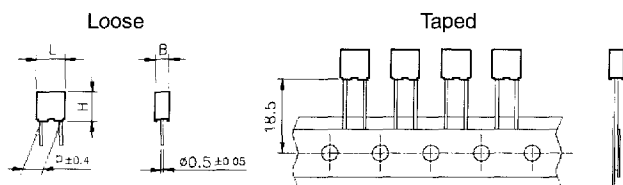


METALLIZED AND FILM-FOIL POLYPROPYLENE CAPACITOR MULTIPURPOSE APPLICATION

Typical applications: : timing, oscillator circuits, high frequency coupling and decoupling.

PRODUCT CODE: **R79**

p = 5 mm



All dimensions are in mm

PRODUCT CODE SYSTEM

The part number, comprising 14 digits, is formed as follows:

1	2	3	4	5	6	7	8	9	10	11	12	13	14
R	7	9										-	

- Digit 1 to 3 Series code
 Digit 4 d.c. rated voltage:
 E = 100V G= 160V I = 250V M= 400V
 P = 630V
 Digit 5 Pitch: C = 5mm
 Digit 6 to 9 Digits 7 - 8 - 9 indicate the first three digits of Capacitance value and the 6th digit indicates the number of zeros that must be added to obtain the Rated Capacitance in pF.
 Digit 10 to 11 Mechanical version and packaging (table 1)
 Digit 12 Identifies the dimensions and electrical characteristics.
 Digit 13 Internal use.
 Digit 14 Capacitance tolerance:
 H=2.5%; J=5%; K=10%

GENERAL TECHNICAL DATA

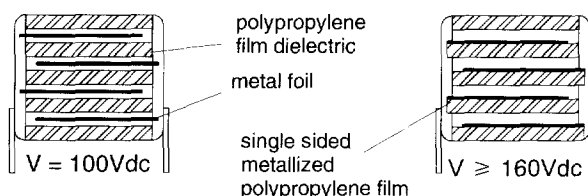
- Dielectric:** polypropylene film.
Plates: tin foil for V = 100 Vdc;
 aluminium layer deposited by evaporation under vacuum for V ≥ 160 Vdc.
Winding: non-inductive type.
Leads: tinned wire, low thermal conductivity.
Protection: plastic case, epoxy resin filled.
 Box material is solvent resistant and flame retardant according to UL94 V0.
Marking: manufacturer's logo, series (R79), capacitance, tolerance, D.C. rated voltage.
Climatic category: 55/100/56 IEC 60068-1
Operating temperature range: -55 to +105°C
Related documents:
 for KP: IEC 60384-13;
 for MKP: IEC 60384-16

Table 1 (for more detailed information, please refer to page 15).

Standard packaging style	Lead length (mm)	Ordering code (Digit 10 to 11)
AMMO-PACK		DQ
REEL Ø 355mm		CK
Loose, short leads	4 +1.5	AA
Loose, long leads	17 +1/-2	Z3

Note: Ammo-pack is the preferred packaging for taped version.

Winding scheme



**KP-MKP Series
METALLIZED AND FILM-FOIL POLYPROPYLENE
CAPACITOR
MULTIPURPOSE APPLICATION**

Typical applications: : timing, oscillator circuits, high frequency coupling and decoupling.

PRODUCT CODE: R79

p = 5 mm

Rated Cap.	100Vdc/63Vac				Max dv/dt (V/μs)	Max K ₀ (V ² /μs)	Part Number
	B	H	L	p			
100pF	4.75	5.0	7.2	5.0	1000	200 E3	R79EC0100--0--
120pF	4.75	5.0	7.2	5.0	1000	200 E3	R79EC0120--0--
150pF	4.75	5.0	7.2	5.0	1000	200 E3	R79EC0150--0--
180pF	4.75	5.0	7.2	5.0	1000	200 E3	R79EC0180--0--
220pF	4.75	5.0	7.2	5.0	1000	200 E3	R79EC0220--0--
270pF	4.75	5.0	7.2	5.0	1000	200 E3	R79EC0270--0--
330pF	4.75	5.0	7.2	5.0	1000	200 E3	R79EC0330--0--
390pF	4.75	5.0	7.2	5.0	1000	200 E3	R79EC0390--0--
470pF	4.75	5.0	7.2	5.0	1000	200 E3	R79EC0470--0--
560pF	4.75	5.0	7.2	5.0	1000	200 E3	R79EC0560--0--
680pF	4.75	5.0	7.2	5.0	1000	200 E3	R79EC0680--0--
820pF	4.75	5.0	7.2	5.0	1000	200 E3	R79EC0820--0--
1000pF	4.75	5.0	7.2	5.0	1000	200 E3	R79EC1100--0--
1200pF	4.75	5.0	7.2	5.0	1000	200 E3	R79EC1120--0--
1500pF	4.75	5.0	7.2	5.0	1000	200 E3	R79EC1150--0--
1800pF	4.75	5.0	7.2	5.0	1000	200 E3	R79EC1180--0--
2200pF	4.75	5.0	7.2	5.0	1000	200 E3	R79EC1220--0--
2700pF	4.75	5.0	7.2	5.0	1000	200 E3	R79EC1270--0--

