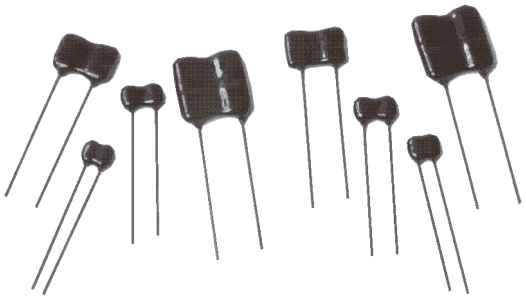
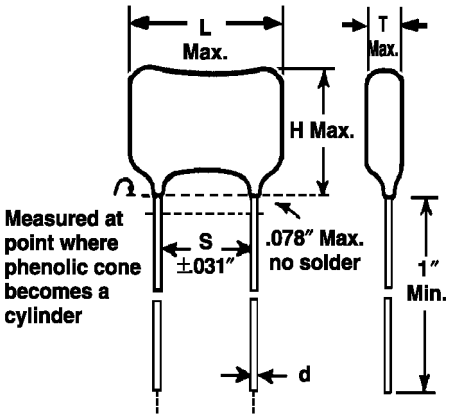
Type CMR , High-Reliability, Mica Capacitors

High-Reliability Dipped Capacitors/MIL-PRF-39001



Type CMR meets requirement of MIL-PRF-39001, Type CMR high-reliability dipped silvered mica capacitors are ideal for high-grade ground, airborne, and spaceborne devices, such as computers, jetcraft, and missiles.



Specifications

Voltage Range: 50 Vdc to 500 Vdc

Capacitance Range: 1 pF to 91,000 pF

Capacitance Tolerance: ±½ pF (D), ±1% (F), ±2% (G), ±5% (J)

Temperature Range: –55 ºC to +125 ºC (O), –55 ºC to 150 ºC (P)
P temperature range available only for CMR04, CMR05, CMR06, CMR07, CMR08

Reliability: Meets Requirements of MIL-PRF-39001
Established reliability to .01%/1,000 hours failure rate

Ratings and Dimensions

Cap (pF)	Catalog Part Number	L in (mm)	H in (mm)	T in (mm)	S in (mm)	d in (mm)
			50 Vdc			
22	CMR03E220DOYR	.270 (6.9)	.190 (4.8)	.110 (2.8)	.120 (3.0)	.016 (.4)
24	CMR03E240DOYR	.270 (6.9)	.190 (4.8)	.110 (2.8)	.120 (3.0)	.016 (.4)
27	CMR03E270JOYR	.270 (6.9)	.190 (4.8)	.110 (2.8)	.120 (3.0)	.016 (.4)
30	CMR03E300JOYR	.270 (6.9)	.190 (4.8)	.110 (2.8)	.120 (3.0)	.016 (.4)
33	CMR03E330JOYR	.270 (6.9)	.190 (4.8)	.110 (2.8)	.120 (3.0)	.016 (.4)
36	CMR03E360JOYR	.270 (6.9)	.190 (4.8)	.110 (2.8)	.120 (3.0)	.016 (.4)
39	CMR03E390JOYR	.270 (6.9)	.190 (4.8)	.120 (3.0)	.120 (3.0)	.016 (.4)
43	CMR03E430JOYR	.270 (6.9)	.190 (4.8)	.120 (3.0)	.120 (3.0)	.016 (.4)
47	CMR03E470JOYR	.270 (6.9)	.190 (4.8)	.120 (3.0)	.120 (3.0)	.016 (.4)
51	CMR03E510JOYR	.270 (6.9)	.190 (4.8)	.120 (3.0)	.120 (3.0)	.016 (.4)
56	CMR03E560JOYR	.270 (6.9)	.200 (5.1)	.120 (3.0)	.120 (3.0)	.016 (.4)
62	CMR03E620JOYR	.270 (6.9)	.200 (5.1)	.120 (3.0)	.120 (3.0)	.016 (.4)
68	CMR03E680JOYR	.270 (6.9)	.200 (5.1)	.120 (3.0)	.120 (3.0)	.016 (.4)
75	CMR03E750JOYR	.270 (6.9)	.200 (5.1)	.120 (3.0)	.120 (3.0)	.016 (.4)
82	CMR03E820JOYR	.270 (6.9)	.200 (5.1)	.120 (3.0)	.120 (3.0)	.016 (.4)
91	CMR03F910JOYR	.270 (6.9)	.200 (5.1)	.130 (3.3)	.120 (3.0)	.016 (.4)
100	CMR03F101JOYR	.270 (6.9)	.200 (5.1)	.130 (3.3)	.120 (3.0)	.016 (.4)
110	CMR03F111JOYR	.270 (6.9)	.200 (5.1)	.130 (3.3)	.120 (3.0)	.016 (.4)
120	CMR03F121JOYR	.270 (6.9)	.200 (5.1)	.130 (3.3)	.120 (3.0)	.016 (.4)
130	CMR03F131JOYR	.270 (6.9)	.210 (5.3)	.130 (3.3)	.120 (3.0)	.016 (.4)
150	CMR03F151JOYR	.270 (6.9)	.210 (5.3)	.140 (3.6)	.120 (3.0)	.016 (.4)
160	CMR03F161JOYR	.270 (6.9)	.210 (5.3)	.140 (3.6)	.120 (3.0)	.016 (.4)
180	CMR03F181JOYR	.270 (6.9)	.210 (5.3)	.140 (3.6)	.120 (3.0)	.016 (.4)
200	CMR03F201JOYR	.270 (6.9)	.220 (5.6)	.150 (3.8)	.120 (3.0)	.016 (.4)
220	CMR03F221JOYR	.270 (6.9)	.220 (5.6)	.150 (3.8)	.120 (3.0)	.016 (.4)
240	CMR03F241JOYR	.270 (6.9)	.220 (5.6)	.160 (4.1)	.120 (3.0)	.016 (.4)
270	CMR03F271JOYR	.270 (6.9)	.230 (5.8)	.160 (4.1)	.120 (3.0)	.016 (.4)
300	CMR03F301JOYR	.270 (6.9)	.230 (5.8)	.170 (4.3)	.120 (3.0)	.016 (.4)
330	CMR03F331JOYR	.270 (6.9)	.240 (6.1)	.180 (4.6)	.120 (3.0)	.016 (.4)
360	CMR03F361JOYR	.270 (6.9)	.240 (6.1)	.180 (4.6)	.120 (3.0)	.016 (.4)
390	CMR03F391JOYR	.270 (6.9)	.250 (6.4)	.190 (4.8)	.120 (3.0)	.016 (.4)
400	CMR03F401JOYR	.270 (6.9)	.250 (6.4)	.190 (4.8)	.120 (3.0)	.016 (.4)
			100 Vdc			
15	CMR03C150DOAR	.270 (6.9)	.190 (4.8)	.110 (2.8)	.120 (3.0)	.016 (.4)
18	CMR03C180DOAR	.270 (6.9)	.190 (4.8)	.110 (2.8)	.120 (3.0)	.016 (.4)
20	CMR03E200DOAR	.270 (6.9)	.190 (4.8)	.110 (2.8)	.120 (3.0)	.016 (.4)
22	CMR03E220DOAR	.270 (6.9)	.190 (4.8)	.120 (3.0)	.120 (3.0)	.016 (.4)
24	CMR03E240DOAR	.270 (6.9)	.190 (4.8)	.120 (3.0)	.120 (3.0)	.016 (.4)
27	CMR03E270JOAR	.270 (6.9)	.190 (4.8)	.120 (3.0)	.120 (3.0)	.016 (.4)
30	CMR03E300JOAR	.270 (6.9)	.200 (5.1)	.120 (3.0)	.120 (3.0)	.016 (.4)
33	CMR03E330JOAR	.270 (6.9)	.200 (5.1)	.120 (3.0)	.120 (3.0)	.016 (.4)

