

# PFR

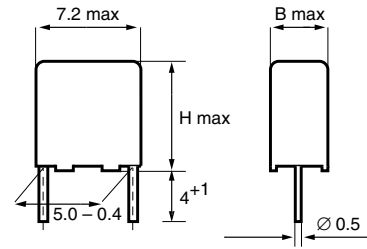
- Polypropylene film/foil capacitor
- According to IEC 60384-13

## TYPICAL APPLICATIONS

High speed applications requiring low losses at high frequencies and high dU/dt. Typical applications electrical ballasts, TV/ video, telecommunications.

## CONSTRUCTION

Capacitor with polypropylene film and metal foil electrodes. Radial leads of tinned wire are electrically welded to the winding. Encapsulation in self-extinguishing material meeting the requirements of UL 94V-0.



## GENERAL DATA

<b>Rated voltage <math>U_R</math>, VDC</b>	63	100	250	400	630	1000
<b>Rated voltage <math>U_R</math>, VAC</b>	40	63	160	220	250	250
<b>Capacitance range, pF</b>	100– 22000	100– 10000	100– 6800	100– 6800	100– 4700	100– 680
	Capacitance measured at $f=1\text{kHz}$ , $T=20^\circ\text{C}$ For $C \leq 1000\text{ pF}$ , $f = 100\text{ kHz}$ .					
<b>Capacitance tolerance</b>	$\pm 10\%$ , $\pm 5\%$ , $\pm 2.5\%$ , $\pm 2\%$ , $\pm 1\%$					
<b>DC Test voltage</b>	$2 \times U_R$ for 2s					
<b>Temperature range</b>	$-55 \dots +100^\circ\text{C}$ An operating temperature up to $+105^\circ\text{C}$ is allowed under certain conditions. For details consult Evox Rifa.					
<b>Climatic category</b>	IEC 60068-1, 55/100/56 DIN 40040, FMD					
<b>Capacitance drift</b>	Max. 0.3% after a 2 year storage period at a temperature of $+10^\circ \dots +40^\circ\text{C}$ and a relative humidity of 40 ... 60%.					
<b>Temperature coefficient</b>	$-200 (+50, -100)\text{ ppm}/^\circ\text{C}$ (at 1 kHz)					
<b>Self inductance</b>	Approximately 6 nH/cm for the total length of capacitor winding and leads.					
<b>Dissipation factor <math>\tan\delta</math></b>	Maximum values at $+23^\circ\text{C}$					
	$C \leq 1000\text{ pF}$	$1000\text{ pF} < C \leq 4700\text{ pF}$	$C > 4700\text{ pF}$			
	1 kHz $\leq 0.04\%$	0.04%	0.04%			
	10 kHz $\leq 0.04\%$	0.05%	0.07%			
	100 kHz $\leq 0.05\%$	0.07%				
<b>Insulation resistance</b>	Measured at $+20^\circ\text{C}$ , according to IEC 60384-13. Minimum value between terminals: 500 000 M $\Omega$					

