

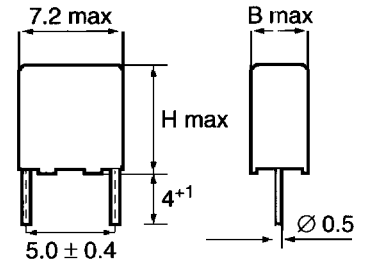
CFR Polycarbonate film capacitor

Typical applications

Applications requiring low temperature dependence. Small sized film/foil capacitor.

Construction

Capacitor with polycarbonate film and metal foil electrodes. Radial leads of tinned wire are electrically welded to the winding. Encapsulated in an epoxy resin sealed flame-resistant plastic case.



General data

Technical data in accordance with	IEC 384-12						
Capacitance and rated voltage	<p>Capacitance measured at $f=1\text{kHz}$, $T=23^\circ\text{C}$. For $C \leq 1000\text{ pF}$, $f = 100\text{ kHz}$. DC test voltage = $2 \times U_R$ for 2s.</p> <table border="0"> <tr> <td>100 ... 15 000 pF</td> <td>100VDC/63VAC</td> </tr> <tr> <td>100 ... 3 300 pF</td> <td>250VDC/160VAC</td> </tr> <tr> <td>100 ... 1 500 pF</td> <td>400VDC/200VAC</td> </tr> </table>	100 ... 15 000 pF	100VDC/63VAC	100 ... 3 300 pF	250VDC/160VAC	100 ... 1 500 pF	400VDC/200VAC
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100 ... 3 300 pF	250VDC/160VAC						
100 ... 1 500 pF	400VDC/200VAC						
Capacitance tolerance	<p>$\pm 10\%$, $\pm 5\%$, $\pm 2.5\%$. Closer tolerances available in different case format.</p>						
Temperature range Operating:	<p>$-55 \dots +125^\circ\text{C}$ Above $+85^\circ\text{C}$ DC and AC voltage derating is $1.25\%/^\circ\text{C}$.</p>						
Climatic category	<p>IEC 68-2-3, 55/125/56 DIN 40040, 2.73, FKD</p>						
Capacitance drift	<p>Max. $\pm 0.5\%$ after a 2 year storage period at a temperature of $+10^\circ \dots +40^\circ\text{C}$ and arelative humidity of 40 ... 60%.</p>						

Environmental test data

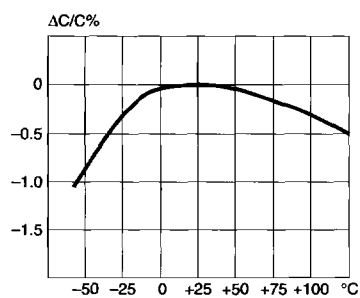
Damp heat test	<p>Test conditions: $T = +40^\circ\text{C}$, $\text{RH} = 93\%$, $t = 56\text{ days}$. Test criteria: $\Delta C/C \leq 3\%$, $\Delta \tan \delta \leq 0.002$ (1kHz) $\text{IR} \geq 250\ 000\ \text{M}\Omega$.</p>
Endurance test	<p>Test conditions: $T = +125^\circ\text{C}$, $U = 1.5 \times (0.5 \times U_R)$, $t = 1000\text{ h}$. Test criteria: $\Delta C/C \leq 3\%$, $\Delta \tan \delta \leq 0.002$ (1kHz) $\text{IR} \geq 250\ 000\ \text{M}\Omega$.</p>

Marking

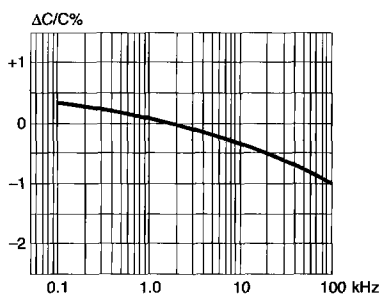
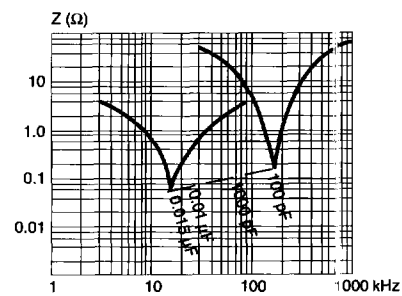
Capacitance, tolerance code, rated voltage, and the code CFR5 are marked on the capacitors.

Electrical characteristics

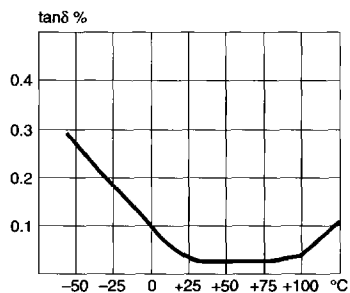
Temperature coefficient	0 (± 100) ppm/ $^{\circ}\text{C}$ (at 1 kHz)									
Self inductance	Approximately 6 nH/cm for the total length of capacitor winding and leads.									
Dissipation factor $\tan\delta$	Maximum values at +23 $^{\circ}\text{C}$ $C \leq 10\,000\text{ pF}$ $C > 10\,000\text{ pF}$									
	<table border="1"> <tr> <td>1 kHz</td> <td>0.2%</td> <td>0.2%</td> </tr> <tr> <td>10 kHz</td> <td>0.4%</td> <td>0.4%</td> </tr> <tr> <td>100 kHz</td> <td>0.8%</td> <td></td> </tr> </table>	1 kHz	0.2%	0.2%	10 kHz	0.4%	0.4%	100 kHz	0.8%	
1 kHz	0.2%	0.2%								
10 kHz	0.4%	0.4%								
100 kHz	0.8%									
Insulation resistance	Measured at +20 $^{\circ}\text{C}$, according to IEC 384-12. Minimum values between terminals: 500 000 M Ω									