Mechanical version and packaging (Table 1)

Internal use

Tolerance: H (± 2.5%); J (± 5%); K (± 10%)

Rated Cap.	160Vdc/70Vac				Max dv/dt (V/μs)	Max K ₀ (V ² /μs)	Part Number
	B	H	L	p			
0.039μF	3.5	7.5	7.2	5.0	100	32 E3	R79GC2390--4--
0.047μF	4.5	9.5	7.2	5.0	100	32 E3	R79GC2470--4--
0.056μF	4.5	9.5	7.2	5.0	100	32 E3	R79GC2560--4--
0.068μF	4.5	9.5	7.2	5.0	100	32 E3	R79GC2680--4--
0.082μF	5.0	10.0	7.2	5.0	100	32 E3	R79GC2820--4--
0.10μF	5.0	10.0	7.2	5.0	100	32 E3	R79GC3100--4--
0.12μF	6.0	11.0	7.2	5.0	100	32 E3	R79GC3120--4--
0.15μF	6.0	11.0	7.2	5.0	100	32 E3	R79GC3150--4--
0.18μF	7.2	13.0	7.2	5.0	100	32 E3	R79GC3180--4--
0.22μF	7.2	13.0	7.2	5.0	100	32 E3	R79GC3220--4--

Mechanical version and packaging (Table 1)

Internal use

Tolerance: H (± 2.5%); J (± 5%); K (± 10%)

All dimensions are in mm.

Note: If the working voltage (V) is lower than the rated voltage (V_R), the capacitor may work at higher dv/dt. In this case the maximum value allowed is obtained multiplying the above value (see table dv/dt) with the ratio V_R/V.

The pulse characteristic K₀ depends on the voltage wave-form and in any case it cannot overcome the value given in the above table. The dv/dt test is carried out at 2 times the above values.

* Not suitable for across-the-line applications.
Please refer to Interference Suppression Capacitors (page 109).

Rated Cap.	250Vdc/160Vac				Max dv/dt (V/μs)	Max K ₀ (V ² /μs)	Part Number
	B	H	L	p			
0.012μF	3.5	7.5	7.2	5.0	250	125 E3	R79IC2120--5--
0.015μF	3.5	7.5	7.2	5.0	250	125 E3	R79IC2150--5--
0.018μF	3.5	7.5	7.2	5.0	250	125 E3	R79IC2180--5--
0.022μF	3.5	7.5	7.2	5.0	250	125 E3	R79IC2220--5--
0.027μF	3.5	7.5	7.2	5.0	250	125 E3	R79IC2270--5--
0.033μF	3.5	7.5	7.2	5.0	250	125 E3	R79IC2330--5--
0.039μF	4.5	9.5	7.2	5.0	250	125 E3	R79IC2390--4--
0.047μF	4.5	9.5	7.2	5.0	250	125 E3	R79IC2470--4--
0.056μF	4.5	9.5	7.2	5.0	250	125 E3	R79IC2560--4--
0.068μF	5.0	10.0	7.2	5.0	250	125 E3	R79IC2680--4--
0.082μF	6.0	11.0	7.2	5.0	250	125 E3	R79IC2820--4--
0.10μF	6.0	11.0	7.2	5.0	250	125 E3	R79IC3100--4--
0.12μF	7.2	13.0	7.2	5.0	250	125 E3	R79IC3120--4--
0.15μF	7.2	13.0	7.2	5.0	250	125 E3	R79IC3150--4--

Rated Cap.	400Vdc/200Vac				Max dv/dt (V/μs)	Max K ₀ (V ² /μs)	Part Number
	B	H	L	p			
3900pF	3.5	7.5	7.2	5.0	400	320 E3	R79MC1390--4--
4700pF	3.5	7.5	7.2	5.0	400	320 E3	R79MC1470--4--
5600pF	3.5	7.5	7.2	5.0	400	320 E3	R79MC1560--4--
6800pF	3.5	7.5	7.2	5.0	400	320 E3	R79MC1680--4--
8200pF	3.5	7.5	7.2	5.0	400	320 E3	R79MC1820--4--
0.010μF	3.5	7.5	7.2	5.0	400	320 E3	R79MC2100--4--
0.012μF	4.5	9.5	7.2	5.0	400	320 E3	R79MC2120--4--
0.015μF	4.5	9.5	7.2	5.0	400	320 E3	R79MC2150--4--
0.018μF	5.0	10.0	7.2	5.0	400	320 E3	R79MC2180--4--
0.022μF	5.0	10.0	7.2	5.0	400	320 E3	R79MC2220--4--
0.027μF	6.0	11.0	7.2	5.0	400	320 E3	R79MC2270--4--
0.033μF	6.0	11.0	7.2	5.0	400	320 E3	R79MC2330--4--
0.039μF	7.2	13.0	7.2	5.0	400	320 E3	R79MC2390--4--
0.047μF	7.2	13.0	7.2	5.0	400	320 E3	R79MC2470--4--

