PG - 5KL

-40°C +105°C

Specifications

- **Voltage range :** 350 VDC to 500 VDC
- **Can size :** 50ϕ x 80mm to 90ϕ x 220mm
- **Operating Temperature range :** -40°C to + 105°C
- **Capacitance :** 680 MFD to 18000 MFD
  Tolerance ± 20%
- **Leakage current:** The max. leakage current (IL) is given by the formula:
  IL = 0.003 CV (microamps)
  C = capacitance in microfarads
  V = DC rated voltage
  Pre-conditioning of the capacitors prior to testing for leakage current is essential.
- **Ripple Current:** All capacitors withstand rms ripple current at 100 Hz at 105°C. When capacitors operate at temperatures other than 105°C,the permissible rms ripple current at 105°C should be multiplied by the factors given below :

+45°C	+55°C	+65°C	+75°C
2.6	2.4	2.2	2.0

Where capacitors are required to operate at frequencies other than 100 Hz, the multiplying factors given below, may be used to determine the ripple current capacity, at that frequency.

Frequency Hz	100	120	250	500	1k to10k	>10K
Multiplying Factor	1.0	1.02	1.05	1.20	1.32	1.35

- **Notes :**

1. Can is negative, However, it is isolated with a PVC insulating sleeve and mylar end-disc.
2. The base stud is also negative and can be insulated with a nylon nut. Please see the page regarding mounting accessories for details.
3. Maximum ripple current for each capacitor diameter .

Capacitor Diameter (mm)	50	63	76	90
Max. Ripple Current (Amps)	20	40	40	72

Application

High Ripple Current Applications like, PWM Inverters, High KVA On-Line UPS, Frequency Converters, AC Drives, Railway Traction drives, High Reliability Power Supplies, Wind generators drives, solar inverters

Capacitor mounting

Capacitors are available in screw terminals in three mounting styles

AEST - Screw terminals with plain insulated base. *see page 5,6*

AEST-D - Screw terminals with stud mounting. *see page 5,6*

AEST-AL - Capacitor with aluminium bottom disc. *see page 7*

Capacitor Terminal Style

Capacitors are available in two different terminal style, round and across flat. Below table summarizes the available terminal styles in different capacitors diameter

Capacitors Diameter (mm)	50	63	76	90
Terminal Style - Round	◯	◯	◯	◯
Terminal Style - Across Flat	◯	◯	◯	◯

For details see pages 5, 6, 7

Marking on capacitors

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

- The Company's symbol followed by the words ALCON ELECTRONICS
- The capacitor grade viz. PG-5KL
- The capacitance value __ MFD, rated voltage __VDC
- The surge voltage
- Capacity tolerance
- Climatic category
- Part number on non-standard capacitors
- CE marking
- Batch Code

PG - 5KL

-40°C +105°C

Useful life

Useful life is a period of time which the capacitor takes to reach "end of life".

For PG-5KL capacitors the useful life is estimated as 5000 hours at maximum rated temperature, ripple current and voltages.

End of the defined as follows :

1. Catastrophic failure : capacitor short or open circuit
2. Mechanical failure : operation of safety vent or sleeve damage
3. Parametric failure :
   a. Capacitance change ±30%
   b. ESR exceed three times specified value
   c. Leakage current exceed specified value

The useful life for a known ripple current load and ambient temperature (Ta) °C is determined on the basis of the " Life graph" shown below.