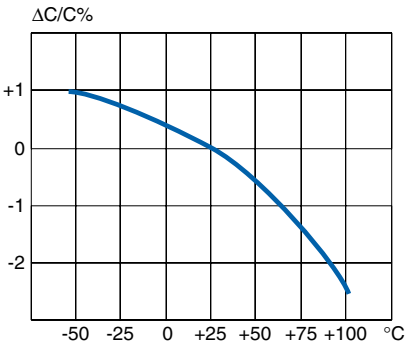
**ENVIRONMENTAL TEST DATA**

**MARKING**

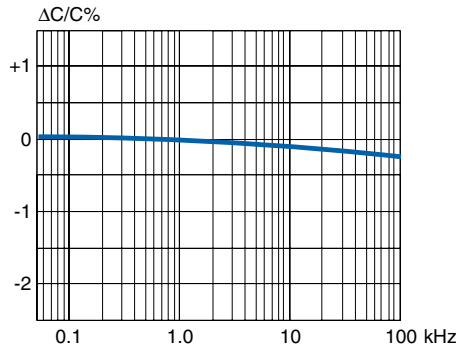
<b>Damp heat test</b>	Test conditions:	T = +40°C, RH = 93%, t = 56 days.
	Test criteria:	$\Delta C/C \leq \pm 1\%$ , $\tan\delta \leq 1.4 \times$ value before test, (1kHz and 100 kHz) IR after test $\geq 250\,000\text{ M}\Omega$ .
<b>Endurance test</b>	Test conditions:	T = +85°C, U = 1.5 x U <sub>n</sub> , t = 1000 h and T = +100°C, U = 1.25 x U <sub>n</sub> , t = 1000 h.
	Test criteria:	$\Delta C/C \leq \pm 1\%$ , $\tan\delta \leq 1.4 \times$ value before test, (1kHz and 100 kHz) IR after test $\geq 250\,000\text{ M}\Omega$ .

- Rated capacitance
- Capacitance tolerance code
- Rated voltage
- Code PFR5

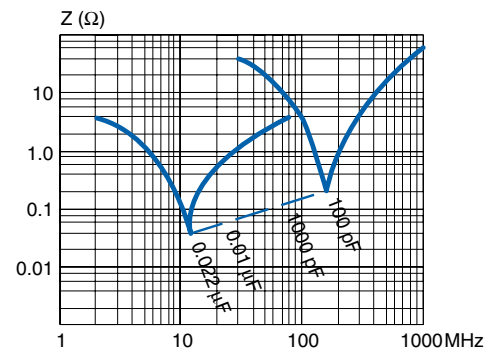
**TYPICAL DATA**



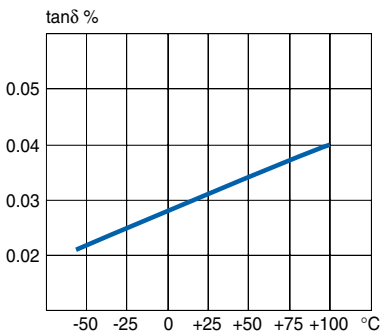
**Capacitance vs. temperature (at 1 kHz)**



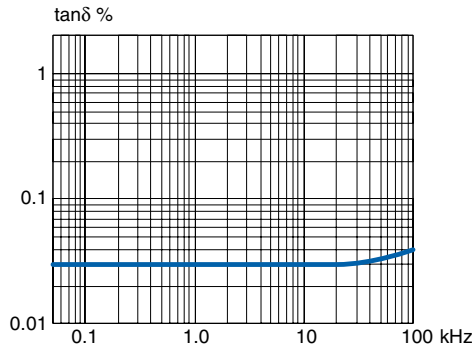
**Capacitance vs. frequency (at +23°C)**