Rated Cap.	630Vdc/220Vac*				Max dv/dt (V/μs)	Max K ₀ (V ² /μs)	Part Number
	B	H	L	p			
1000pF	3.5	7.5	7.2	5.0	500	630 E3	R79PC1100--4--
1200pF	3.5	7.5	7.2	5.0	500	630 E3	R79PC1120--4--
1500pF	3.5	7.5	7.2	5.0	500	630 E3	R79PC1150--4--
1800pF	3.5	7.5	7.2	5.0	500	630 E3	R79PC1180--4--
2200pF	3.5	7.5	7.2	5.0	500	630 E3	R79PC1220--4--
2700pF	3.5	7.5	7.2	5.0	500	630 E3	R79PC1270--4--
3300pF	3.5	7.5	7.2	5.0	500	630 E3	R79PC1330--4--
3900pF	4.5	9.5	7.2	5.0	600	630 E3	R79PC1390--4--
4700pF	4.5	9.5	7.2	5.0	600	630 E3	R79PC1470--4--
5600pF	4.5	9.5	7.2	5.0	600	630 E3	R79PC1560--4--
6800pF	5.0	10.0	7.2	5.0	600	630 E3	R79PC1680--4--
8200pF	5.0	10.0	7.2	5.0	600	630 E3	R79PC1820--4--
0.010μF	6.0	11.0	7.2	5.0	600	630 E3	R79PC2100--4--
0.012μF	6.0	11.0	7.2	5.0	600	630 E3	R79PC2120--4--
0.015μF	7.2	13.0	7.2	5.0	600	630 E3	R79PC2150--4--
0.018μF	7.2	13.0	7.2	5.0	600	630 E3	R79PC2180--4--

Mechanical version and packaging (Table 1)

Internal use

Tolerance: H (± 2.5%); J (± 5%); K (± 10%)

**METALLIZED AND FILM-FOIL POLYPROPYLENE
CAPACITOR
MULTIPURPOSE APPLICATION**

p = 5 mm

PRODUCT CODE: R79

ELECTRICAL CHARACTERISTICS

Rated voltage (V_R): 100 Vdc - 160Vdc - 250 Vdc
400 Vdc - 630 Vdc

Rated temperature (T_R): +85°C

Temperature derated voltage:

for temperatures between +85°C and +105°C a decreasing factor of 1.25% per degree °C on the rated voltage V_R has to be applied.

Capacitance range: 100pF to 0.22μF

Capacitance values:

E12 series (IEC 60063 Norm).

Capacitance tolerances (measured at 1 kHz):
± 2.5% (H); ± 5% (J); ± 10% (K).

Total self-inductance (L): ≈ 6 nH
(lead length ≈ 2 mm).

Temperature coefficient (ppm/°C):
-200 (typical value).

Dissipation factor (DF):
 $\text{tg} \delta \times 10^{-4}$ at +25°C ± 5°C

kHz	KP	MKP C ≤ 0.1μF	MKP C > 0.1μF
	$\text{tg} \delta \times 10^{-4}$	$\text{tg} \delta \times 10^{-4}$	$\text{tg} \delta \times 10^{-4}$
1	≤ 5	≤ 6	≤ 6
10	≤ 5	≤ 10	≤ 10
100	≤ 10	≤ 30	

Dielectric absorption (DA): 0.05%

Insulation resistance:

Test conditions

Temperature: +25°C ± 5°C

Voltage charge time: 1 min

Voltage charge: 100Vdc

Performance

≥ 1 × 10⁵ MΩ (Typ.value: 5 × 10⁵ MΩ)

Test voltage between terminations:

2.0 × V_R applied for 2 s at +25°C ± 5°C (for KP).

1.6 × V_R applied for 2 s at +25°C ± 5°C (for MKP).

TEST METHOD AND PERFORMANCE

Damp heat, steady state:

Test conditions

Temperature: +40°C ± 2°C

Relative humidity (RH): 93% ± 2%

Test duration: 56 days

Performance

Capacitance change $|\Delta C/C|$: ≤ 1%

DF change ($\Delta \text{tg} \delta$): ≤ 10 × 10⁻⁴ at 1kHz

Insulation resistance: ≥ 50% of initial limit.

