

Type PCD, AC Power Conversion Capacitors

Dual Protected, UL 810 Fail Safe, Rated 10,000 AFC



Type PCD capacitors are designed to meet the demands of AC filter applications rich in system total harmonic distortion (THD). This series has a patented dual protection system utilizing self healing metallized polypropylene and a mechanical pressure interrupter designed to operate while bus bar mounted or bottom stud mounted to ensure a safe open circuit mode in the event of overload or end of life.

Highlights

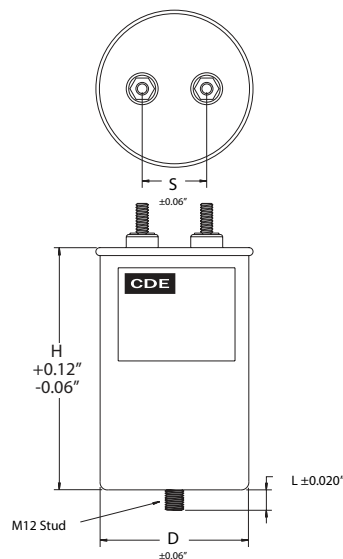
- Patented Dual Protection
- UL 810 Approved
- 85 °C / 85% RH for 1000h at Vr x 1.25
- Solid Busbar Mountable
- Dry Construction
- cULus recognized File Number E71645

Specifications

Capacitance Range	20 µF to 125 µF
Capacitance Tolerance	±5% Standard, ±10%, ±6 and ±3% available
Rated Voltage	240 Vac, 480 Vac, 600 Vac
Operating Temperature Range	-40 °C to +70 °C
Maximum Permissible Voltage (Vmax)	110% of rated rms voltage 120% of rated peak voltage (1.2 x $\sqrt{2}$ Vrms)
Maximum Permissible Current (Imax)	135% of nominal rms current based on the combined effects of harmonics, over voltages, capacitances and tolerances
Terminations	M6x1 Threaded tinplated brass terminals standard, other sizes available
Maximum Rated Current (Irms)	85A (Limited by the terminals)
Service Life Objective	60,000 h w/94% survival rate
FIT (Failure In Time)	$\leq 300 \times 10^9$ component h
Maximum Short Circuit Current (available fault current)	10 kA (according to UL 810)
Notes	Additional ratings, size and terminals are available upon request.

Regulatory Information

Outline Drawing



Construction Details

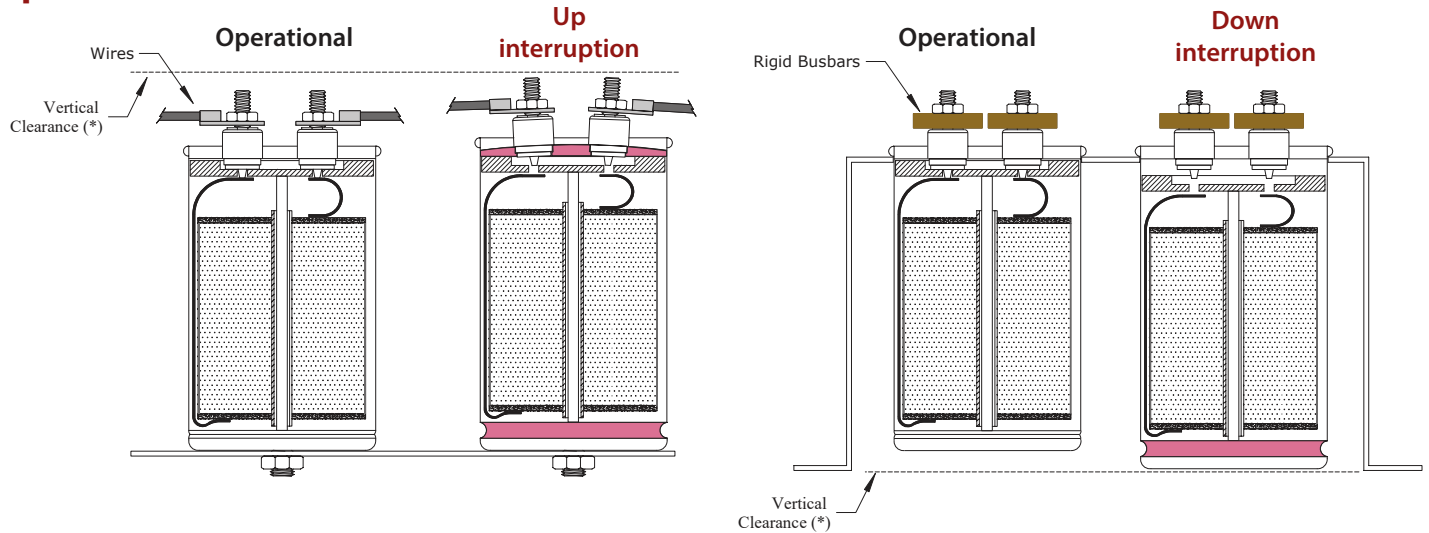
Case Material	Extruded aluminum with steel or aluminum cover
Encapsulation	Soft gel (Oil optional)

