C4AE Press Fit, Radial, 2 or 4 Leads, 450 – 1,100 VDC, for DC Link

Overview

The C4AE Press Fit is a polypropylene metallized film capacitor with a rectangular plastic box-type design filled with resin, and uses 2 or 4 tinned copper wires.

Applications

Typical applications include DC filtering and energy storage.

Benefits

- Self-healing
- Low loss
- High ripple current
- High capacitance density
- High contact reliability
- Suitable for high frequency applications

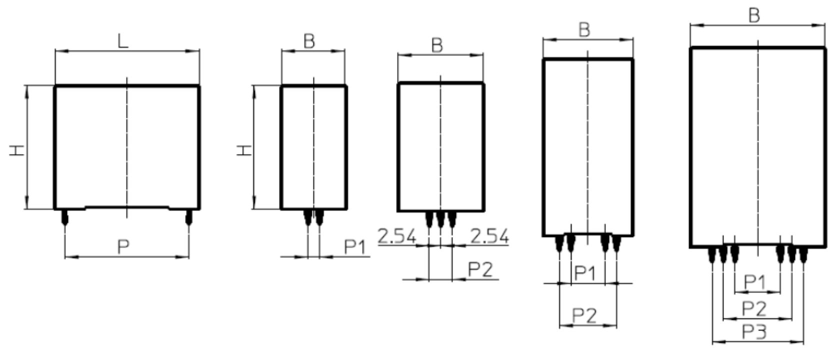
Part Number System

C4	AE	G	B	U	4450	A	1	W	J
Series	Type	Rated Voltage (VDC)	Case	Number of Leads	Capacitance Code (pF)	Variants	Number of Pins	Size Code	Tolerance
C4 = MKP capacitors	AE = Radial box, dc-link application	G = 450 H = 600 J = 700 O = 900 Q = 1,100	B = Plastic box with epoxy resin sealing	U = 2 lead W = 4 lead Z = Special Wire	Digits two – four indicate the first three digits of the capacitance value. First digit indicates the number of zeros to be added.	P = Press Fit H* = 100°C	2 = 2 pins 3 = 3 pins 4 = 4 pins 6 = 6 pins	See Dimension Table	J = 5% K = 10%

It is not possible to manufacture every part number that can be created from the coding description. Please refer to the table of standard part numbers above and contact KEMET for other possibilities.

** A 100°C true high temperature film, with no voltage derating, is available upon request.*

Dimensions – Millimeters



Size Code	p	p1	p2	p3	B	H	L	LL*
					Maximum	Maximum	Maximum	
Y	27.5	2.54			14	28	31.5	
1	27.5	0	5.08		19	29	31.5	
2	27.5	0	5.08		22	37	31.5	
F	37.5	7.62	12.7		20	40	41.5	
J	37.5	15.24	20.32		28	37	42.5	
L	37.5	10.16	15.24	20.32	30	45	42	
M	52.5	10.16	15.24	20.32	30	45	57.5	
N	52.5	15.24	20.32	25.4	35	50	57.5	

** Lead Length to be determined*
Tolerance to be determined

General Technical Data

Dielectric	Polypropylene metallized film, non-inductive type, self-healing property
Application	DC filtering/DC-Link
Maximum Operating Temperature	+105°C
Upper Temperature T_{MAX}	+85°C IEC 61071, Endurance Test Temperature
Lower Temperature T_{MIN}	−40°C
Standard	IEC 61071
Protection	Solvent resistant plastic case UL94 V–0 Thermosetting resin sealing UL94 V–0 compliant
Installation	Any position
Leads	Tinned copper wires – standard lead wire length 6 (0/−2) mm
Packaging	Packed in cardboard trays with protection for the terminals
RoHS Compliant	Compliant with the restricted substance requirements of Directive 2002/95/EC

Electrical Characteristics

Capacitance Tolerance	± 5% at +25°C
Dissipation factor (DF)	≤ 0.0002 at 10 kHz and +25°C (±5°C)
Surge Voltage	1.5 x V_{NDC} for maximum 10 times in lifetime at 25°C
Overvoltage (IEC 61071)	1.15 x V_{NDC} for maximum 30 minutes, once per day
	1.3 x V_{NDC} for maximum 1 minute, once per day
Peak Non-Repetitive Current	1.5 x I_{PKR} - maximum 1,000 times in life time
Insulation Resistance	IR x C ≥ 30,000 seconds at 100 VDC 1 minute (+25°C)
Capacitance deviation in operation	± 1.5% maximum on capacitance value measured at (+25°C)
Permissible Relative Humidity	Annual average ≤ 70%; 85% on 30 days/year randomly distributed throughout the year. Dewing not admissible.