Type CMR , High-Reliability, Mica Capacitors

Cap (pF)	Catalog Part Number	L in (mm)	H in (mm)	T in (mm)	S in (mm)	d in (mm)
36	CMR03E360JOAR	.270 (6.9)	.200 (5.1)	.120 (3.0)	.120 (3.0)	.016 (.4)
39	CMR03E390JOAR	.270 (6.9)	.200 (5.1)	.120 (3.0)	.120 (3.0)	.016 (.4)
43	CMR03E430JOAR	.270 (6.9)	.200 (5.1)	.120 (3.0)	.120 (3.0)	.016 (.4)
47	CMR03E470JOAR	.270 (6.9)	.200 (5.1)	.130 (3.3)	.120 (3.0)	.016 (.4)
51	CMR03E510JOAR	.270 (6.9)	.200 (5.1)	.130 (3.3)	.120 (3.0)	.016 (.4)
56	CMR03E560JOAR	.270 (6.9)	.200 (5.1)	.130 (3.3)	.120 (3.0)	.016 (.4)
62	CMR03E620JOAR	.270 (6.9)	.210 (5.3)	.130 (3.3)	.120 (3.0)	.016 (.4)
68	CMR03E680JOAR	.270 (6.9)	.210 (5.3)	.140 (3.6)	.120 (3.0)	.016 (.4)
75	CMR03E750JOAR	.270 (6.9)	.210 (5.3)	.140 (3.6)	.120 (3.0)	.016 (.4)
82	CMR03E820JOAR	.270 (6.9)	.210 (5.3)	.140 (3.6)	.120 (3.0)	.016 (.4)
91	CMR03F910JOAR	.270 (6.9)	.210 (5.3)	.140 (3.6)	.120 (3.0)	.016 (.4)
100	CMR03F101JOAR	.270 (6.9)	.220 (5.6)	.150 (3.8)	.120 (3.0)	.016 (.4)
110	CMR03F111JOAR	.270 (6.9)	.220 (5.6)	.150 (3.8)	.120 (3.0)	.016 (.4)
120	CMR03F121JOAR	.270 (6.9)	.220 (5.6)	.160 (4.1)	.120 (3.0)	.016 (.4)
130	CMR03F131JOAR	.270 (6.9)	.230 (5.8)	.160 (4.1)	.120 (3.0)	.016 (.4)
150	CMR03F151JOAR	.270 (6.9)	.230 (5.8)	.170 (4.3)	.120 (3.0)	.016 (.4)
160	CMR03F161JOAR	.270 (6.9)	.240 (6.1)	.170 (4.3)	.120 (3.0)	.016 (.4)
170	CMR03F171JOAR	.270 (6.9)	.240 (6.1)	.180 (4.6)	.120 (3.0)	.016 (.4)
180	CMR03F181JOAR	.270 (6.9)	.240 (6.1)	.180 (4.6)	.120 (3.0)	.016 (.4)
200	CMR03F201JOAR	.270 (6.9)	.250 (6.4)	.190 (4.8)	.120 (3.0)	.016 (.4)
330	CMR04F331JOAR	.390 (9.9)	.380 (9.7)	.220 (5.6)	.150 (3.8)	.016 (.4)
360	CMR04F361JOAR	.390 (9.9)	.380 (9.7)	.220 (5.6)	.150 (3.8)	.016 (.4)
390	CMR04F391JOAR	.390 (9.9)	.380 (9.7)	.220 (5.6)	.150 (3.8)	.016 (.4)
75000	CMR08F753JOAR	1.47 (37.3)	.910 (23.1)	.440 (11.2)	1.05 (26.7)	.040 (1.02)
82000	CMR08F823JOAR	1.48 (37.6)	.920 (23.3)	.460 (11.7)	1.05 (26.7)	.040 (1.02)
91000	CMR08F913JOAR	1.50 (38.1)	.940 (23.9)	.500 (12.7)	1.05 (26.7)	.040 (1.02)
			300 Vdc			
1	CMR03C1R0DOCR	.270 (6.9)	.190 (4.8)	.110 (2.8)	.120 (3.0)	.016 (.4)
1.5	CMR03C1R5DOCR	.270 (6.9)	.190 (4.8)	.110 (2.8)	.120 (3.0)	.016 (.4)
2	CMR03C2R0DOCR	.270 (6.9)	.190 (4.8)	.110 (2.8)	.120 (3.0)	.016 (.4)
2.5	CMR03C2R5DOCR	.270 (6.9)	.190 (4.8)	.110 (2.8)	.120 (3.0)	.016 (.4)
3	CMR03C3R0DOCR	.270 (6.9)	.190 (4.8)	.110 (2.8)	.120 (3.0)	.016 (.4)
3.5	CMR03C3R5DOCR	.270 (6.9)	.190 (4.8)	.110 (2.8)	.120 (3.0)	.016 (.4)
4	CMR03C4R0DOCR	.270 (6.9)	.190 (4.8)	.110 (2.8)	.120 (3.0)	.016 (.4)
4.5	CMR03C4R5DOCR	.270 (6.9)	.190 (4.8)	.110 (2.8)	.120 (3.0)	.016 (.4)
5	CMR03C5R0DOCR	.270 (6.9)	.190 (4.8)	.110 (2.8)	.120 (3.0)	.016 (.4)
6	CMR03C6R0DOCR	.270 (6.9)	.190 (4.8)	.110 (2.8)	.120 (3.0)	.016 (.4)
7	CMR03C7R0DOCR	.270 (6.9)	.190 (4.8)	.110 (2.8)	.120 (3.0)	.016 (.4)
8	CMR03C8R0DOCR	.270 (6.9)	.190 (4.8)	.110 (2.8)	.120 (3.0)	.016 (.4)
9	CMR03C9R0DOCR	.270 (6.9)	.190 (4.8)	.110 (2.8)	.120 (3.0)	.016 (.4)
10	CMR03C100DOCR	.270 (6.9)	.190 (4.8)	.110 (2.8)	.120 (3.0)	.016 (.4)
11	CMR03C110DOCR	.270 (6.9)	.190 (4.8)	.110 (2.8)	.120 (3.0)	.016 (.4)
12	CMR03C120DOCR	.270 (6.9)	.190 (4.8)	.110 (2.8)	.120 (3.0)	.016 (.4)
15	CMR03C150DOCR	.270 (6.9)	.190 (4.8)	.120 (3.0)	.120 (3.0)	.016 (.4)
18	CMR03C180DOCR	.270 (6.9)	.200 (5.1)	.120 (3.0)	.120 (3.0)	.016 (.4)
20	CMR03E200DOCR	.270 (6.9)	.200 (5.1)	.120 (3.0)	.120 (3.0)	.016 (.4)
22	CMR03E220DOCR	.270 (6.9)	.200 (5.1)	.120 (3.0)	.120 (3.0)	.016 (.4)
24	CMR03E240DOCR	.270 (6.9)	.200 (5.1)	.120 (3.0)	.120 (3.0)	.016 (.4)
27	CMR03E270JOCR	.270 (6.9)	.200 (5.1)	.130 (3.3)	.120 (3.0)	.016 (.4)
30	CMR03E300JOCR	.270 (6.9)	.200 (5.1)	.130 (3.3)	.120 (3.0)	.016 (.4)
33	CMR03E330JOCR	.270 (6.9)	.200 (5.1)	.130 (3.3)	.120 (3.0)	.016 (.4)
36	CMR03E360JOCR	.270 (6.9)	.210 (5.3)	.130 (3.3)	.120 (3.0)	.016 (.4)
39	CMR03E390JOCR	.270 (6.9)	.210 (5.3)	.130 (3.3)	.120 (3.0)	.016 (.4)
43	CMR03E430JOCR	.270 (6.9)	.210 (5.3)	.140 (3.6)	.120 (3.0)	.016 (.4)
47	CMR03E470JOCR	.270 (6.9)	.210 (5.3)	.140 (3.6)	.120 (3.0)	.016 (.4)
51	CMR03E510JOCR	.270 (6.9)	.210 (5.3)	.140 (3.6)	.120 (3.0)	.016 (.4)
56	CMR03E560JOCR	.270 (6.9)	.220 (5.6)	.150 (3.8)	.120 (3.0)	.016 (.4)