Case Diameter (in)	S Dimension (in)	L Dimension (in)
2.50	1.250	0.487
3.00	1.375	0.630
3.50	1.375	0.630

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Up / Down Activation



(*) Vertical Clearance – Proper operation of the patented dual protection system requires that a minimum of 0.5" vertical clearance be carefully observed above the capacitor terminals if flexible connections are used or under the capacitor body if busbar mounted.

Part Numbering System

PCD	G	T	4	A	150	J	569	S
Series	Type	Base Size	Voltage (Vrms)	Case Material	Capacitance value	Tolerance (%)	Case Height (in)	Terminals
PCD	G = Gel Filled O = Oil Filled	T = 2½" Round X = 3.5" Round Z = 4.5" Round	V = 3" Round 48 = 480 60 = 600	A = Aluminum case and cover T = Aluminum case w/steel cover	Capacitance value	J = ±5%	Expressed as 3 digit number rounded and displayed without decimal point	S = Studs

Ratings

CDE Catalog Number	Cn (µF)	Rs (Ω)	E.S.L. (nH)	I peak (A)	dV/dT (V/µs)	Rth (hs) (°C/W)	Max Power (W)			Case Diameter		Case Height		SA (in ²)
							25°C	50°C	70°C	(in)	(mm)	(in)	(mm)	
240Vrms 339Vpeak														
PCDGT24A50J391S	50	0.0038	75	2127	43	6.91	8.7	5.1	2.2	2.5	63.5	3.91	99	41
PCDGT24A75J475S	75	0.0035	102	2040	27	5.94	10.1	5.9	2.5	2.5	63.5	4.75	121	47
PCDGT24A100J572S	100	0.0044	133	1926	19	5.11	11.7	6.8	2.9	2.5	63.5	5.72	145	55
PCDGV24A125J572S	125	0.0047	133	2908	23	4.11	14.6	8.5	3.6	3.0	76.0	5.72	145	68
480Vrms 679Vpeak														
PCDGT48A40J572S	40	0.0057	133	1252	31	5.11	11.7	6.8	2.9	2.5	63.5	5.72	145	55
PCDGV48A60J572S	60	0.0048	133	1877	31	4.11	14.6	8.5	3.6	3.0	76.0	5.72	145	68
PCDGV48A80J572S	80	0.0033	133	2503	31	4.11	14.6	8.5	3.6	3.0	76.0	5.72	145	68
PCDGV48A110J635S	110	0.0049	153	2522	23	3.78	15.9	9.2	4.0	3.0	76.0	6.35	161	74
PCDGX48A125J635S	125	0.0047	153	2865	23	3.14	19.1	11.1	4.8	3.5	88.0	6.35	161	89
600Vrms 849Vpeak														
PCDGT60A20J475S	20	0.0036	102	2512	126	5.94	10.1	5.9	2.5	2.5	63.5	4.75	121	47
PCDGV60A30J475S	30	0.0023	102	3769	126	4.75	12.6	7.4	3.2	3.0	76.0	4.75	121	59
PCDGX60A40J475S	40	0.0022	102	5025	126	3.92	15.3	8.9	3.8	3.5	88.0	4.75	121	71
PCDGX60A50J572S	50	0.0036	133	4255	85	3.41	17.6	10.3	4.4	3.5	88.0	5.72	145	82
PCDGX60A60J572S	60	0.0025	133	5106	85	3.41	17.6	10.3	4.4	3.5	88.0	5.72	145	82

