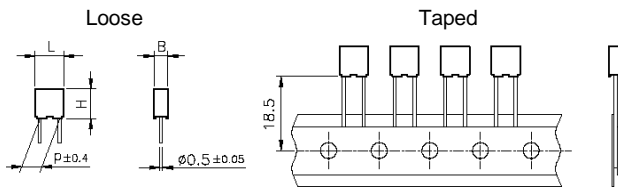


### METALLIZED AND FILM-FOIL POLYPROPYLENE CAPACITOR MULTIPURPOSE APPLICATION

**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

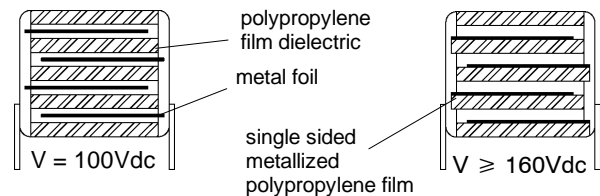
- Dielectric:** polypropylene film.
- Plates:** tin foil for V = 100 Vdc;  
aluminium layer deposited by evaporation under vacuum for V ≥ 160 Vdc.
- Winding:** non-inductive type.
- Leads:** tinned wire, low thermal conductivity.
- Protection:** plastic case, epoxy resin filled.  
Box material is solvent 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

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 <sub>0</sub> (V <sup>2</sup> /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 <sub>0</sub> (V <sup>2</sup> /μs)	Part Number
	B	H	L	p			
0.068μF	4.5	9.5	7.2	5.0	80	25 E3	R79GC2680--0--
0.082μF	5.0	10.0	7.2	5.0	80	25 E3	R79GC2820--0--
0.10μF	5.0	10.0	7.2	5.0	80	25 E3	R79GC3100--0--
0.12μF	6.0	11.0	7.2	5.0	80	25 E3	R79GC3120--0--
0.15μF	6.0	11.0	7.2	5.0	80	25 E3	R79GC3150--0--
0.18μF	7.2	13.0	7.2	5.0	80	25 E3	R79GC3180--0--
0.22μF	7.2	13.0	7.2	5.0	80	25 E3	R79GC3220--0--

Mechanical version and packaging (Table 1)  
Internal use  
Tolerance: J (± 5%); K (± 10%)

All dimensions are in mm.

Note: If the working voltage (V) is lower than the rated voltage (V<sub>R</sub>), 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<sub>R</sub>/V.  
The pulse characteristic K<sub>0</sub> 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.

Rated Cap.	250Vdc/160Vac				Max dv/dt (V/μs)	Max K <sub>0</sub> (V <sup>2</sup> /μs)	Part Number
	B	H	L	p			
0.012μF	3.5	7.5	7.2	5.0	100	50 E3	R79IC2120--3--
0.015μF	3.5	7.5	7.2	5.0	100	50 E3	R79IC2150--3--
0.018μF	3.5	7.5	7.2	5.0	100	50 E3	R79IC2180--3--
0.022μF	3.5	7.5	7.2	5.0	100	50 E3	R79IC2220--3--
0.027μF	3.5	7.5	7.2	5.0	100	50 E3	R79IC2270--3--
0.033μF	3.5	7.5	7.2	5.0	100	50 E3	R79IC2330--3--
0.039μF	4.5	9.5	7.2	5.0	100	50 E3	R79IC2390--0--
0.047μF	4.5	9.5	7.2	5.0	100	50 E3	R79IC2470--0--
0.056μF	4.5	9.5	7.2	5.0	100	50 E3	R79IC2560--0--
0.068μF	5.0	10.0	7.2	5.0	100	50 E3	R79IC2680--0--
0.082μF	6.0	11.0	7.2	5.0	100	50 E3	R79IC2820--0--
0.10μF	6.0	11.0	7.2	5.0	100	50 E3	R79IC3100--0--
0.12μF	7.2	13.0	7.2	5.0	100	50 E3	R79IC3120--0--
0.15μF	7.2	13.0	7.2	5.0	100	50 E3	R79IC3150--0--