Cap (pF)	Catalog Part Number	L in (mm)	H in (mm)	T in (mm)	S in (mm)	d in (mm)
62	CMR03E620JOCR	.270 (6.9)	.220 (5.6)	.150 (3.8)	.120 (3.0)	.016 (.4)
68	CMR03E680JOCR	.270 (6.9)	.220 (5.6)	.150 (3.8)	.120 (3.0)	.016 (.4)
75	CMR03E750JOCR	.270 (6.9)	.230 (5.8)	.160 (4.1)	.120 (3.0)	.016 (.4)
82	CMR03E820JOCR	.270 (6.9)	.230 (5.8)	.160 (4.1)	.120 (3.0)	.016 (.4)
91	CMR03F910JOCR	.270 (6.9)	.230 (5.8)	.170 (4.3)	.120 (3.0)	.016 (.4)
100	CMR03F101JOCR	.270 (6.9)	.240 (6.1)	.180 (4.6)	.120 (3.0)	.016 (.4)
110	CMR03F111JOCR	.270 (6.9)	.240 (6.1)	.180 (4.6)	.120 (3.0)	.016 (.4)
120	CMR03F121JOCR	.270 (6.9)	.250 (6.4)	.190 (4.8)	.120 (3.0)	.016 (.4)
270	CMR04F271JOCR	.390 (9.9)	.380 (9.7)	.220 (5.6)	.150 (3.8)	.016 (.4)
300	CMR04F301JOCR	.390 (9.9)	.380 (9.7)	.220 (5.6)	.150 (3.8)	.016 (.4)
56000	CMR08F563JOCR	1.46 (37.1)	.910 (23.1)	.420 (10.7)	1.05 (26.7)	.040 (1.02)
62000	CMR08F623JOCR	1.47 (37.3)	.920 (23.3)	.450 (11.4)	1.05 (26.7)	.040 (1.02)
68000	CMR08F683JOCR	1.48 (37.6)	.920 (23.3)	.470 (11.9)	1.05 (26.7)	.040 (1.02)
			500 Vdc			
1	CMR04C1R0DODR	.360 (9.1)	.330 (8.4)	.190 (4.8)	.150 (3.8)	.016 (.4)
1	CMR05C1R0DODR	.450 (11.4)	.360 (9.1)	.170 (4.3)	.225 (5.7)	.025 (.6)
1.5	CMR04C1R5DODR	.360 (9.1)	.330 (8.4)	.190 (4.8)	.150 (3.8)	.016 (.4)
1.5	CMR05C1R5DODR	.450 (11.4)	.360 (9.1)	.170 (4.3)	.225 (5.7)	.025 (.6)
2	CMR04C2R0DODR	.360 (9.1)	.330 (8.4)	.190 (4.8)	.150 (3.8)	.016 (.4)
2	CMR05C2R0DODR	.450 (11.4)	.360 (9.1)	.170 (4.3)	.225 (5.7)	.025 (.6)
2.5	CMR04C2R5DODR	.360 (9.1)	.330 (8.4)	.190 (4.8)	.150 (3.8)	.016 (.4)
2.5	CMR05C2R5DODR	.450 (11.4)	.360 (9.1)	.170 (4.3)	.225 (5.7)	.025 (.6)
3	CMR04C3R0DODR	.360 (9.1)	.330 (8.4)	.190 (4.8)	.150 (3.8)	.016 (.4)
3	CMR05C3R0DODR	.450 (11.4)	.360 (9.1)	.170 (4.3)	.225 (5.7)	.025 (.6)
3.5	CMR04C3R5DODR	.360 (9.1)	.330 (8.4)	.190 (4.8)	.150 (3.8)	.016 (.4)
3.5	CMR05C3R5DODR	.450 (11.4)	.360 (9.1)	.170 (4.3)	.225 (5.7)	.025 (.6)
4	CMR04C4R0DODR	.360 (9.1)	.330 (8.4)	.190 (4.8)	.150 (3.8)	.016 (.4)
4	CMR05C4R0DODR	.450 (11.4)	.360 (9.1)	.170 (4.3)	.225 (5.7)	.025 (.6)
4.5	CMR04C4R5DODR	.360 (9.1)	.330 (8.4)	.190 (4.8)	.150 (3.8)	.016 (.4)
4.5	CMR05C4R5DODR	.450 (11.4)	.360 (9.1)	.170 (4.3)	.225 (5.7)	.025 (.6)
5	CMR04C5R0DODR	.360 (9.1)	.330 (8.4)	.190 (4.8)	.150 (3.8)	.016 (.4)
5	CMR05C5R0DODR	.450 (11.4)	.360 (9.1)	.170 (4.3)	.225 (5.7)	.025 (.6)
6	CMR04C6R0DODR	.360 (9.1)	.330 (8.4)	.190 (4.8)	.150 (3.8)	.016 (.4)
6	CMR05C6R0DODR	.450 (11.4)	.360 (9.1)	.170 (4.3)	.225 (5.7)	.025 (.6)
7	CMR04C7R0DODR	.360 (9.1)	.330 (8.4)	.190 (4.8)	.150 (3.8)	.016 (.4)
7	CMR05C7R0DODR	.450 (11.4)	.360 (9.1)	.170 (4.3)	.225 (5.7)	.025 (.6)
8	CMR04C8R0DODR	.360 (9.1)	.330 (8.4)	.190 (4.8)	.150 (3.8)	.016 (.4)
8	CMR05C8R0DODR	.450 (11.4)	.360 (9.1)	.170 (4.3)	.225 (5.7)	.025 (.6)
9	CMR04C9R0DODR	.360 (9.1)	.330 (8.4)	.190 (4.8)	.150 (3.8)	.016 (.4)
9	CMR05C9R0DODR	.450 (11.4)	.360 (9.1)	.170 (4.3)	.225 (5.7)	.025 (.6)
10	CMR04C100DODR	.360 (9.1)	.330 (8.4)	.190 (4.8)	.150 (3.8)	.016 (.4)
10	CMR05C100DODR	.450 (11.4)	.360 (9.1)	.170 (4.3)	.225 (5.7)	.025 (.6)
11	CMR04C110DODR	.360 (9.1)	.330 (8.4)	.190 (4.8)	.150 (3.8)	.016 (.4)
11	CMR05C110DODR	.450 (11.4)	.360 (9.1)	.170 (4.3)	.225 (5.7)	.025 (.6)
12	CMR04C120JODR	.360 (9.1)	.330 (8.4)	.190 (4.8)	.150 (3.8)	.016 (.4)
12	CMR05C120JODR	.450 (11.4)	.360 (9.1)	.170 (4.3)	.225 (5.7)	.025 (.6)
15	CMR04C150JODR	.360 (9.1)	.330 (8.4)	.190 (4.8)	.150 (3.8)	.016 (.4)
15	CMR05C150JODR	.450 (11.4)	.360 (9.1)	.170 (4.3)	.225 (5.7)	.025 (.6)
18	CMR04C180JODR	.360 (9.1)	.330 (8.4)	.190 (4.8)	.150 (3.8)	.016 (.4)
18	CMR05C180JODR	.450 (11.4)	.360 (9.1)	.170 (4.3)	.225 (5.7)	.025 (.6)
20	CMR04E200JODR	.360 (9.1)	.330 (8.4)	.190 (4.8)	.150 (3.8)	.016 (.4)
20	CMR05E200JODR	.450 (11.4)	.360 (9.1)	.170 (4.3)	.225 (5.7)	.025 (.6)
22	CMR04E220JODR	.360 (9.1)	.330 (8.4)	.190 (4.8)	.150 (3.8)	.016 (.4)
22	CMR05E220J0DR	.450 (11.4)	.360 (9.1)	.170 (4.3)	.225 (5.7)	.025 (.6)
24	CMR04E240JODR	.360 (9.1)	.330 (8.4)	.190 (4.8)	.150 (3.8)	.016 (.4)
24	CMR05E240JODR	.450 (11.4)	.360 (9.1)	.170 (4.3)	.225 (5.7)	.025 (.6)
27	CMR04E270JODR	.370 (9.4)	.330 (8.4)	.190 (4.8)	.150 (3.8)	.016 (.4)