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Performance Notes

I max: Maximum rms current value for continuous operation (A)

I peak: Maximum current amplitude for continuous operation (A)

R_s: Equivalent series resistance – Ohmic resistances (Ohm)

Dielectric Dissipation Factor: $\tan \delta$ (Polypropylene: 0.0002)

T_{hs}: Hot spot temperature within the capacitor: $T_{hs} = T_a + (P_{total} \cdot 280 / SA)$

T_a: Ambient temperature

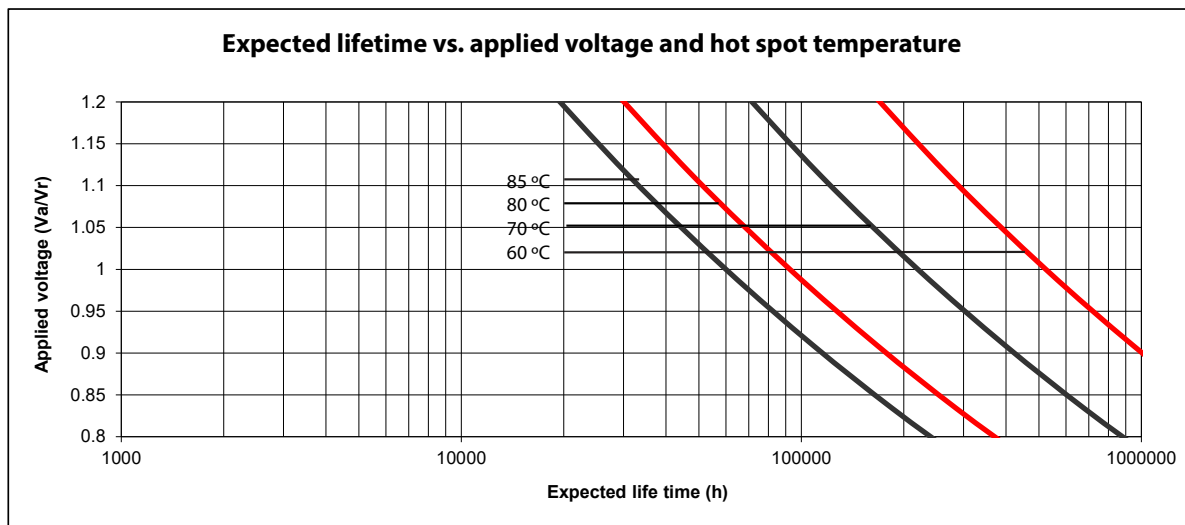
R_{th}: Thermal resistance: °C/ Watt, indicates hot spot temperature rise due to power dissipation losses

P_{max}: Maximum power dissipation: $P_{max} = (85\text{ °C} - T_a) / R_{th}$ (Watts)

P_{Total}: Total Power generated by Dielectric and Ohmic Losses: $P = V_{peak}^2 \cdot C \cdot \pi \cdot F \cdot DF$ (Watts) given Voltage
 $P = I^2 \cdot [R_s + (X_C \cdot DF)]$ (Watts) given Current

Where $P_{Total} = P_{Fund} + P_{Harm1} + P_{Harm2} + \dots + P_{Harm\infty}$

Design life: 60,000 hours 94% survival $T_{hs}: 85\text{ °C}$



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