Rated Cap.	400Vdc/200Vac				Max dv/dt (V/μs)	Max K <sub>0</sub> (V <sup>2</sup> /μs)	Part Number
	B	H	L	p			
3900pF	3.5	7.5	7.2	5.0	200	160 E3	R79MC1390--0--
4700pF	3.5	7.5	7.2	5.0	200	160 E3	R79MC1470--0--
5600pF	3.5	7.5	7.2	5.0	200	160 E3	R79MC1560--0--
6800pF	3.5	7.5	7.2	5.0	200	160 E3	R79MC1680--0--
8200pF	3.5	7.5	7.2	5.0	200	160 E3	R79MC1820--0--
0.010μF	3.5	7.5	7.2	5.0	200	160 E3	R79MC2100--0--
0.012μF	4.5	9.5	7.2	5.0	200	160 E3	R79MC2120--0--
0.015μF	4.5	9.5	7.2	5.0	200	160 E3	R79MC2150--0--
0.018μF	5.0	10.0	7.2	5.0	200	160 E3	R79MC2180--0--
0.022μF	5.0	10.0	7.2	5.0	200	160 E3	R79MC2220--0--
0.027μF	6.0	11.0	7.2	5.0	200	160 E3	R79MC2270--0--
0.033μF	6.0	11.0	7.2	5.0	200	160 E3	R79MC2330--0--
0.039μF	7.2	13.0	7.2	5.0	200	160 E3	R79MC2390--0--
0.047μF	7.2	13.0	7.2	5.0	200	160 E3	R79MC2470--0--

Rated Cap.	630Vdc/220Vac*				Max dv/dt (V/μs)	Max K <sub>0</sub> (V <sup>2</sup> /μs)	Part Number
	B	H	L	p			
1000pF	3.5	7.5	7.2	5.0	400	500 E3	R79PC1100--0--
1200pF	3.5	7.5	7.2	5.0	400	500 E3	R79PC1120--0--
1500pF	3.5	7.5	7.2	5.0	400	500 E3	R79PC1150--0--
1800pF	3.5	7.5	7.2	5.0	400	500 E3	R79PC1180--0--
2200pF	3.5	7.5	7.2	5.0	400	500 E3	R79PC1220--0--
2700pF	3.5	7.5	7.2	5.0	400	500 E3	R79PC1270--0--
3300pF	3.5	7.5	7.2	5.0	400	500 E3	R79PC1330--0--
3900pF	4.5	9.5	7.2	5.0	400	500 E3	R79PC1390--0--
4700pF	4.5	9.5	7.2	5.0	400	500 E3	R79PC1470--0--
5600pF	4.5	9.5	7.2	5.0	400	500 E3	R79PC1560--0--
6800pF	5.0	10.0	7.2	5.0	400	500 E3	R79PC1680--0--
8200pF	6.0	11.0	7.2	5.0	400	500 E3	R79PC1820--0--
0.010μF	6.0	11.0	7.2	5.0	400	500 E3	R79PC2100--0--
0.012μF	6.0	11.0	7.2	5.0	400	500 E3	R79PC2120--0--
0.015μF	7.2	13.0	7.2	5.0	400	500 E3	R79PC2150--0--
0.018μF	7.2	13.0	7.2	5.0	400	500 E3	R79PC2180--0--

Mechanical version and packaging (Table 1)  
Internal use  
Tolerance: H (± 2.5%); J (± 5%); K (± 10%)

**ELECTRICAL CHARACTERISTICS**

**Rated voltage (V<sub>R</sub>):** 100 Vdc - 160Vdc - 250 Vdc  
 400 Vdc - 630 Vdc

**Rated temperature (T<sub>R</sub>):** +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<sub>R</sub> 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):**  
 tgδ × 10<sup>-4</sup> at +25°C ± 5°C

kHz	KP	MKP C ≤ 0.1µF	MKP C > 0.1µF
	tgδ × 10 <sup>-4</sup>	tgδ × 10 <sup>-4</sup>	tgδ × 10 <sup>-4</sup>
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 × 10<sup>5</sup> MΩ (Typ.value: 5 × 10<sup>5</sup> MΩ)

**Test voltage between terminations:**

2.0 × V<sub>R</sub> applied for 2 s at +25°C ± 5°C (for KP).  
 1.6 × V<sub>R</sub> 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 |ΔC/C|: ≤ 1%  
 DF change (Δtgδ): ≤ 10 × 10<sup>-4</sup> 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<sub>R</sub> (for KP)  
 1.25 × V<sub>R</sub> (for MKP)

**Performance**

Capacitance change |ΔC/C|: ≤ 2%  
 DF change (Δtgδ): ≤ 10 × 10<sup>-4</sup> at 10kHz  
 Insulation resistance: ≥ 50% of initial limit.