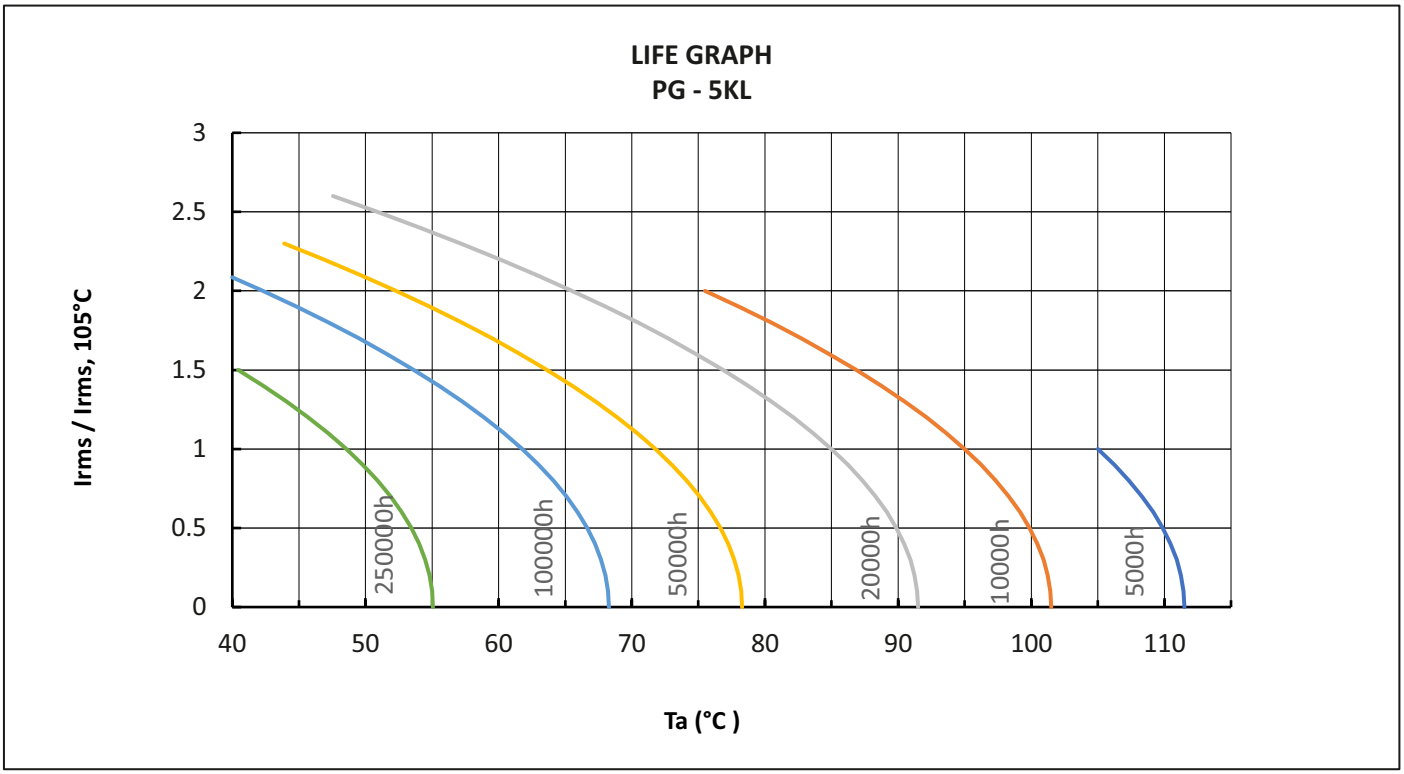
Manufacturing Date Code Chart

The manufacturing code shall consists of four digits (alphanumeric). The first two shall denote the date (numeric). The third stands for the month (alpha-numeric). The fourth stands for the year (alphabet)

First two spaces	Third space	Fourth space	
DATE	MONTH	YEAR	
01	1 = JANUARY	A = 2012	N = 2024
02	2 = FEBRUARY	B = 2013	P = 2025
03	3 = MARCH	C = 2014	R = 2026
.	4 = APRIL	D = 2015	S = 2027
.	5 = MAY	E = 2016	T = 2028
.	6 = JUNE	F = 2017	U = 2029
10	7 = JULY	G = 2018	V = 2030
11	8 = AUGUST	H = 2019	W = 2031
.	9 = SEPTEMBER	J = 2020	X = 2032
.	X = OCTOBER	K = 2021	Y = 2033
.	Y = NOVEMBER	L = 2022	Z = 2034
31	Z = DECEMBER	M = 2023	A = 2035

For example :

