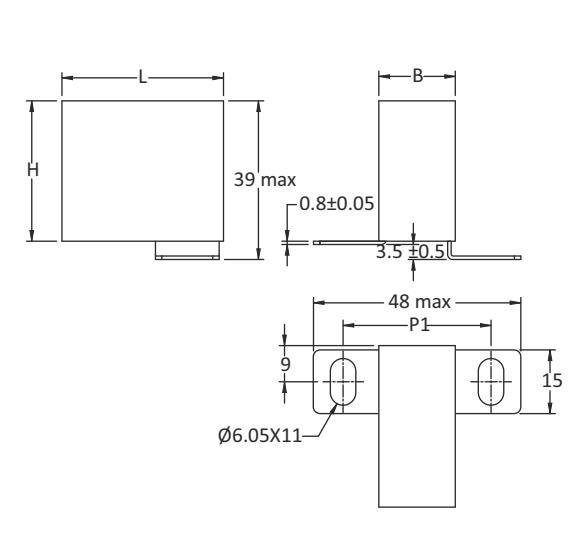
Terminal style : FT
Case code : B1,B2, B3, B5



Terminal style : MTL
Case code : B1,B2,B3,B4,B5,C2



Terminal style : CL
Case code : B4,C2



Terminal style :CT
Case code : C1

Dimensions in mm
For details see Case Code table on page 34

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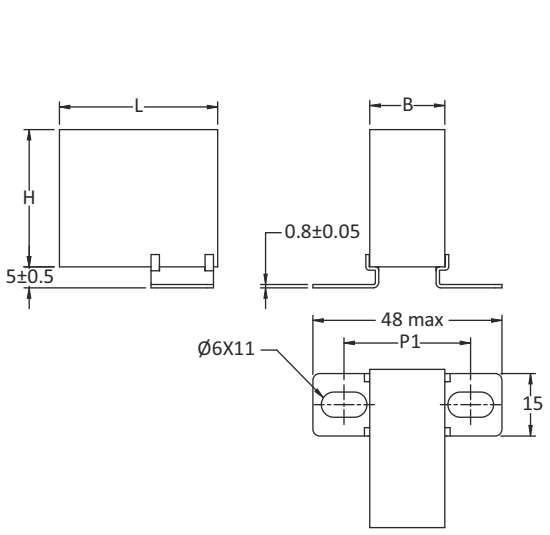
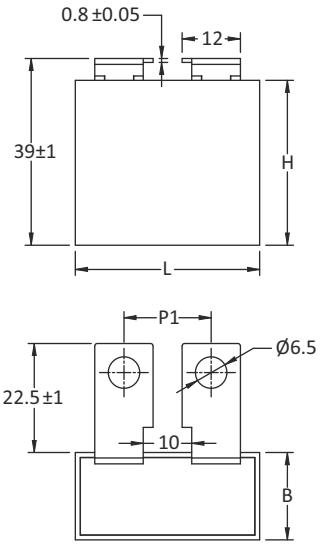
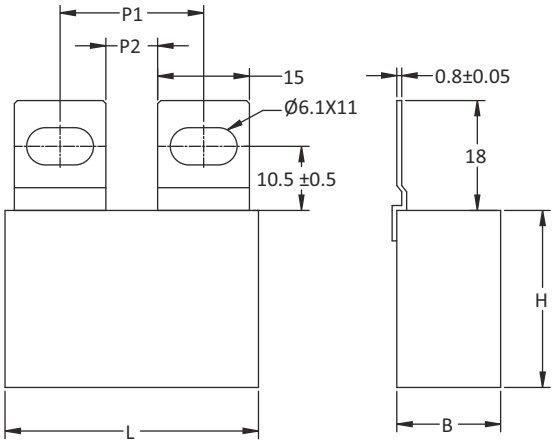
Capacitor Drawings and Terminal Styles