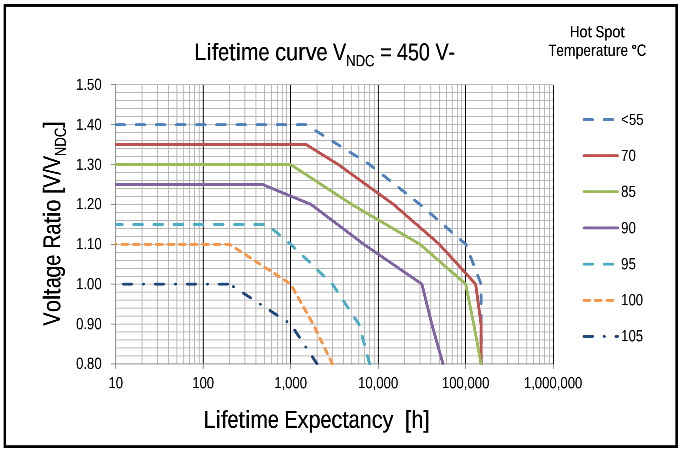
Life Expectancy

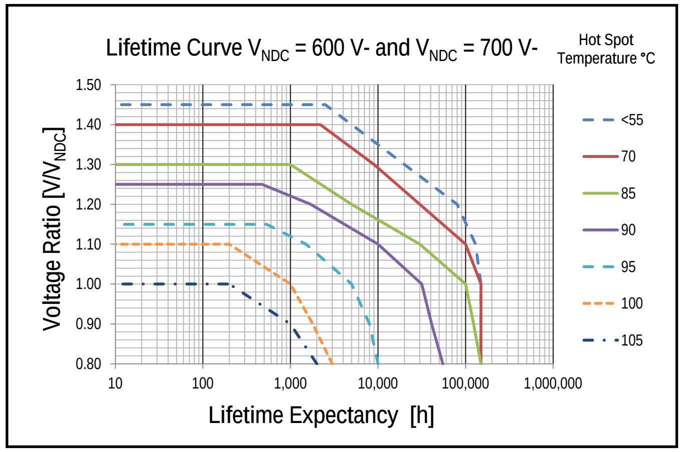
Life expectancy	100,000 hours at U_{NDC} at Hot-Spot temperature 85°C
Capacitance drop at end of life	−5% (typical)
Failure Rate IEC 61709	300 FIT at U_{NDC} at Hot-Spot temperature 85°C

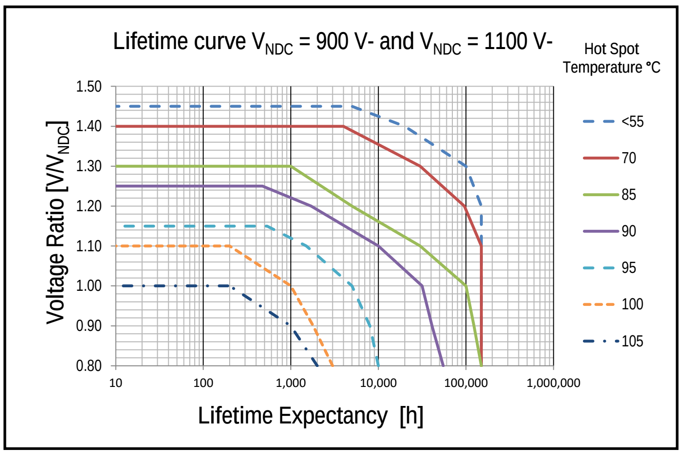
Test Methods

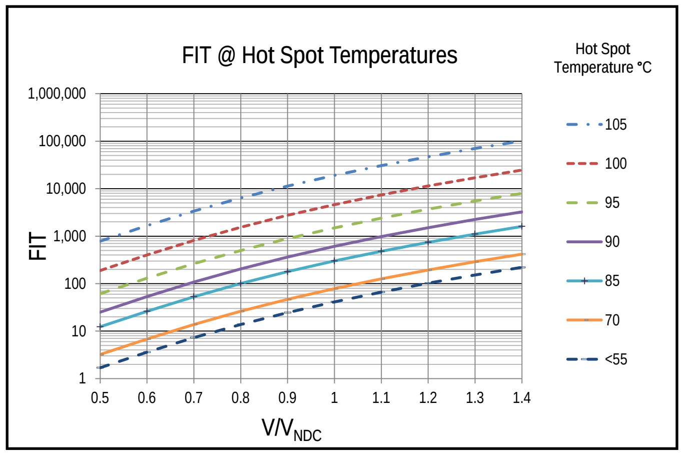
Test voltage between terminals	1.5 x U_{NDC} for 10 seconds or 1.65 U_{NDC} for 2 seconds at 25°C
Test voltage between terminals and case	3.2 kVac 50 Hz for 2 seconds
Damp Heat	IEC 60068–2–78
Change of Temperature	IEC 60068–2–14