1. Manufacturing code 023A will mean 2nd March, 2012
2. Manufacturing code 10XA will mean 10th October, 2012



Standard Capacitor Values

Rated Voltage (VDC)	Surge Voltage (VDC)	Capacitance Nominal (MFD)	MAX ESR at 100 Hz, 25°C (miliOhm)	Ripple Current at 100 Hz, 85°C (Amps)	Ripple Current (Irms) at 100 Hz, 105°C (Amps)	Can size Nominal D x L mm	Case Code	Ordering code
350	385	1800	77.1	8.3	4.9	50x105	022	SA018000350AE022_ _ _ _M01
		2200	69.1	9.9	5.8	63x105	026	SA022000350AE026_ _ _ _M01
		2700	51.5	11.5	6.7	63x105	026	SA027000350AE026_ _ _ _M01
		3300	44.2	14.1	8.2	63x105	026	SA033000350AE026_ _ _ _M01
		3900	41.3	14.6	8.5	76x105	028	SA039000350AE028_ _ _ _M01
		4700	33.1	18.1	10.6	76x105	028	SA047000350AE028_ _ _ _M01
		5600	25.7	21.8	12.7	76x120	041	SA056000350AE041_ _ _ _M01
		6800	20.6	26.8	15.7	90x120	097	SA068000350AE097_ _ _ _M01
		8200	18.0	28.2	16.5	76x175	090	SA082000350AE090_ _ _ _M01
		8200	18.0	28.6	16.7	90x120	097	SA082000350AE097_ _ _ _M01
		10000	14.2	34.6	20.3	76x220	092	SA100000350AE092_ _ _ _M01
		10000	14.2	35.0	20.5	90x146	095	SA100000350AE095_ _ _ _M01
		12000	12.3	37.7	22.0	90x175	096	SA120000350AE096_ _ _ _M01
		15000	9.9	46.0	26.9	90x220	094	SA150000350AE094_ _ _ _M01
		15000	9.8	45.7	26.7	90x175	096	SA150000350AE096_ _ _ _M01
		18000	8.2	55.2	32.3	90x220	094	SA180000350AE094_ _ _ _M01
400	440	1800	76.0	9.4	5.5	50x105	022	SA018000400AE022_ _ _ _M01
		2200	52.6	11.3	6.6	63x105	026	SA022000400AE026_ _ _ _M01
		2700	49.7	13.3	7.8	63x105	026	SA027000400AE026_ _ _ _M01
		3300	38.7	16.0	9.3	63x120	039	SA033000400AE039_ _ _ _M01
		3900	33.5	18.0	10.5	76x105	028	SA039000400AE028_ _ _ _M01
		4700	28.4	20.3	11.9	63x146	035	SA047000400AE035_ _ _ _M01
		4700	28.3	20.7	12.1	76x120	041	SA047000400AE041_ _ _ _M01
		5600	23.2	25.2	14.8	90x120	097	SA056000400AE097_ _ _ _M01
		6800	19.3	27.3	16.0	76x146	081	SA068000400AE081_ _ _ _M01
		6800	19.3	27.7	16.2	90x120	097	SA068000400AE097_ _ _ _M01
		8200	16.8	31.9	18.6	76x220	092	SA082000400AE092_ _ _ _M01
		8200	15.5	33.5	19.6	90x146	095	SA082000400AE095_ _ _ _M01
		10000	12.9	39.9	23.3	76x220	092	SA100000400AE092_ _ _ _M01
		12000	11.2	43.2	25.3	90X175	096	SA120000400AE096_ _ _ _M01
		15000	8.9	53.2	31.1	90x220	094	SA150000400AE094_ _ _ _M01

