

C4DR, 400 – 3,000 VDC/160 – 1,000 VAC, for GTO Clamping

Overview

The C4DR capacitor is a polypropylene metallized film capacitor with a cylindrical, plastic box-type design filled with resin, and uses hole axial terminals.

Applications

Typical applications include snubber and clamping.

Benefits

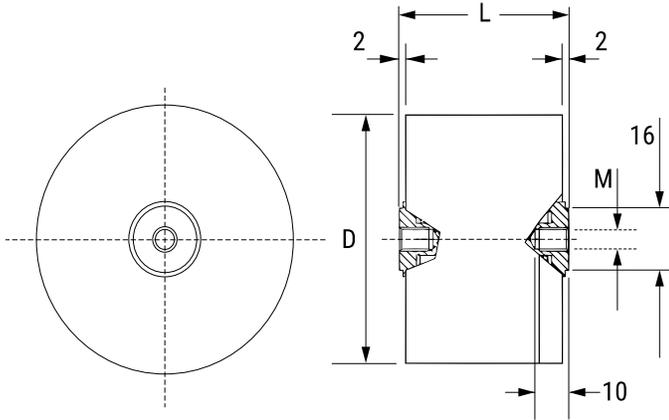
- Strong mounting
- High ripple current
- Medium frequency tuning
- Low inductance
- Self-healing



Part Number System

C4DR	F	A	Q	5250	AA0	J
Series	Rated Voltage (VDC)	Case	Terminal Style	Capacitance Code (pF)	Internal Code	Tolerance
C4DR = MKP, Clamping Application	F = 400 H = 600 J = 700 M = 850 P = 1,200 S = 1,500 Y = 3,000	A = Axial plastic case	Q = M8 threaded inserts	Digits 2 – 4 indicate the first three digits of the capacitance value. First digit indicates the number of zeros to be added.	AA0 = Standard	J = 5% K = 10%

Dimensions – Millimeters



D	L	Terminations (T)
Nominal	Nominal	
60	51	M8 x 10
72	51	M8 x 10
80	51	M8 x 10
90	51	M8 x 10
90	61	M8 x 10
90	99	M8 x 10
80	61	M8 x 10
80	99	M8 x 10
60	49	M8 x 10
80	49	M8 x 10
90	49	M8 x 10
90	59	M8 x 10

Qualifications

Reference Standards	VDE 0560, IEC 61071, EN 61071
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Performance Characteristics

IEC Climatic Category	40/85/56
Temperature Range	-40°C to +85°C
Capacitance Tolerance	±5%, ±10%
Peak Non-Repetitive Maximum Current	$I_{PKR} \times 1.5$
Test Voltage Terminal to Case (V_{TC})	3 kV – 50 Hz for 60 seconds
Dissipation Factor (DF)	$\leq 3 \times 10^{-4}$ at 1 kHz and 20°C
Acceptable Relative Humidity	Annual average $\leq 70\%$ $\leq 85\%$ for ≤ 30 intermittent days annually Dewing not admissible
Case Components	Solvent-resistant plastic case with resin sealing
Terminations	Tinned brass
Maximum Tightening Torque	10 Nm (M8)
Installation	Any position
Life Expectancy	$\geq 100,000$ hours at V_n
Failure Quota	300/10 ⁹ components per hour

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.

In Europe (RoHS Directive) and in some other geographical areas such as China (China RoHS), legislation has been enacted to prevent or otherwise limit the use of certain hazardous materials, including lead (Pb), in electronic equipment. KEMET monitors legislation globally to ensure compliance and endeavors to adjust our manufacturing processes and/or electronic components as may be required by applicable law.

For military, medical, automotive, and some commercial applications, the use of lead (Pb) in the termination is necessary and/or required by design. KEMET is committed to communicating RoHS compliance to our customers. Information related to RoHS compliance will be provided in data sheets and using specific identifiers on the packaging labels.

All KEMET power film capacitors are RoHS compliant.