**Resonance frequencies**



**Dissipation factor vs. temperature (at 1 kHz)**



**Dissipation factor vs. frequency (at +23°C)**

## ARTICLE TABLE

Capacitance $\mu\text{F}$	Max dimensions in mm				Quantity per package				Max $dU/dt$ $\text{V}/\mu\text{s}$	Article code
	B	H	L	p	Bulk	Tray	Reel	Ammo		
<b>63 VDC / 40 VAC</b>										
0.00010	4.5	6.0	7.2	5.0	1000		1500	1700	1000	PFR5 101J63J11L4 BULK
0.00015	4.5	6.0	7.2	5.0	1000		1500	1700	1000	PFR5 151J63J11L4 BULK
0.00022	4.5	6.0	7.2	5.0	1000		1500	1700	1000	PFR5 221J63J11L4 BULK
0.00033	4.5	6.0	7.2	5.0	1000		1500	1700	1000	PFR5 331J63J11L4 BULK
0.00047	4.5	6.0	7.2	5.0	1000		1500	1700	1000	PFR5 471J63J11L4 BULK
0.00068	4.5	6.0	7.2	5.0	1000		1500	1700	1000	PFR5 681J63J11L4 BULK
0.0010	4.5	6.0	7.2	5.0	1000		1500	1700	1000	PFR5 102J63J11L4 BULK
0.0015	4.5	6.0	7.2	5.0	1000		1500	1700	1000	PFR5 152J63J11L4 BULK
0.0022	4.5	6.0	7.2	5.0	1000		1500	1700	1000	PFR5 222J63J11L4 BULK
0.0033	4.5	6.0	7.2	5.0	1000		1500	1700	1000	PFR5 332J63J11L4 BULK
0.0047	4.5	6.0	7.2	5.0	1000		1500	1700	1000	PFR5 472J63J11L4 BULK
0.0068	4.5	6.0	7.2	5.0	1000		1500	1700	1000	PFR5 682J63J11L4 BULK
0.010	5.5	7.0	7.2	5.0	1000		1200	1300	1000	PFR5 103J63J12L4 BULK
0.015	6.5	8.0	7.2	5.0	1000		900	1100	1000	PFR5 153J63J13L4 BULK
0.020	6.5	8.0	7.2	5.0	1000		900	1100	1000	PFR5 203J63J13L4 BULK
0.022	6.5	8.0	7.2	5.0	1000		900	1100	1000	PFR5 223J63J13L4 BULK
<b>100 VDC/ 63 VAC</b>										
0.00010	4.5	6.0	7.2	5.0	1000		1500	1700	1000	PFR5 101J100J11L4 BULK
0.00015	4.5	6.0	7.2	5.0	1000		1500	1700	1000	PFR5 151J100J11L4 BULK
0.00022	4.5	6.0	7.2	5.0	1000		1500	1700	1000	PFR5 221J100J11L4 BULK
0.00033	4.5	6.0	7.2	5.0	1000		1500	1700	1000	PFR5 331J100J11L4 BULK
0.00047	4.5	6.0	7.2	5.0	1000		1500	1700	1000	PFR5 471J100J11L4 BULK
0.00068	4.5	6.0	7.2	5.0	1000		1500	1700	1000	PFR5 681J100J11L4 BULK
0.0010	4.5	6.0	7.2	5.0	1000		1500	1700	1000	PFR5 102J100J11L4 BULK
0.0015	4.5	6.0	7.2	5.0	1000		1500	1700	1000	PFR5 152J100J11L4 BULK
0.0022	4.5	6.0	7.2	5.0	1000		1500	1700	1000	PFR5 222J100J11L4 BULK
0.0033	5.5	7.0	7.2	5.0	1000		1200	1300	1000	PFR5 332J100J12L4 BULK
0.0047	5.5	7.0	7.2	5.0	1000		1200	1300	1000	PFR5 472J100J12L4 BULK
0.0068	6.5	8.0	7.2	5.0	1000		900	1100	1000	PFR5 682J100J13L4 BULK
0.010	6.5	8.0	7.2	5.0	1000		900	1100	1000	PFR5 103J100J13L4 BULK
<b>250 VDC/ 160 VAC</b>										
0.00010	4.5	6.0	7.2	5.0	1000		1500	1700	1000	PFR5 101J250J11L4 BULK
0.00015	4.5	6.0	7.2	5.0	1000		1500	1700	1000	PFR5 151J250J11L4 BULK
0.00022	4.5	6.0	7.2	5.0	1000		1500	1700	1000	PFR5 221J250J11L4 BULK
0.00033	4.5	6.0	7.2	5.0	1000		1500	1700	1000	PFR5 331J250J11L4 BULK
0.00047	4.5	6.0	7.2	5.0	1000		1500	1700	1000	PFR5 471J250J11L4 BULK
0.00068	4.5	6.0	7.2	5.0	1000		1500	1700	1000	PFR5 681J250J11L4 BULK
0.0010	4.5	6.0	7.2	5.0	1000		1500	1700	1000	PFR5 102J250J11L4 BULK
0.0015	4.5	6.0	7.2	5.0	1000		1500	1700	1000	PFR5 152J250J11L4 BULK
0.0022	4.5	6.0	7.2	5.0	1000		1500	1700	1000	PFR5 222J250J11L4 BULK
0.0033	5.5	7.0	7.2	5.0	1000		1200	1300	1000	PFR5 332J250J12L4 BULK
0.0047	6.5	8.0	7.2	5.0	1000		900	1100	1000	PFR5 472J250J13L4 BULK
0.0068	6.5	8.0	7.2	5.0	1000		900	1100	1000	PFR5 682J250J13L4 BULK
<b>400 VDC/ 220 VAC</b>										
0.00010	4.5	6.0	7.2	5.0	1000		1500	1700	1000	PFR5 101J400J11L4 BULK
0.00015	4.5	6.0	7.2	5.0	1000		1500	1700	1000	PFR5 151J400J11L4 BULK
0.00022	4.5	6.0	7.2	5.0	1000		1500	1700	1000	PFR5 221J400J11L4 BULK
0.00033	4.5	6.0	7.2	5.0	1000		1500	1700	1000	PFR5 331J400J11L4 BULK
0.00047	4.5	6.0	7.2	5.0	1000		1500	1700	1000	PFR5 471J400J11L4 BULK
0.00068	4.5	6.0	7.2	5.0	1000		1500	1700	1000	PFR5 681J400J11L4 BULK
0.0010	4.5	6.0	7.2	5.0	1000		1500	1700	1000	PFR5 102J400J11L4 BULK
0.0015	4.5	6.0	7.2	5.0	1000		1500	1700	1000	PFR5 152J400J11L4 BULK
0.0022	4.5	6.0	7.2	5.0	1000		1500	1700	1000	PFR5 222J400J11L4 BULK
0.0033	5.5	7.0	7.2	5.0	1000		1200	1300	1000	PFR5 332J400J12L4 BULK
0.0047	6.5	8.0	7.2	5.0	1000		900	1100	1000	PFR5 472J400J13L4 BULK
0.0068	6.5	8.0	7.2	5.0	1000		900	1100	1000	PFR5 682J400J13L4 BULK