Lifetime Expectancy/Failure Quota Graphs









Notes :

$T_{HS} = T_{AMB} + \Delta T$

$\Delta T = ESR * I_{rms}^2 * Rth$

I_{rms} *should be limited to values granting* $\Delta T \leq 30°C$

Table 1 – Ratings & Part Number Reference

Cap Value (µF)	VDC	Dimensions (mm)							dV/dt (V/µs)	Ripple Current 10 kHz 70°C (A)[1]	Peak Current (A)	ESR 10 kHz 70°C mΩ	ESL (nH)	Thermal Resistance (°C/W)	Part Number
		B	H	L	P	P1	P2	P3							
10	450	14	28	31.5	27.5	2.54			14	7.5	145	7.4	26	33	C4AEGBU5100P2YJ
30	450	20	40	41.5	37.5	7.62	12.7		10	13	298	4.1	30	20	C4AEGBW5300P4FJ
50	450	30	45	42	37.5	10.16	15.24	20.32	10	18	508	2.5	30	15	C4AEGBW5500P6LJ
100	450	35	50	57.5	52.5	15.24	20.32	25.4	7	22	677	2.6	35	10	C4AEGBW6100P6NJ
10	600	19	29	31.5	27.5	0	5.08		17	8.5	169	6.8	26	29	C4AEHBU5100P31J
30	600	28	37	42.5	37.5	15.24	20.32		11	14	337	3.6	30	18	C4AEHBW5300P4JJ
75	600	35	50	57.5	52.5	10.16	15.24	20.32	8	20.5	579	3.1	35	10	C4AEHBW5750P6NJ
5	700	14	28	31.5	27.5	2.54			19	6	96	10.7	26	33	C4AEJBU4500P2YJ
30	700	30	45	42	37.5	10.16	15.24	20.32	13	16.5	389	3.2	30	15	C4AEJBW5300P6LJ
60	700	35	50	57.5	52.5	15.24	20.32	25.4	9	19.5	530	3.4	35	10	C4AEJBW5600P6NJ
5	900	19	29	31.5	27.5	0	5.08		24	7	120	9.1	26	29	C4AEOBU4500P31J
20	900	30	45	42	37.5	10.16	15.24	20.32	16	15	321	3.9	30	15	C4AEOBW5200P6LJ
40	900	35	50	57.5	52.5	15.24	20.32	25.4	11	18	428	4	35	10	C4AEOBW5400P6NJ
5	1100	22	37	31.5	27.5	0	5.08		29	8.5	145	8.2	28	23	C4AEQBU4500P32J
20	1100	30	45	57.5	52.5	10.16	15.24	20.32	13	13	262	6.5	35	12	C4AEQBW5200P6MJ
27	1100	35	50	57.5	52.5	15.24	20.32	25.4	13	16.5	354	4.9	35	10	C4AEQBW5270P6NJ
Cap Value (µF)	VDC	B	H	L	P	P1	P2	P3	dV/dt (v/µs)	Ripple Current	Peak Current	ESR	ESL	Thermal Resistance	Part Number

[1] Current values that lead to a ΔT of ~15°C in the Hot Spot $T_{HS} = T_{AMB} + \Delta T = 70°C + 15°C = 85°C$
For Packaging quantities not listed, please contact KEMET.

Marking

KEMET CHARGED® → Manufacturers Logo
C4AEQBW5270PLNJ → Series Part Number
27µF±5% - 1100Vdc → Capacitance. Tolerance. Rated Voltage

Environmental Compliance

As a leading global supplier of electronic components and an environmentally conscious company, KEMET continually aspires to improve the environmental effects of our manufacturing processes and our finished electronic components.

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Dissipation Factor

Dissipation factor is a complex function involved with capacitor inefficiency. The tgδ may vary up and down with increased temperature. For more information, refer to Performance Characteristics.

Sealing

Hermetically Sealed Capacitors
As the temperature increases, the pressure inside the capacitor increases. If the internal pressure is high enough, it can cause a breach in the capacitor. Such a breach can result in leakage, impregnation, filling fluid, or moisture susceptibility.

Barometric Pressure
The altitude at which hermetically sealed capacitors are operated controls the capacitor's voltage rating. As the barometric pressure decreases, the susceptibility to terminal arc-over increases. Non-hermetic capacitors can be affected by internal stresses due to pressure changes. These effects can be in the form of capacitance changes, dielectric arc-over, and/or low insulation resistance. Altitude can also affect heat transfer. Heat that is generated in an operation cannot be dissipated properly, and high RI2 losses and eventual failure can result.

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