Custom designed capacitors available

Standard Capacitor Values

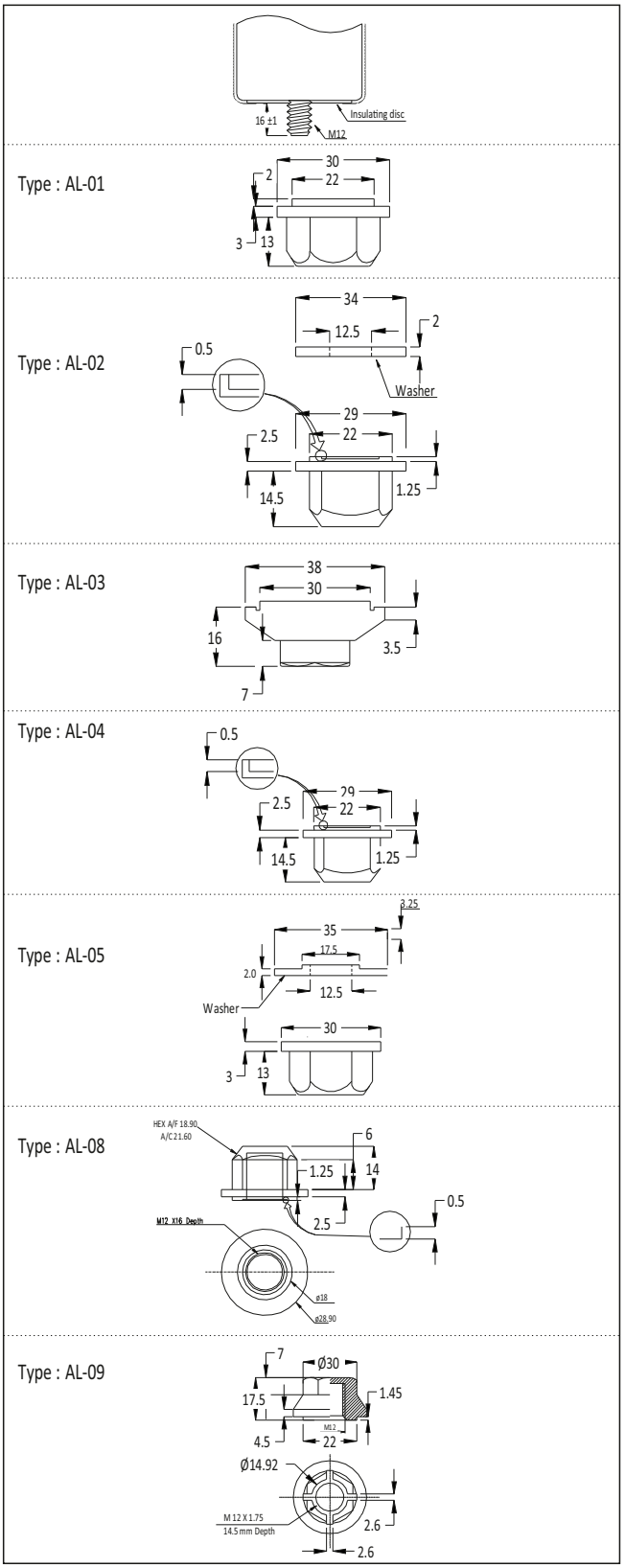
Rated Voltage (VDC)	Surge Voltage (VDC)	Capacitance Nominal (MFD)	MAX ESR at 100 Hz, 25°C (miliOhm)	Ripple Current at 100 Hz, 85°C (Amps)	Ripple Current (Irms) at 100 Hz, 105°C (Amps)	Can size Nominal D x L mm	Case Code	Ordering code
450	495	1000	102.8	7.2	4.2	50x80	020	SA010000450AE020_ _ _ _M01
		1200	89.8	8.7	5.1	50x105	022	SA012000450AE022_ _ _ _M01
		1500	70.8	9.8	5.7	63x105	026	SA012000450AE026_ _ _ _M01
		1800	62.2	11.9	6.9	63x105	026	SA018000450AE026_ _ _ _M01
		2200	49.1	13.4	7.8	63x105	026	SA022000450AE026_ _ _ _M01
		2700	38.7	16.0	9.3	63x120	039	SA027000450AE039_ _ _ _M01
		3300	31.0	19.4	11.4	63x146	035	SA033000450AE035_ _ _ _M01
		3300	30.9	19.9	11.6	76x120	041	SA033000450AE041_ _ _ _M01
		3900	25.8	24.0	14.0	90x120	097	SA039000450AE097_ _ _ _M01
		4700	23.1	24.9	14.6	76x146	081	SA047000450AE081_ _ _ _M01
		4700	23.2	25.2	14.8	90x120	097	SA047000450AE097_ _ _ _M01
		5600	19.3	29.7	17.3	76x175	090	SA056000450AE090_ _ _ _M01
		5600	19.4	30.0	17.5	90x146	095	SA056000450AE095_ _ _ _M01
		8200	12.9	40.3	23.6	76x220	092	SA082000450AE092_ _ _ _M01
		8200	12.9	39.9	23.3	90x175	096	SA082000450AE096_ _ _ _M01
500	550	680	141.4	6.1	3.6	50x80	020	SA006800500AE020_ _ _ _M01
		1000	96.5	8.4	4.9	50x105	022	SA010000500AE022_ _ _ _M01
		1800	58.1	12.3	7.2	63x105	026	SA018000500AE026_ _ _ _M01
		2700	38.7	17.4	10.2	63x146	035	SA027000500AE035_ _ _ _M01
		2700	38.6	17.8	10.4	76x120	041	SA027000500AE041_ _ _ _M01
		3300	30.9	21.9	12.8	90x120	097	SA033000500AE097_ _ _ _M01
		3900	25.8	25.7	15.0	76x175	090	SA039000500AE090_ _ _ _M01
		3900	25.8	24.0	14.0	90x120	097	SA039000500AE097_ _ _ _M01
		4700	21.9	27.9	16.3	76x175	090	SA047000500AE090_ _ _ _M01
		4700	21.9	28.2	16.5	90x146	095	SA047000500AE095_ _ _ _M01
		5600	18.1	34.1	19.9	76x220	092	SA056000500AE092_ _ _ _M01
		5600	18.0	33.7	19.7	90x175	096	SA056000500AE096_ _ _ _M01
		8200	12.6	44.6	26.1	90x220	094	SA082000500AE094_ _ _ _M01