Capacitance $\mu\text{F}$	Max dimensions in mm				Quantity per package				Max $dU/dt$ $\text{V}/\mu\text{s}$	Article code
	B	H	L	p	Bulk	Tray	Reel	Ammo		
<b>630 VDC/ 250 VAC</b>										
0.00010	4.5	6.0	7.2	5.0	1000		1500	1700	1000	PFR5 101J630J11L4 BULK
0.00015	4.5	6.0	7.2	5.0	1000		1500	1700	1000	PFR5 151J630J11L4 BULK
0.00022	4.5	6.0	7.2	5.0	1000		1500	1700	1000	PFR5 221J630J11L4 BULK
0.00033	4.5	6.0	7.2	5.0	1000		1500	1700	1000	PFR5 331J630J11L4 BULK
0.00047	4.5	6.0	7.2	5.0	1000		1500	1700	1000	PFR5 471J630J11L4 BULK
0.00068	4.5	6.0	7.2	5.0	1000		1500	1700	1000	PFR5 681J630J11L4 BULK
0.0010	4.5	6.0	7.2	5.0	1000		1500	1700	1000	PFR5 102J630J11L4 BULK
0.0015	4.5	6.0	7.2	5.0	1000		1500	1700	1000	PFR5 152J630J11L4 BULK
0.0022	5.5	7.0	7.2	5.0	1000		1200	1300	1000	PFR5 222J630J12L4 BULK
0.0033	6.5	8.0	7.2	5.0	1000		900	1100	1000	PFR5 332J630J13L4 BULK
0.0047	6.5	8.0	7.2	5.0	1000		900	1100	1000	PFR5 472J630J13L4 BULK
<b>1000 VDC/ 250 VAC</b>										
0.00010	4.5	6.0	7.2	5.0	1000		1500	1700	1000	PFR5 101J1000J11L4 BULK
0.00015	4.5	6.0	7.2	5.0	1000		1500	1700	1000	PFR5 151J1000J11L4 BULK
0.00022	4.5	6.0	7.2	5.0	1000		1500	1700	1000	PFR5 221J1000J11L4 BULK
0.00033	5.5	7.0	7.2	5.0	1000		1200	1300	1000	PFR5 331J1000J12L4 BULK
0.00047	5.5	7.0	7.2	5.0	1000		1200	1300	1000	PFR5 471J1000J12L4 BULK
0.00068	5.5	7.0	7.2	5.0	1000		1200	1300	1000	PFR5 681J1000J12L4 BULK
0.0010	6.5	8.0	7.2	5.0	1000		900	1100	1000	PFR5 102J1000J13L4 BULK