Table 1 – Ratings & Part Number Reference

Cap Value (µF)	VDC	VAC	Peak VDC	Surge VDC	Maximum Dimensions (mm)		Ripple Current	Peak Current	ESR (Max)	Thermal Resistance	dV/dt (V/µs)	Packaging Quantity	Part Number
					D	L	100 kHz 70°C (A)	(A)	100 kHz (mΩ)	(°C/W)			
25	400	160	560	600	60	51	42	1,000	1.8	5.1	40	32	C4DRFAQ5250AA0(1)
30	400	160	560	600	72	51	49	1,200	1.5	4.1	40	30	C4DRFAQ5300AA0(1)
50	400	160	560	600	80	51	60	2,000	1.2	3.3	40	27	C4DRFAQ5500AA0(1)
75	400	160	560	600	90	51	70	3,000	1.1	2.8	40	18	C4DRFAQ5750AA0(1)
100	400	160	560	600	90	61	70	2,500	1.3	2.6	25	12	C4DRFAQ6100AA0(1)
110	400	160	560	600	90	61	70	2,560	1.5	2.2	25		C4DRFAQ6110AA0(1)
220	400	160	560	600	90	99	67	2,640	1.8	1.8	12	6	C4DRFAQ6220AA0(1)
12	600	220	840	900	60	51	37	600	2.2	5	50	48	C4DRHAQ5120AA0(1)
15	600	220	840	900	72	51	44	750	1.9	4.1	50	30	C4DRHAQ5150AA0(1)
20	600	220	840	900	72	51	48	1,000	1.6	4.1	50	30	C4DRHAQ5200AA0(1)
25	600	220	840	900	80	51	55	1,250	1.5	3.4	50	27	C4DRHAQ5250AA0(1)
33	600	220	840	900	90	51	64	1,650	1.3	2.8	50	18	C4DRHAQ5330AA0(1)
50	600	220	840	900	90	61	61	1,750	1.6	2.6	35	12	C4DRHAQ5500AA0(1)
100	600	220	840	900	90	99	58	1,500	2.4	1.8	15	12	C4DRHAQ6100AA0(1)
7.5	700	250	980	1,050	60	51	34	525	2.6	5	70	48	C4DRJQA4750AA0(1)
10	700	250	980	1,050	72	51	42	700	2.1	4	70	30	C4DRJQA5100AA0(1)
15	700	250	980	1,050	80	51	51	1,050	1.7	3.4	70	27	C4DRJQA5150AA0(1)
20	700	250	980	1,050	90	51	60	1,400	1.5	2.8	70	18	C4DRJQA5200AA0(1)
25	700	250	980	1,050	80	61	50	1,125	2	3.1	45	18	C4DRJQA5250AA0(1)
33	700	250	980	1,050	90	61	58	1,485	1.7	2.6	45	6	C4DRJQA5330AA0(1)
70	700	250	980	1,050	90	99	55	1,400	2.6	1.9	20	12	C4DRJQA5700AA0(1)
4	850	330	1,200	1,300	60	51	29	360	3.6	5	90	48	C4DRMAQ4400AA0(1)
5	850	330	1,200	1,300	60	51	32	450	3	4.9	90	48	C4DRMAQ4500AA0(1)
6	850	330	1,200	1,300	60	51	34	540	2.6	5	90	48	C4DRMAQ4600AA0(1)
7.5	850	330	1,200	1,300	72	51	41	675	2.2	4.1	90	30	C4DRMAQ4750AA0(1)
8	850	330	1,200	1,300	72	51	42	720	2.1	4	90	30	C4DRMAQ4800AA0(1)
10	850	330	1,200	1,300	80	61	49	900	1.9	3.3	90	18	C4DRMAQ5100AA0(1)
15	850	330	1,200	1,300	80	61	49	1,350	1.5	2.9	90	18	C4DRMAQ5150AA0(1)
20	850	330	1,200	1,300	80	61	49	1,100	2.1	3	55	18	C4DRMAQ5200AA0(1)
25	850	330	1,200	1,300	90	61	57	1,375	1.8	2.6	55	12	C4DRMAQ5250AA0(1)
60	850	330	1,200	1,300	90	99	54	1,500	2.7	1.9	25	6	C4DRMAQ5600AA0(1)
2.5	1,200	440	1,680	1,800	60	51	47	800	1.4	4.8	320	48	C4DRPAQ4250AA0(1)
3	1,200	440	1,680	1,800	72	51	54	960	1.3	4	320	30	C4DRPAQ4300AA0(1)
4	1,200	440	1,680	1,800	72	51	58	1,280	1.1	4	320	30	C4DRPAQ4400AA0(1)
5	1,200	440	1,680	1,800	80	51	64	1,600	1.1	3.3	320	27	C4DRPAQ4500AA0(1)
6	1,200	440	1,680	1,800	90	51	72	1,920	1	2.8	320	18	C4DRPAQ4600AA0(1)
8	1,200	440	1,680	1,800	80	61	65	1,520	1.2	3	190	18	C4DRPAQ4800AA0(1)
10	1,200	440	1,680	1,800	90	61	73	1,900	1.1	2.6	190	12	C4DRPAQ5100AA0(1)
12	1,200	440	1,680	1,800	90	61	74	2,190	1.1	2.6	190	12	C4DRPAQ5120AA0(1)
20	1,200	440	1,680	1,800	80	99	74	1,875	1.5	1.9	75	9	C4DRPAQ5200AA0(1)
25	1,200	440	1,680	1,800	90	99	74	1,875	1.5	1.9	75	6	C4DRPAQ5250AA0(1)
1	1,500	500	2,100	2,250	60	51	37	400	2.3	4.8	400	48	C4DRSAQ4100AA0(1)
2	1,500	500	2,100	2,250	72	51	51	800	1.5	3.9	400	27	C4DRSAQ4200AA0(1)
3	1,500	500	2,100	2,250	80	51	60	1,200	1.3	3.3	400	9	C4DRSAQ4300AA0(1)
4	1,500	500	2,100	2,250	90	51	69	1,600	1.1	2.8	400	18	C4DRSAQ4400AA0(1)
5	1,500	500	2,100	2,250	80	61	61	1,250	1.3	3	250	18	C4DRSAQ4500AA0(1)
7.5	1,500	500	2,100	2,250	90	61	71	1,875	1.2	2.5	250	6	C4DRSAQ4750AA0(1)
15	1,500	500	2,100	2,250	90	99	69	1,500	1.7	1.9	100	6	C4DRSAQ5150AA0(1)
0.25	3,000	1,000	4,000	4,200	60	49	20	170	7.2	4.2	700	48	C4DRYAQ3250AA0(1)
0.33	3,000	1,000	4,000	4,200	60	49	25	231	5.4	3.6	700	48	C4DRYAQ3330AA0(1)
0.47	3,000	1,000	4,000	4,200	60	49	25	376	2	9.6	800	48	C4DRYAQ3470AA0(1)
1	3,000	1,000	4,000	4,200	80	49	45	800	1.5	4	800	27	C4DRYAQ4100AA0(1)
1.25	3,000	1,000	4,000	4,200	90	49	50	1,000	1.2	4	800	18	C4DRYAQ4125AA0(1)
2.5	3,000	1,000	4,000	4,200	90	59	55	1,000	1	4	500	12	C4DRYAQ4250AA0(1)
4	3,000	1,000	4,000	4,200	90	99	50	1,000	1.5	3	250	6	C4DRYAQ4400AA0(1)
5	3,000	1,000	4,000	4,200	90	99	50	1,000	2	3	200	6	C4DRYAQ4500AA0(1)