Cap (pF)	Catalog Part Number	L in (mm)	H in (mm)	T in (mm)	S in (mm)	d in (mm)
27	CMR05E270JODR	.450 (11.4)	.360 (9.1)	.170 (4.3)	.225 (5.7)	.025 (.6)
30	CMR04E300JODR	.370 (9.4)	.340 (8.6)	.190 (4.8)	.150 (3.8)	.016 (.4)
30	CMR05E300JODR	.450 (11.4)	.360 (9.1)	.170 (4.3)	.225 (5.7)	.025 (.6)
33	CMR04E330JODR	.370 (9.4)	.340 (8.6)	.190 (4.8)	.150 (3.8)	.016 (.4)
33	CMR05E330JODR	.450 (11.4)	.360 (9.1)	.170 (4.3)	.225 (5.7)	.025 (.6)
36	CMR04E360JODR	.370 (9.4)	.340 (8.6)	.190 (4.8)	.150 (3.8)	.016 (.4)
36	CMR05E360JODR	.450 (11.4)	.360 (9.1)	.170 (4.3)	.225 (5.7)	.025 (.6)
39	CMR04E390JODR	.370 (9.4)	.340 (8.6)	.190 (4.8)	.150 (3.8)	.016 (.4)
39	CMR05E390JODR	.450 (11.4)	.360 (9.1)	.170 (4.3)	.225 (5.7)	.025 (.6)
43	CMR04E430JODR	.370 (9.4)	.340 (8.6)	.190 (4.8)	.150 (3.8)	.016 (.4)
43	CMR05E430JODR	.450 (11.4)	.360 (9.1)	.170 (4.3)	.225 (5.7)	.025 (.6)
47	CMR04E470JODR	.370 (9.4)	.340 (8.6)	.190 (4.8)	.150 (3.8)	.016 (.4)
47	CMR05E470JODR	.450 (11.4)	.360 (9.1)	.170 (4.3)	.225 (5.7)	.025 (.6)
51	CMR04E510JODR	.370 (9.4)	.340 (8.6)	.190 (4.8)	.150 (3.8)	.016 (.4)
51	CMR05E510JODR	.450 (11.4)	.360 (9.1)	.170 (4.3)	.225 (5.7)	.025 (.6)
56	CMR04E560JODR	.370 (9.4)	.340 (8.6)	.190 (4.8)	.150 (3.8)	.016 (.4)
56	CMR05E560JODR	.450 (11.4)	.360 (9.1)	.170 (4.3)	.225 (5.7)	.025 (.6)
62	CMR04E620JODR	.370 (9.4)	.340 (8.6)	.190 (4.8)	.150 (3.8)	.016 (.4)
62	CMR05E620JODR	.450 (11.4)	.360 (9.1)	.170 (4.3)	.225 (5.7)	.025 (.6)
68	CMR04E680JODR	.370 (9.4)	.340 (8.6)	.190 (4.8)	.150 (3.8)	.016 (.4)
68	CMR05E680JODR	.450 (11.4)	.360 (9.1)	.180 (4.6)	.225 (5.7)	.025 (.6)
75	CMR04E750JODR	.370 (9.4)	.340 (8.6)	.200 (5.1)	.150 (3.8)	.016 (.4)
75	CMR05E750JODR	.450 (11.4)	.360 (9.1)	.180 (4.6)	.225 (5.7)	.025 (.6)
82	CMR04E820JODR	.370 (9.4)	.350 (8.9)	.200 (5.1)	.150 (3.8)	.016 (.4)
82	CMR05E820JODR	.450 (11.4)	.360 (9.1)	.180 (4.6)	.225 (5.7)	.025 (.6)
91	CMR04F910JODR	.370 (9.4)	.350 (8.9)	.200 (5.1)	.150 (3.8)	.016 (.4)
91	CMR05F910JODR	.460 (11.7)	.360 (9.1)	.180 (4.6)	.225 (5.7)	.025 (.6)
100	CMR04F101JODR	.370 (9.4)	.350 (8.9)	.200 (5.1)	.150 (3.8)	.016 (.4)
100	CMR05F101JODR	.460 (11.7)	.360 (9.1)	.180 (4.6)	.225 (5.7)	.025 (.6)
110	CMR04F111JODR	.380 (9.7)	.350 (8.9)	.200 (5.1)	.150 (3.8)	.016 (.4)
110	CMR05F111JODR	.460 (11.7)	.370 (9.4)	.180 (4.6)	.225 (5.7)	.025 (.6)
120	CMR04F121JODR	.380 (9.7)	.350 (8.9)	.200 (5.1)	.150 (3.8)	.016 (.4)
120	CMR05F121JODR	.460 (11.7)	.370 (9.4)	.180 (4.6)	.225 (5.7)	.025 (.6)
130	CMR04F131JODR	.380 (9.7)	.360 (9.1)	.200 (5.1)	.150 (3.8)	.016 (.4)