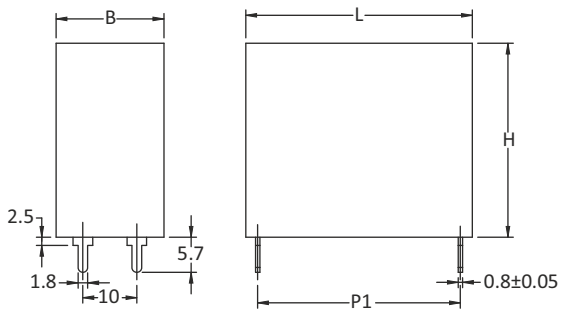
Terminal style : CR
Case code : C1



Terminal style :AB
Case code : C1



Terminal style : STL
Case code : B1,B2,B4,B5,C2



Terminal style : 2P
Case code : B1,B3,B5

Dimensions in mm
For details see Case Code table on page 34

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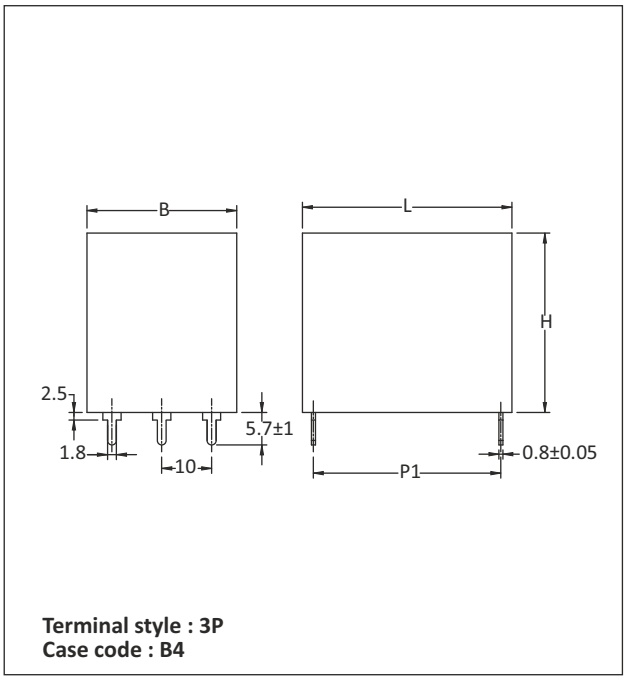
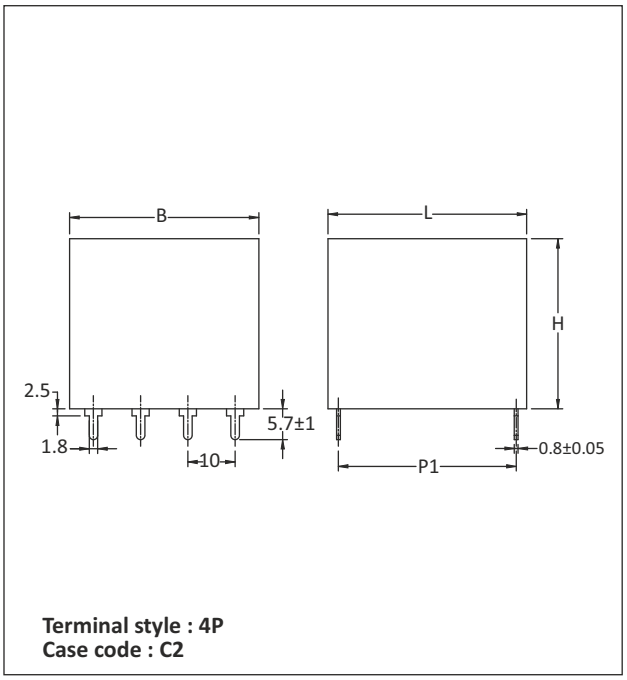
Capacitor Drawings and Terminal Styles



Terminal style : 3P
Case code : B4



Terminal style : 4P
Case code : C2

Dimensions in mm
For details see Case Code table on page 34

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Table of Case Codes and Dimensions