(1) K = ±10%, J = ±5%

For Packaging quantities not listed contact KEMET

Materials & Environment

The selection of raw materials that KEMET uses for the production of its electronic components is the result of extensive experience. KEMET directs specific attention toward environmental protection. KEMET selects its suppliers according to ISO 9001 standards and performs statistical analyses on raw materials before acceptance for use in manufacturing our electronic components. All materials are, to the best of KEMET's knowledge, non-toxic and free from cadmium; mercury; chrome and compounds; polychlorine triphenyl (PCB); bromide and chlorinedioxins bromurate clorurate; CFC and HCFC; and asbestos.

Dissipation Factor

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

Sealing

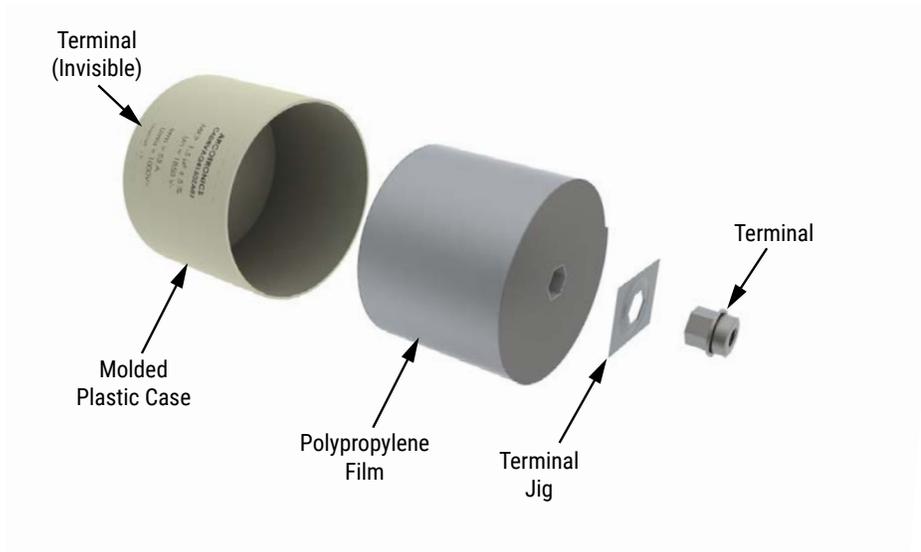
Hermetically Sealed Capacitors

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.

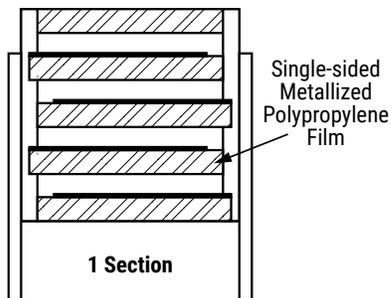
Barometric Pressure

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 $R\theta^2$ losses and eventual failure can result.

Construction



Winding Scheme



Marking



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