130	CMR05F131JODR	.460 (11.7)	.370 (9.4)	.180 (4.6)	.225 (5.7)	.025 (.6)
150	CMR04F151JODR	.380 (9.7)	.360 (9.1)	.210 (5.3)	.150 (3.8)	.016 (.4)
150	CMR05F151JODR	.460 (11.7)	.370 (9.4)	.190 (4.8)	.225 (5.7)	.025 (.6)
160	CMR04F161JODR	.380 (9.7)	.360 (9.1)	.210 (5.3)	.150 (3.8)	.016 (.4)
160	CMR05F161JODR	.460 (11.7)	.370 (9.4)	.190 (4.8)	.225 (5.7)	.025 (.6)
180	CMR04F181JODR	.380 (9.7)	.370 (9.4)	.210 (5.3)	.150 (3.8)	.016 (.4)
180	CMR05F181JODR	.460 (11.7)	.370 (9.4)	.190 (4.8)	.225 (5.7)	.025 (.6)
200	CMR04F201JODR	.390 (9.9)	.380 (9.7)	.220 (5.6)	.150 (3.8)	.016 (.4)
200	CMR05F201JODR	.460 (11.7)	.380 (9.7)	.190 (4.8)	.225 (5.7)	.025 (.6)
220	CMR04F221JODR	.390 (9.9)	.380 (9.7)	.220 (5.6)	.150 (3.8)	.016 (.4)
220	CMR05F221JODR	.460 (11.7)	.380 (9.7)	.200 (5.1)	.225 (5.7)	.025 (.6)
240	CMR04F241JODR	.390 (9.9)	.380 (9.7)	.220 (5.6)	.150 (3.8)	.016 (.4)
240	CMR05F241JODR	.460 (11.7)	.380 (9.7)	.200 (5.1)	.225 (5.7)	.025 (.6)
270	CMR05F271JODR	.470 (11.9)	.390 (9.9)	.210 (5.3)	.225 (5.7)	.025 (.6)
300	CMR05F301JODR	.470 (11.9)	.390 (9.9)	.210 (5.3)	.225 (5.7)	.025 (.6)
330	CMR05F331JODR	.470 (11.9)	.390 (9.9)	.210 (5.3)	.225 (5.7)	.025 (.6)
360	CMR05F361JODR	.470 (11.9)	.400 (10.2)	.220 (5.6)	.225 (5.7)	.025 (.6)
390	CMR05F391JODR	.470 (11.9)	.400 (10.2)	.220 (5.6)	.225 (5.7)	.025 (.6)
430	CMR06F431JODR	.640 (16.3)	.510 (13.0)	.200 (5.1)	.350 (8.9)	.032 (.8)
470	CMR06F471JODR	.640 (16.3)	.510 (13.0)	.200 (5.1)	.350 (8.9)	.032 (.8)
510	CMR06F511JODR	.650 (16.5)	.510 (13.0)	.200 (5.1)	.350 (8.9)	.032 (.8)
560	CMR06F561JODR	.650 (16.5)	.510 (13.0)	.200 (5.1)	.350 (8.9)	.032 (.8)
620	CMR06F621JODR	.650 (16.5)	.510 (13.0)	.200 (5.1)	.350 (8.9)	.032 (.8)
680	CMR06F681JODR	.650 (16.5)	.510 (13.0)	.210 (5.3)	.350 (8.9)	.032 (.8)
750	CMR06F751JODR	.650 (16.5)	.510 (13.0)	.210 (5.3)	.350 (8.9)	.032 (.8)
820	CMR06F821JODR	.650 (16.5)	.510 (13.0)	.210 (5.3)	.350 (8.9)	.032 (.8)
1000	CMR06F102JODR	.650 (16.5)	.520 (13.2)	.220 (5.6)	.350 (8.9)	.032 (.8)
1100	CMR06F112JODR	.650 (16.5)	.520 (13.2)	.220 (5.6)	.350 (8.9)	.032 (.8)
1200	CMR06F122JODR	.660 (16.8)	.520 (13.2)	.220 (5.6)	.350 (8.9)	.032 (.8)
1300	CMR06F132JODR	.660 (16.8)	.520 (13.2)	.220 (5.6)	.350 (8.9)	.032 (.8)
1500	CMR06F152JODR	.660 (16.8)	.520 (13.2)	.230 (5.8)	.350 (8.9)	.032 (.8)
1600	CMR06F162JODR	.660 (16.8)	.530 (13.5)	.230 (5.8)	.350 (8.9)	.032 (.8)
1800	CMR06F182JODR	.670 (17.0)	.530 (13.5)	.240 (6.1)	.350 (8.9)	.032 (.8)
2000	CMR06F202JODR	.670 (17.0)	.530 (13.5)	.240 (6.1)	.350 (8.9)	.032 (.8)
