

PCM

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■ Ideally suited for temperatures up to +140° C. ■ Very constant capacitance value with temperature.
■ Low dissipation factor (tan δ) ■ High pulse duty. ■ Low dielectric absorption. ■ In virtue of high
temperature resistance ideally suited for automotive applications under the hood as well as for sensory
equipment in hot media. ■ Close tolerances up to 2.5 %. ■ Available taped and reeled.

Temperature characteristics: See graph

Test voltage: 2 Vr, 2 sec.

Vibration: 6 hours at 10 ... 2000 Hz and 0.75 mm displacement amplitude or 10 g in accordance with IEC 68-2-6.

Low air density: 1 kPa=10 mbar in accordance with IEC 68-2-13.

Bump test: 4000 bumps at 390 m/sec² in accordance with IEC 68-2-29.

Voltage derating: A voltage derating factor of 0.75 % per K must be applied from + 125° C for DC voltages and from + 110° C for AC voltages.

Dielectric: Polyphenylene-sulphide film.

Capacitor electrodes: Metal foil.

Encapsulation: Flame-retardent plastic case, UL 94 V-O, with epoxy resin seal. Colour: Anthracite. Marking: Silver.

Temperature range: - 55° C to + 140° C.

Test category: 55/140/56 in accordance with IEC.

Insulation resistance at + 20° C:

 $\geq 5 \times 10^5$ megohms (mean value: 1×10^6 megohms)

Measuring voltage: 100 V/1 min.

Dissipation factors at + 20° C:

 $\tan \delta \leq 15 \times 10^{-4}$ at 1 kHz $\tan \delta \leq 20 \times 10^{-4}$ at 10 kHz $\tan \delta \leq 35 \times 10^{-4}$ at 100 kHz

Capacitance tolerances: $\pm 20\%$, $\pm 10\%$, $\pm 5\%$, $\pm 2.5\%$.

Maximum pulse rise time: 1000 V/microsecond for pulses equal to the rated voltage.

General Data

Capacitance	100 VDC / 63 VAC*				250 VDC / 160 VAC*				400 VDC / 220 VAC*			
	W	H	L	PCM**	W	H	L	PCM**	W	H	L	PCM**
100 pF	2.5	6.5	7.2	5	2.5	6.5	7.2	5	2.5	6.5	7.2	5
150 "	2.5	6.5	7.2	5	2.5	6.5	7.2	5	2.5	6.5	7.2	5
220 "	2.5	6.5	7.2	5	2.5	6.5	7.2	5	2.5	6.5	7.2	5
330 "	2.5	6.5	7.2	5	2.5	6.5	7.2	5	2.5	6.5	7.2	5
470 "	2.5	6.5	7.2	5	2.5	6.5	7.2	5	2.5	6.5	7.2	5
680 "	2.5	6.5	7.2	5	2.5	6.5	7.2	5	2.5	6.5	7.2	5
1000 pF	2.5	6.5	7.2	5	2.5	6.5	7.2	5	3.5	8.5	7.2	5
1500 "	2.5	6.5	7.2	5	3.5	8.5	7.2	5	3.5	8.5	7.2	5
2200 "	2.5	6.5	7.2	5	3.5	8.5	7.2	5	4.5	9.5	7.2	5
3300 "	2.5	6.5	7.2	5	4.5	9.5	7.2	5	4.5	9.5	7.2	5
4700 "	3.5	8.5	7.2	5	4.5	9.5	7.2	5				
6800 "	3.5	8.5	7.2	5								
0.01 μF	4.5	9.5	7.2	5								
0.015 "	4.5	9.5	7.2	5								

* AC voltage: $f \leq 400\text{ Hz}$; $1.4 \times V_{rms} + VDC \leq VDC (\text{rated})$

** PCM = Printed circuit module = lead spacing

Dims. in mm.

d = 0.5 φ
= P.C. Module at the lead exit points (± 0.5)

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Typical graphs of the dielectrics used

Polypropylene

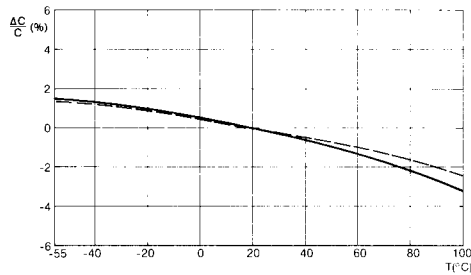
For high frequencies e.g. in power supplies, deflection systems, lighting and audio applications

Metallized capacitors:

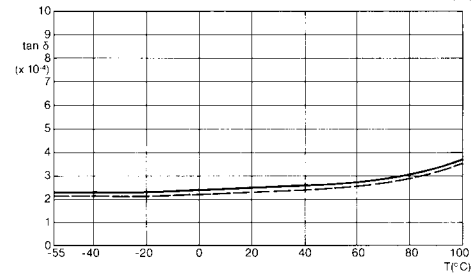
MKP 2 MKP 4 MKP 10

Film/foil capacitors:

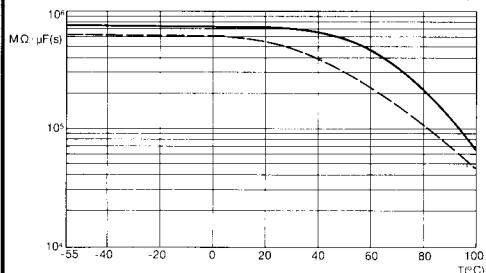
FKP 02 FKP 2 FKP 3 FKP 1



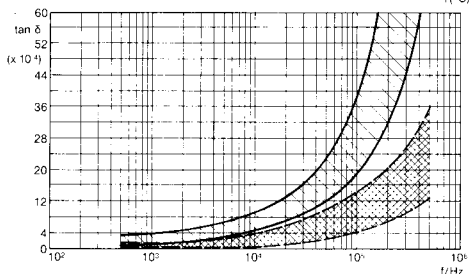
Capacitance change with temperature (f = 1 kHz) (general guide)



Dissipation factor change with temperature (f = 1 kHz) (general guide)



Insulation resistance change with temperature (general guide)



Dissipation factor change with frequency (general guide)

Polyphenylene-sulphide (PPS)

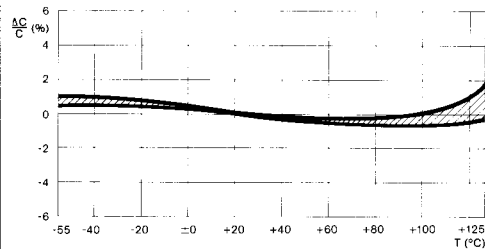
Special applications for high temperature stability and temperatures up to +140° C

Metallized capacitors:

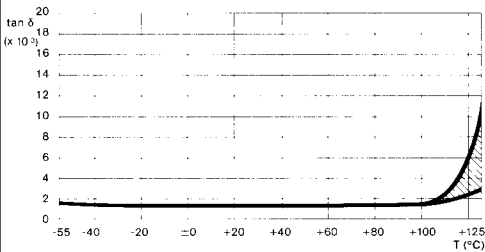
MKI 2

Film/foil capacitors:

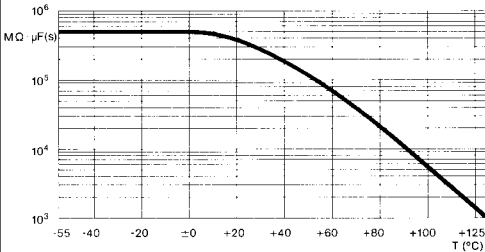
FKI 2



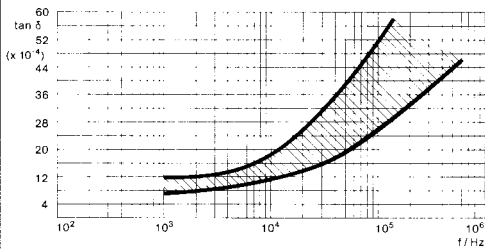
Capacitance change with temperature (f = 1 kHz) (general guide)



Dissipation factor change with temperature (f = 1 kHz) (general guide)



Insulation resistance change with temperature (general guide)



Dissipation factor change with frequency (general guide)

Characteristics of the plastic film dielectrics*

	Dielectric constant 1 kHz/23° C	Specific volume resistance Ω cm/23° C	Dielectric strength in V/μm at 23° C	Preferred temperature range	Dielectric absorption in % at 23° C
Polyester	3.3 (positive as temperature rises)	10 ¹⁸	580 V-	-55 ... +100° C	0.20 ... 0.25
Polycarbonate	2.8 (largely constant over temperature range)	2 × 10 ¹⁷	535 V-	-55 ... +100° C	0.12 ... 0.20
Polypropylene	2.2 (negative as temperature rises)	6 × 10 ¹⁸	650 V-	-55 ... +100° C	0.05 ... 0.10
Polyphenylene-sulphide	3.0 (very constant over temperature range)	5 × 10 ¹⁷	470 V-	-55 ... +140° C	0.05 ... 0.10

* The above figures are taken from the latest data sheets of the film manufacturers.