Endurance:

Test conditions

Temperature: +85°C ± 2°C

Test duration: 1000 h

Voltage applied: 1.5 × V_R (for KP)

1.25 × V_R (for MKP)

Performance

Capacitance change $|\Delta C/C|$: ≤ 2%

DF change ($\Delta \text{tg} \delta$): ≤ 10 × 10⁻⁴ at 10kHz

Insulation resistance: ≥ 50% of initial limit.

Resistance to soldering heat:

Test conditions

Solder bath temperature: +260°C ± 5°C

Dipping time (with heat screen): 10 s ± 1 s

Performance

Capacitance change $|\Delta C/C|$: ≤ 1%

DF change ($\Delta \text{tg} \delta$): ≤ 10 × 10⁻⁴ at 10kHz

Insulation resistance: ≥ initial limit.

Long term stability (after two years):

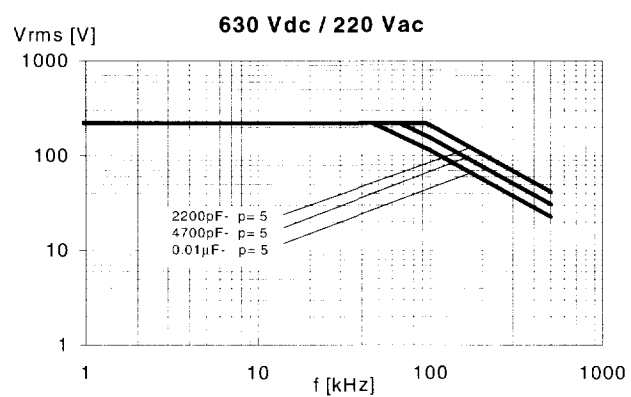
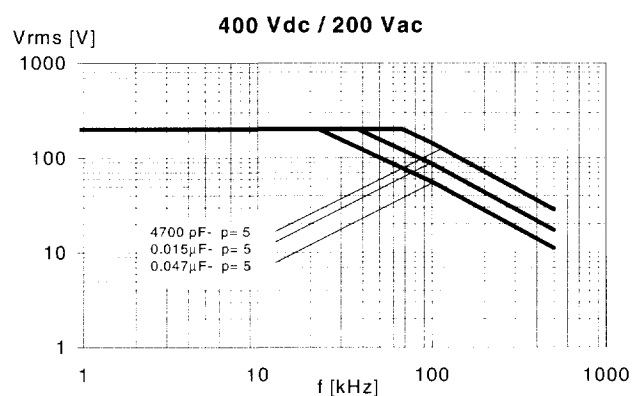
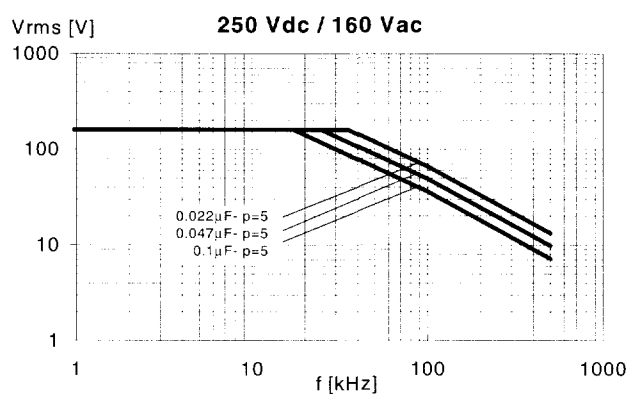
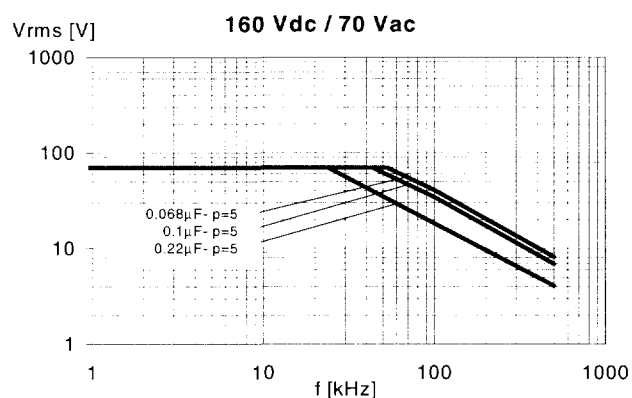
Storage: standard environmental conditions (see page 11).

Performance

Capacitance change $|\Delta C/C|$: ≤ 0.5%

KP-MKP Series
METALLIZED AND FILM-FOIL POLYPROPYLENE
CAPACITOR
MULTIPURPOSE APPLICATIONS
PRODUCT CODE: R79

MAX. VOLTAGE (Vr.m.s.) VERSUS FREQUENCY (sinusoidal wave-form / $T_h \leq 40^\circ\text{C}$)



Note: p (pitch) in mm.