2200	CMR06F222JODR	.670 (17.0)	.530 (13.5)	.250 (6.4)	.350 (8.9)	.032 (.8)
2400	CMR06F242JODR	.670 (17.0)	.540 (13.7)	.260 (6.6)	.350 (8.9)	.032 (.8)
2700	CMR06F272JODR	.680 (17.3)	.540 (13.7)	.270 (6.9)	.350 (8.9)	.032 (.8)
3000	CMR06F302JODR	.680 (17.3)	.550 (14.0)	.280 (7.1)	.350 (8.9)	.032 (.8)
3300	CMR06F332JODR	.680 (17.3)	.550 (14.0)	.290 (7.4)	.350 (8.9)	.032 (.8)
3600	CMR06F362JODR	.680 (17.3)	.560 (14.2)	.300 (7.6)	.350 (8.9)	.032 (.8)
3900	CMR06F392JODR	.690 (17.5)	.560 (14.2)	.310 (7.9)	.350 (8.9)	.032 (.8)
4300	CMR06F432JODR	.690 (17.5)	.570 (14.5)	.330 (8.4)	.350 (8.9)	.032 (.8)
4700	CMR06F472JODR	.700 (17.8)	.580 (14.7)	.350 (8.9)	.350 (8.9)	.032 (.8)
5100	CMR07F512JODR	.780 (19.8)	.860 (21.8)	.280 (7.1)	.425 (10.8)	.040 (1.0)
5600	CMR07F562JODR	.780 (19.8)	.870 (22.1)	.290 (7.4)	.425 (10.8)	.040 (1.0)
6200	CMR07F622JODR	.780 (19.8)	.870 (22.1)	.290 (7.4)	.425 (10.8)	.040 (1.0)
6800	CMR07F682JODR	.780 (19.8)	.870 (22.1)	.300 (7.6)	.425 (10.8)	.040 (1.0)
7500	CMR07F752JODR	.790 (20.1)	.880 (22.4)	.310 (7.9)	.425 (10.8)	.040 (1.0)
8200	CMR07F822JODR	.790 (20.1)	.880 (22.4)	.320 (8.1)	.425 (10.8)	.040 (1.0)
9100	CMR07F912JODR	.790 (20.1)	.880 (22.4)	.330 (8.4)	.425 (10.8)	.040 (1.0)
10000	CMR07F103JODR	.800 (20.3)	.890 (22.6)	.340 (8.6)	.425 (10.8)	.040 (1.0)
11000	CMR07F113JODR	.800 (20.3)	.890 (22.6)	.350 (8.9)	.425 (10.8)	.040 (1.0)
12000	CMR07F123JODR	.800 (20.3)	.890 (22.6)	.360 (9.1)	.425 (10.8)	.040 (1.0)
13000	CMR07F133JODR	.810 (20.6)	.890 (22.6)	.370 (9.4)	.425 (10.8)	.040 (1.0)
15000	CMR07F153JODR	.810 (20.6)	.900 (22.9)	.390 (9.9)	.425 (10.8)	.040 (1.0)
16000	CMR07F163JODR	.820 (20.8)	.900 (22.9)	.410 (10.4)	.425 (10.8)	.040 (1.0)
18000	CMR07F183JODR	.820 (20.8)	.910 (23.1)	.430 (10.9)	.425 (10.8)	.040 (1.0)
22000	CMR08F223JODR	1.42 (36.1)	.880 (22.4)	.310 (7.9)	1.05 (26.7)	.040 (1.02)
24000	CMR08F243JODR	1.43 (36.3)	.880 (22.4)	.320 (8.1)	1.05 (26.7)	.040 (1.02)
27000	CMR08F273JODR	1.43 (36.3)	.880 (22.4)	.330 (8.4)	1.05 (26.7)	.040 (1.02)
30000	CMR08F303JODR	1.44 (36.6)	.890 (22.6)	.350 (8.9)	1.05 (26.7)	.040 (1.02)
33000	CMR08F333JODR	1.44 (36.6)	.890 (22.6)	.360 (9.1)	1.05 (26.7)	.040 (1.02)
36000	CMR08F363JODR	1.45 (36.8)	.900 (22.9)	.380 (9.7)	1.05 (26.7)	.040 (1.02)
39000	CMR08F393JODR	1.45 (36.8)	.900 (22.9)	.400 (10.2)	1.05 (26.7)	.040 (1.02)
43000	CMR08F433JODR	1.46 (37.1)	.910 (23.1)	.420 (10.7)	1.05 (26.7)	.040 (1.02)
47000	CMR08F473JODR	1.47 (37.3)	.910 (23.1)	.450 (11.4)	1.05 (26.7)	.040 (1.02)
51000	CMR08F513JODR	1.48 (37.6)	.920 (23.3)	.470 (11.9)	1.05 (26.7)	.040 (1.02)