Case Code	Dimensions in mm*			P1	P2	Terminal Styles
	B±1	H±1	L±1	P±0.5		
K2	11	20	32.0	27.5	--	DL
K3	13	22	32.0	27.5	--	DL
K4	14	24	32.0	27.5	--	DL
B1	17	29	41.5	32.5	–	DL,FT,2P
B1	17	29	41.5	39.0	–	DL,FT,2P
B1	17	29	41.5	23.5	8.5	TL,RL,STL,SL
B1	17	29	41.5	24.5	10.5	MTL
B2	24	38	45.0	23.5	8.5	TL,RL,STL,SL
B2	24	38	45.0	24.5	10.5	MTL
B3	30	45	45.0	39.0	-	FT,2P
B3	30	45	45.0	27.0	13.0	MTL
B3	30	45	45.0	26.5	11.5	TL,RL,STL,SL
B4	30	50	54.0	27.0	11.5	TL,RL,STL,SL
B4	30	50	54.0	48.0	–	3P
B4	30	50	54.0	55.0	28.0	CL
B4	30	50	54.0	27.0	13.0	MTL
B5	28	30	45.0	27.0	11.5	TL,RL,STL,SL
B5	28	30	45.0	27.0	13.0	MTL
B5	28	30	45.0	39.0	–	FT,2P
C1	18	33	38.0	33.0	–	CR
C1	18	33	38.0	31.0	–	CT
C1	18	33	38.0	18.0	–	AB
C2	43	50	54.0	26.5	11.5	TL,RL,STL,SL
C2	43	50	54.0	27.0	13.0	MTL
C2	43	50	54.0	55.0	28.0	CL
C2	43	50	54.0	48.5	–	4P

* Refer to “Capacitor Drawings” on page 30 to 33

Precaution

1. These capacitors are not suitable for ‘across the line’ applications
2. VAC (rated) : Frequency should be less than 1000Hz
3. VDC(rated) : 1.4 x Vrms + VDC should be less than rated VDC

Part Number System

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	**2**	**3 to 7**					**8 to 11**				**12 to 13**		**14 to 16**			**17 to 20**				**21**	**22 to 23**	

Standard / Non-standard

S - Standard

N - Non-standard

Series

A - Aluminium Electrolytic Capacitors

I - IGBT Snubber Capacitors

D - DC-Link Capacitors

P - Power Film Capacitors

Capacitance Rating

example : 00U68 - 0.680 MFD
01U50 - 1.50 MFD
00001 - 1.00 MFD
05U60 - 5.6 MFD
00003 - 3.00 MFD

Voltage Rating

example : 1000 - 1000 VDC/VRMS
0450 - 450 VDC/VRMS
0700 - 700 VDC/VRMS
2500 - 2500 VDC/VRMS

Grade

example : AG - KP3C
AJ - KP6
AK - MP4A
AM - MKR9
AN - MKRS

Case code

(Refer table)

Terminal Style

Refer Table
Drawing

Tolerance

M : ±20%
K : ±10%
J : ±5%

Canias Code

By Default - 01

Cautions For Proper Use Of Film Capacitors

SAFETY INSTRUCTION

- Do not exceed the upper category temperature (UCT).
- Do not apply any mechanical stress to the capacitor terminals.
- Avoid any compressive, tensile or flexural stress.
- Do not move the capacitor after it has been assembled
- Do not exceed the specified torque limits during assembly.
- Avoid external energy inputs, such as fire or electricity.
- Avoid overload of the capacitors.
- Consult us if application is with severe temperature and humidity condition.
- There are no serviceable or repairable parts inside the capacitor. Opening the capacitor or any attempts to open or repair the capacitor will void the warranty and liability of ALCON

DISPOSAL

For disposal do either of the followings.

1. Incineration (at high temperature over 800°C) after piercing or crushing capacitor body.
2. Consignment to specialists of industrial waste. As per the compliance prescribed by the law.

Notes