Type PC Power Conversion Capacitors

Type PC capacitors are designed to meet the demands of filter applications rich in system total harmonic distortion (THD). This series has a dual protection system utilizing self healing metallized polypropylene and a mechanical pressure interrupter to ensure a safe open circuit mode in the event of overload or end of life. (*)

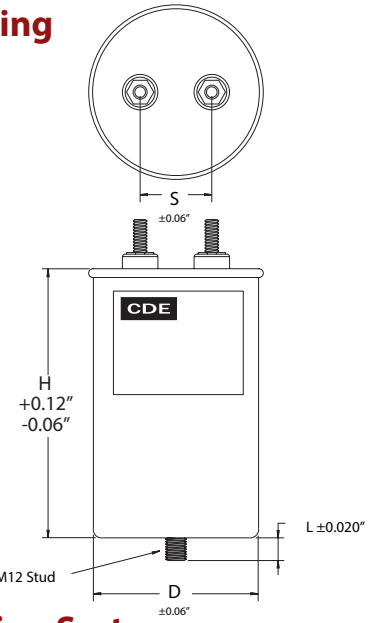
Highlights

- Uninterruptable power supplies (UPS)
- AC Tuned filters (harmonic reduction)
- AC Input filtering
- Line conditoning
- Noise suppression
- Variable speed drives
- Wind turbine motoring

Specifications

Capacitance Range	20 µF to 125 µF
Capacitance Tolerance	±5% Standard, ±10%, ±6 and ±3% available
Rated Voltage	300 Vac, 500 Vac, 700 Vac
Operating Temperature Range	–40 ºC to +70 ºC
Maximum Permissible Voltage (Vmax)	110% of rated rms voltage 120% of rated peak voltage (1.2 x √2x 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)	70A (Limited by the terminals)
Service Life Objective	60,000 h w/94% survival rate
FIT (Failure In Time)	≤300 x 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.
RoHS Compliant	

Outline Drawing



Max torque 88.5 in-lbs.

Construction Details	
Case Material	Extruded aluminum with steel or aluminum cover
Encapsulation	Environmentally safe dielectric fluid

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

(*) The capacitor's safety pressure interrupter is designed to disconnect the capacitor element as the cover expands upward due to gas pressure build up. Catastrophic failure may result if movement of the cover and or terminals are restricted. Rigid bus bars are not recommended as they may restrict movement of the cover or terminals. Customers are advised to provide at least 0.5″ clearance above the cover to allow for its expansion.

Part Numbering System

PC	S	T	30	A	150	J	569	S
Series	**Type**	**Base Size**	**Voltage (Vrms)**	**Case Material**	**Capacitance**	**Tolerance (%)**	**Case Height (in)**	**Terminals**
PC	**S** = Standard Cell **H** = Harmonic Rated Cell	**T** = 2½″ Round **V** = 3″ Round **X** = 3.5″ Round	**30** = 300 **50** = 500 **70** = 700	**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

CDE Cornell Dubilier • 1605 E. Rodney French Blvd. • New Bedford, MA 02744 • Phone: (508)996-8561 • Fax: (508)996-3830

Type PC Power Conversion Capacitors

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 (in²)
							25 °C	50 °C	70 °C	(in)	(mm)	(in)	(mm)	
300 Vrms 424 Vpeak														
PCST30A50J291S	50	0.0028	44	2127	43	8.63	7.0	4.1	1.7	2.5	63.5	2.91	74	33
PCST30A75J391S	75	0.0035	75	2040	27	6.95	8.6	5.0	2.2	2.5	63.5	3.91	99	41
PCST30A100J475S	100	0.0044	102	1926	19	5.97	10.0	5.9	2.5	2.5	63.5	4.75	121	47
PCSV30A125J475S	125	0.0036	102	2908	23	4.78	12.6	7.3	3.1	3.0	76.0	4.75	121	59
500 Vrms 707 Vpeak														
PCST50T40J475S	40	0.0047	102	1252	31	5.97	10.0	5.9	2.5	2.5	63.5	4.75	121	47
PCSV50T60J475S	60	0.0037	102	1877	31	4.78	12.6	7.3	3.1	3.0	76.0	4.75	121	59
PCSV50T80J475S	80	0.0033	102	2503	31	4.78	12.6	7.3	3.1	3.0	76.0	4.75	121	59
PCSV50T110J572S	110	0.0039	133	2522	23	4.13	14.5	8.5	3.6	3.0	76.0	5.72	145	68
PCSX50T125J572S	125	0.0037	133	2865	23	3.42	17.5	10.2	4.4	3.5	88.0	5.72	145	82
700 Vrms 990 Vpeak														
PCST70T20J475S	20	0.0060	102	883	44	5.97	10.0	5.9	2.5	2.5	63.5	4.75	121	47
PCST70T30J572S	30	0.0071	133	970	32	5.14	11.7	6.8	2.9	2.5	63.5	5.72	145	55
PCST70T40J616S	40	0.0083	147	1020	26	4.83	12.4	7.2	3.1	2.5	63.5	6.16	157	58
PCSV70T50J616S	50	0.0071	147	1275	26	3.89	15.4	9.0	3.9	3.0	76.0	6.16	157	72
PCSV70T60J616S	60	0.0062	147	1530	26	3.89	15.4	9.0	3.9	3.0	76.0	6.16	157	72