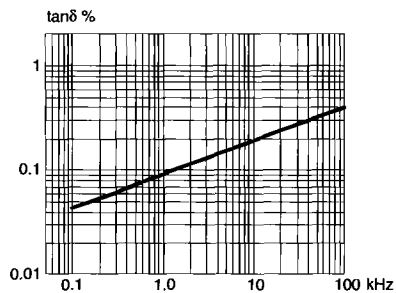
Capacitance vs. temperature (at 1 kHz)

Capacitance vs. frequency (at +23 $^{\circ}\text{C}$)

Resonance frequencies



Dissipation factor vs. temperature

Dissipation factor vs. frequency (at +23 $^{\circ}\text{C}$)

CFR

Article table CFR

C _R μF	Max dimensions in mm				Quantity per package				Max dU/dt V/μs	Article code
	B	H	L	p	Bulk	Tray	Reel	Ammo		
100 VDC / 63 VAC										
0.0001	2.5	6.5	7.2	5.0	1000		2500	3000	1000	CFR5 101J100L4 BULK
0.00015	2.5	6.5	7.2	5.0	1000		2500	3000	1000	CFR5 151J100L4 BULK
0.00022	2.5	6.5	7.2	5.0	1000		2500	3000	1000	CFR5 221J100L4 BULK
0.00033	2.5	6.5	7.2	5.0	1000		2500	3000	1000	CFR5 331J100L4 BULK
0.00047	2.5	6.5	7.2	5.0	1000		2500	3000	1000	CFR5 471J100L4 BULK
0.00068	2.5	6.5	7.2	5.0	1000		2500	3000	1000	CFR5 681J100L4 BULK
0.001	2.5	6.5	7.2	5.0	1000		2500	3000	1000	CFR5 102J100L4 BULK
0.0015	2.5	6.5	7.2	5.0	1000		2500	3000	1000	CFR5 152J100L4 BULK
0.0022	2.5	6.5	7.2	5.0	1000		2500	3000	1000	CFR5 222J100L4 BULK
0.0033	2.5	6.5	7.2	5.0	1000		2500	3000	1000	CFR5 332J100L4 BULK
0.0047	3.5	8.0	7.2	5.0	1000		2000	2000	1000	CFR5 472J100L4 BULK
0.0068	3.5	8.0	7.2	5.0	1000		2000	2000	1000	CFR5 682J100L4 BULK
0.01	4.5	9.0	7.2	5.0	1000		1500	1700	1000	CFR5 103J100L4 BULK
0.015	4.5	9.0	7.2	5.0	1000		1500	1700	1000	CFR5 153J100L4 BULK
250 VDC/ 160 VAC										
0.0001	2.5	6.5	7.2	5.0	1000		2500	3000	1000	CFR5 101J250L4 BULK
0.00015	2.5	6.5	7.2	5.0	1000		2500	3000	1000	CFR5 151J250L4 BULK
0.00022	2.5	6.5	7.2	5.0	1000		2500	3000	1000	CFR5 221J250L4 BULK
0.00033	2.5	6.5	7.2	5.0	1000		2500	3000	1000	CFR5 331J250L4 BULK
0.00047	2.5	6.5	7.2	5.0	1000		2500	3000	1000	CFR5 471J250L4 BULK
0.00068	2.5	6.5	7.2	5.0	1000		2500	3000	1000	CFR5 681J250L4 BULK
0.001	3.5	8.0	7.2	5.0	1000		2000	2000	1000	CFR5 102J250L4 BULK
0.0015	3.5	8.0	7.2	5.0	1000		2000	2000	1000	CFR5 152J250L4 BULK
0.0022	3.5	8.0	7.2	5.0	1000		2000	2000	1000	CFR5 222J250L4 BULK
0.0033	4.5	9.0	7.2	5.0	1000		1500	1700	1000	CFR5 332J250L4 BULK
400 VDC/ 220 VAC										
0.0001	2.5	6.5	7.2	5.0	1000		2500	3000	1000	CFR5 101J400L4 BULK
0.00015	2.5	6.5	7.2	5.0	1000		2500	3000	1000	CFR5 151J400L4 BULK
0.00022	3.5	8.0	7.2	5.0	1000		2000	2000	1000	CFR5 221J400L4 BULK
0.00033	3.5	8.0	7.2	5.0	1000		2000	2000	1000	CFR5 331J400L4 BULK
0.00047	3.5	8.0	7.2	5.0	1000		2000	2000	1000	CFR5 471J400L4 BULK
0.00068	3.5	8.0	7.2	5.0	1000		2000	2000	1000	CFR5 681J400L4 BULK
0.001	3.5	8.0	7.2	5.0	1000		2000	2000	1000	CFR5 102J400L4 BULK
0.0015	4.5	9.0	7.2	5.0	1000		1500	1700	1000	CFR5 152J400L4 BULK