Type CMR , High-Reliability, Mica Capacitors

Specifications

Capacitance is within tolerance when measured at these frequencies:

1 - 1000 pF @ 1 MHz
> 1000 pF @ 1 Khz

Dissipation Factor limits are below. Measure dissipation factor at 1 MHz when the capacitance is 1 pF to 1000 pF, and at 1 kHz when the capacitance is greater than 1000 pF. Dissipation factor is equal to DF = $2\pi fRC$, where f is the test frequency, R is the equivalent series resistance, and C is the capacitance. For other capacitance values, see Figure 1.

Capacitance	Dissipation Factor
100-1000 pF	0.00075 max at 1 MHz
1100-3300 pF	0.0014 max at 1 kHz
3600-9100 pF	0.0013 max at 1 kHz
10,000 pF	0.0012 max at 1 kHz

Quality Factor (Q) is the reciprocal of dissipation factor.

Insulation Resistance for capacitances up to 10,000 pF is greater than 100 G. at 25 °C, greater then 10 G. at 125 °C, and greater than 5 G. at 150 °C. For other capacitance values and temperatures, see Figure 2.

Withstanding Voltage is two times the rated voltage, and can be applied up to 5 seconds without damage.

Temperature Coefficient and Capacitance Drift measure the capacitors' capacitance at 25 °C, -55 °C, 25 °C, 125 °C (or 150 °C) and at 25 °C after stabilizing at each temperature. The capaciance will meet the limits of the Characteristic table shown in Ordering Information.

Failure Rate: Type CMR capacitors have specified failure rate levels ranging from 0.01% to 1.0% per 1000 hours. The failure rate level is established at 90% confidence level and is referred to operational life at full rated voltage at maximum rated temperature.

High Voltage Stabilization: We subject capacitors with Failure Levels M, P, and R to a burn-in at twice rated voltage, at rated temperature, for a minimum of 48 hours. Capacitors that show damage, arcing, breakdown, or low IR are removed. We reject the lot if more then 8% of the capacitors fail.

Solderability: After an 8-hour steam aging, coat leads with a rosin flux (R) and immerse in molten 245 °C ±5 °C 60/40 tin/lead solder. Solder coverage will be no less than 95% when examined at 10X magnification.

Life Test: Subject the capacitors to maximum operating temperature (+125 °C or +150 °C) with 1.5 times rated voltage applied for 10,000 hours. Take readings and make visual observations every 2000 hours. There will be no visual damage and the capacitors will meet the after-test limits on the following page.