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 δ (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

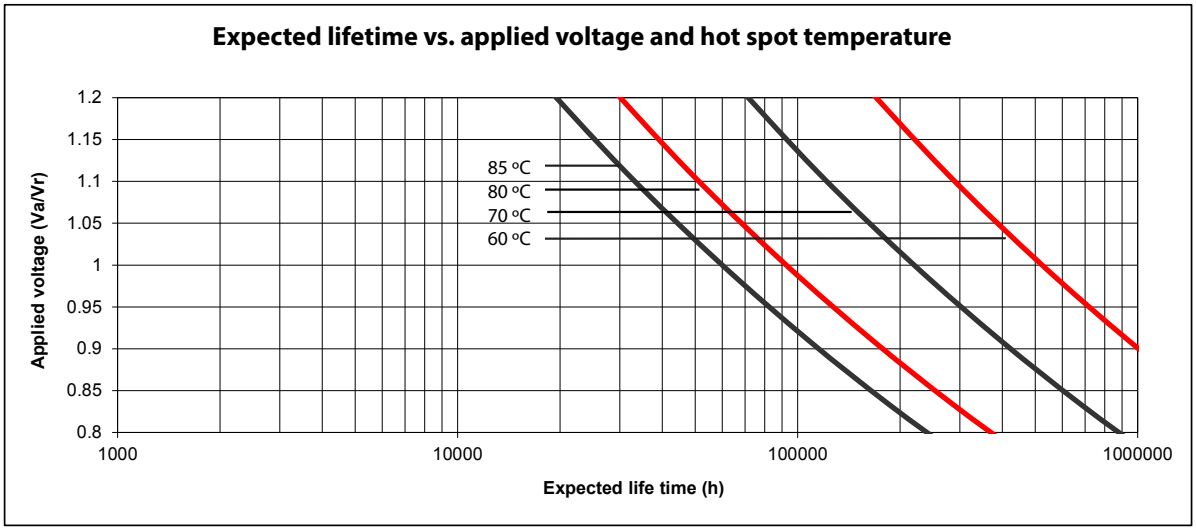
P_{max}: Maximum power dissipation: $P_{max} = (85\ ºC - T_a) / R_{th}$ (Watts)

P_{Total}: Total Power generated by Dielectric and Ohmic Losses: $P = V_{peak}^2 \cdot C \cdot TT \cdot F \cdot DF$ (Watts) given Voltage

$P = I^2 \cdot [R_s + (X_C \cdot DF)]$ (Watts) given Current

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

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



Notice and Disclaimer: All product drawings, descriptions, specifications, statements, information and data (collectively, the "Information") in this datasheet or other publication are subject to change. The customer is responsible for checking, confirming and verifying the extent to which the Information contained in this datasheet or other publication is applicable to an order at the time the order is placed. All Information given herein is believed to be accurate and reliable, but it is presented without any guarantee, warranty, representation or responsibility of any kind, expressed or implied. Statements of suitability for certain applications are based on the knowledge that the Cornell Dubilier company providing such statements ("Cornell Dubilier") has of operating conditions that such Cornell Dubilier company regards as typical for such applications, but are not intended to constitute any guarantee, warranty or representation regarding any such matter – and Cornell Dubilier specifically and expressly disclaims any guarantee, warranty or representation concerning the suitability for a specific customer application, use, storage, transportation, or operating environment. The Information is intended for use only by customers who have the requisite experience and capability to determine the correct products for their application. Any technical advice inferred from this Information or otherwise provided by Cornell Dubilier with reference to the use of any Cornell Dubilier products is given gratis (unless otherwise specified by Cornell Dubilier), and Cornell Dubilier assumes no obligation or liability for the advice given or results obtained. Although Cornell Dubilier strives to apply the most stringent quality and safety standards regarding the design and manufacturing of its products, in light of the current state of the art, isolated component failures may still occur. Accordingly, customer applications which require a high degree of reliability or safety should employ suitable designs or other safeguards (such as installation of protective circuitry or redundancies or other appropriate protective measures) in order to ensure that the failure of an electrical component does not result in a risk of personal injury or property damage. Although all product-related warnings, cautions and notes must be observed, the customer should not assume that all safety measures are indicated in such warnings, cautions and notes, or that other safety measures may not be required.