**Resistance to soldering heat:**

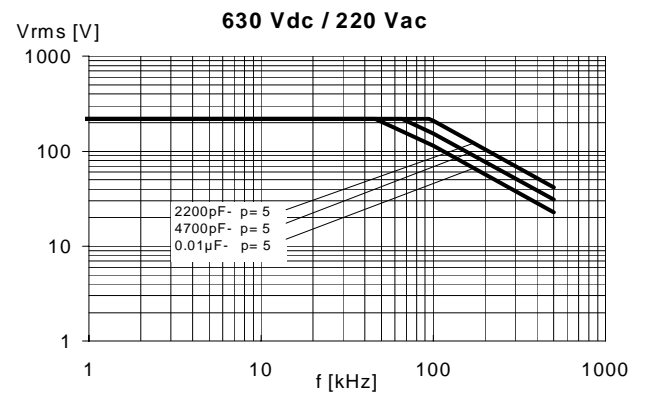
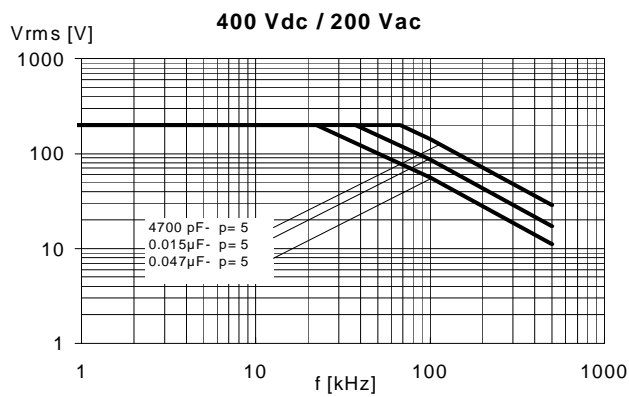
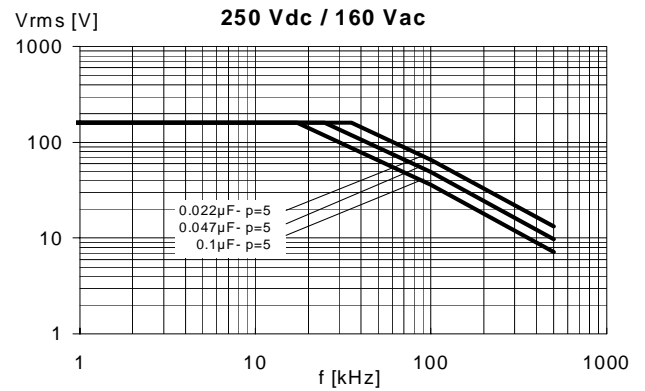
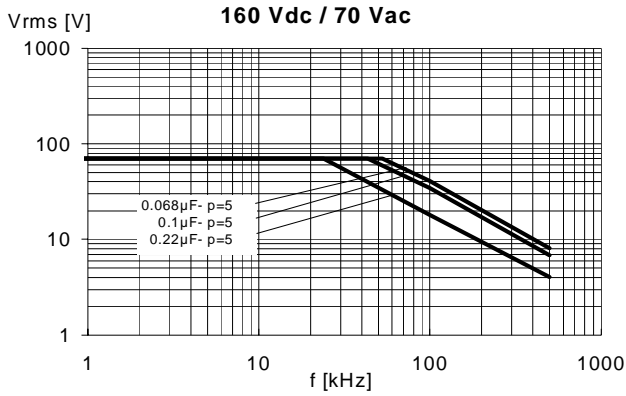
**Test conditions**  
 Solder bath temperature: +260°C ± 5°C  
 Dipping time (with heat screen): 10 s ± 1 s

**Performance**  
 Capacitance change |ΔC/C|: ≤ 1%  
 DF change (Δtgδ): ≤ 10 × 10<sup>-4</sup> at 10kHz  
 Insulation resistance: ≥ initial limit.

**Long term stability** (after two years):

**Storage:** standard environmental conditions  
**Performance**  
 Capacitance change |ΔC/C|: ≤ 0.5%

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



Note: ρ (pitch) in mm.