Resistance to Solvents: Subject the capacitors to three cycles of 3 minute immersion in solvent, 10 strokes with bristle brush and, where applicable, ½ minute in vapor, per MIL-STD-202, Method 215. Repeat the three cycles for three solvent mixtures: Isolpropyl alchol mixture (Solvent 1), azeotrope mixture (Solvent 3), and water/propylene-glycol mixture (Solvent 4). The marking will not rub off or smear and there will be no visible damage to the capacitor body. Refer to MIL-STD-202 for details.

Resistance to Soldering Heat: Capacitors will meet the requirements of MIL-STD-202, Method 210 Test Condition G. Immerse capacitor leads to within .250 inches (6.4 mm) of the body in molten tin/lead solder (260 °C ±5 °C) for 10 ±2 seconds. Allow to cool. Capacitors will meet the after-test limits on the following page.

Marking of capacitors conforms to method I of MIL-STD-1285, and includes the type designation, "JAN," brand, trademark, source code, date code, rated voltage, capacitance, capacitance tolerance, and the highest rated temperature. Small capacitors are marked with the letter "J".

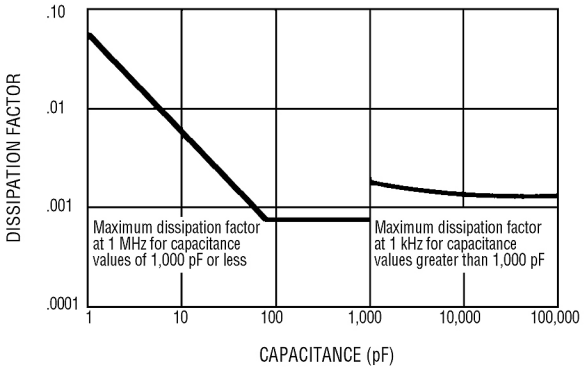


Figure 1. DF vs. Capacitance

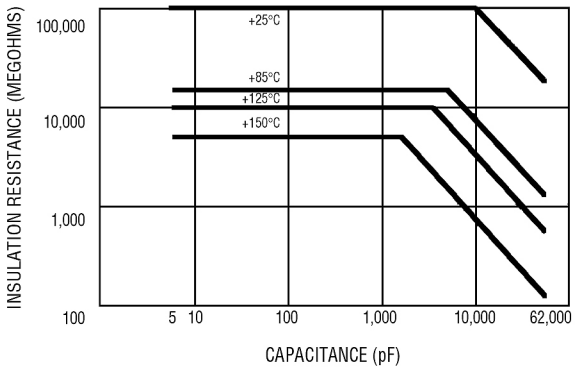
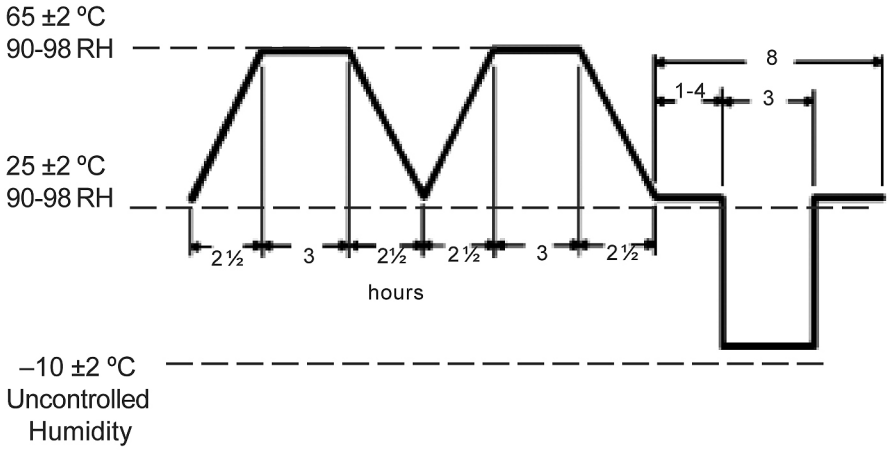


Figure 2. IR vs. Capacitance

Moisture Resistance: Capacitors will meet the requirements of MIL-STD-202, Method 106F as outlined here and diagrammed on the right. Apply 100 V or the rated voltage (whichever is less) to half of the capacitors. Don't apply voltage to the other half. Refer to MIL-STD-202 for details.

1. Dry capacitors for 24 hours in a 50±2 °C oven and then allow to stabilize at room temperature.
2. Subject the capacitors to 20 24-hour continuous cycles with relative humidity and temperature as shown.
3. 4 to 24 hours after completion of the last cycle the capacitors will show no visual damage and will meet the after-test limits below.



After-Test Limits

Test	Withstand Voltage	Insulation Resistance	Capacitance Change (whichever is greater)	DF	Q
Moisture Resistance	IL	30 GΩ	NV±1% or ±1 pF	150% IL	2/3xIL
Life Test	IL	IL	NV±1% or ±1 pF	150% IL	2/3xIL
Solder Heat	IL	IL	IV±5% or ±5pF	IL	IL

IL=Initial Limit NV=Nominal Value IV=Initial Value

Ordering Information

Order by complete part number, as below.
For other options, write your requirements on your quote request.

Part Numbering System

CMR05 C 100 J P D R

CDE Type

Characteristic

	Temp. Coeff. ppm/°C	CapacitanceDrift	Standard Cap. Range
C	–200 to +200	±(0.5% +0.1pF)	1 – 18 pF
E	–20 to +100	±(0.1% +0.1pF)	20 – 82 pF
F	0 to + 70	±(0.05% +0.1pF)	91 pF and up

Capacitance
1R0 = 1.0pF
361 = 360pF
122 = 1200pF

Capacitance Tolerance
D = ±.5 pf
F = ±1%
G = ±2%
J = ±5%

Temperature Range
O = –55 °C to +125 °C
P = –55 °C to +150 °C*

Voltage
Y = 50 Vdc
A = 100 Vdc
C = 300 Vdc
D = 500 Vdc

Failure Rate
M = 1.0%/1000 hrs.
P = .1%/1000 hrs.
R = .01%/1000 hrs.

*P temperature range available for CMR04, CMR05, CMR06, CMR07, CMR08

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