Custom designed capacitors available

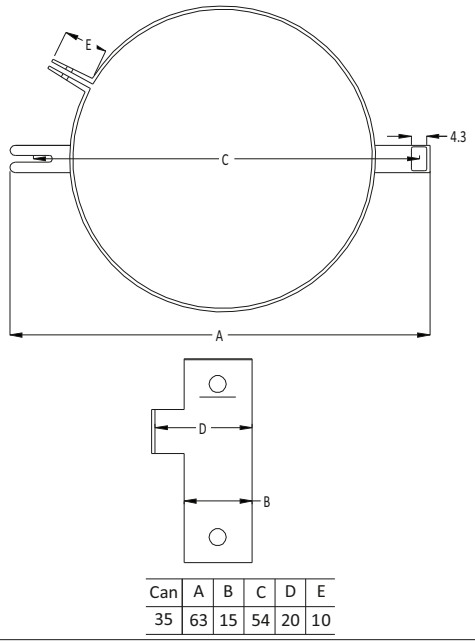
PG-PED2 - High Pulse Discharge -40°C +70°C

Mounting Accessories

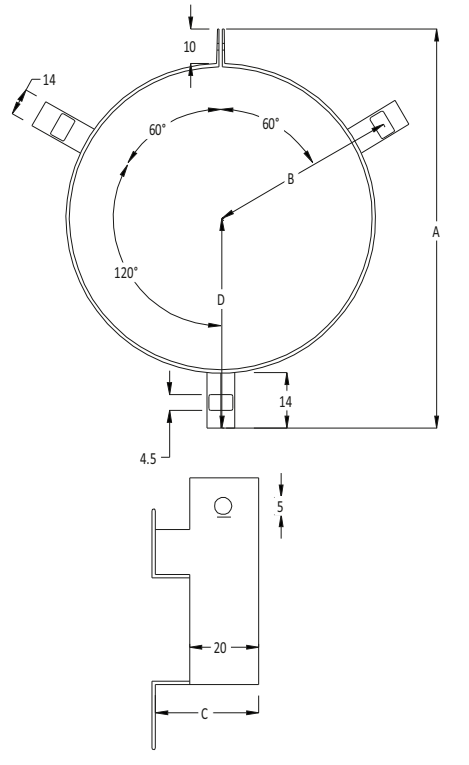
▪ **Mounting Nut and Washers for Cans with Bottom Stud**



▪ **Vertical Mounting Clamps**



Can	A	B	C	D	E
35	63	15	54	20	10



Can	A	B	C	D
50	76	33	30	40
63	89	39.5	30	46.5
76	102	46	30	53
90	116	53	30	60

All dimensions are in mm.

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 : 00001 - 1 MFD
01U20 - 1.2 MFD
04700 - 4700 MFD
00680 - 680 MFD
00U10 - 0.1 MFD
3300H - 330000 MFD

Voltage Rating

example : 1000 - 1000 VDC/VRMS
0700 - 700 VDC/VRMS
0500 - 500 VDC/VRMS

Grade

example : AA - PG6DI
PD - PG-PED2
HD - PG-2HED
AC - PG-LL9
AE - PG-5KL

Case code

(Refer table)

Terminal Style

example :
00ST - AEST
0STD - AEST-D
STAL - AEST-AL
0FLT - AFLT

Tolerance

M : ±20%

Canias Code

By Default - 01

Cautions For Proper Use Of Aluminium Electrolytic Capacitors

To use Aluminum Electrolytic Capacitors properly, please pay attention to the points listed below.

1) To avoid rapid deterioration of electrical Specifications, please avoid using following types of electrical loads on Aluminum Electrolytic Capacitors

- reverse voltage
- voltage beyond rated voltage
- ripple current beyond rated value
- severe charging/discharging

During such conditions, capacitors get overheated and there can be evolution of gas, which will be increase the internal pressure enough to operate the safety vent.

In some rare /extreme condition, capacitors may catch fire or explode.

2) Storage & use conditions

- Keep Aluminum Electrolytic Capacitors away from the following environments:
  1. Damp atmosphere where spray of water, saltwater or oil is expected, or where condensation of these may occur.
  2. Atmosphere including hazardous gas/fumes such as hydrogen sulfide, sulfurous acid, nitrous acid, chlorine, ammonia or bromine. Exposure to ozone, ultraviolet rays or radiation is not advisable.
  3. Severe vibration or shock beyond the condition specified in the catalog or specification sheets.
  4. Any condition that does not conform to the operating specifications mentioned in the specification sheet or catalogue.

3) Cautions during assembly process

1. Follow the orientation instruction as in catalogue.
2. Keep capacitors from falling onto the floor. Do not use capacitors if they have fallen on to a hard surface.
3. Use the specified value of torque stated in the catalog or specification sheets to tighten the screw terminals.

4) Periodical checks

Visual inspection of pressure relief vent operation and leakage of electrolyte.

5) 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.