

**METALLIZED POLYPROPYLENE FILM CAPACITOR  
MULTIPURPOSE APPLICATIONS**

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

PRODUCT CODE: **R79**

**p = 5mm**

All dimensions are in mm.

Pitch (mm)	Box thickness (mm)	Maximum dimensions (mm)		
		B max	H max	L max
5.0	<4.5	B +0.1	H +0.1	L +0.2
5.0	≥4.5	B +0.1	H +0.1	L +0.3

**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		C								-	

- Digit 1 to 3 Series code
- Digit 4 d.c. rated voltage:  
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%

Table 1 (for more detailed information, please refer to page 14)

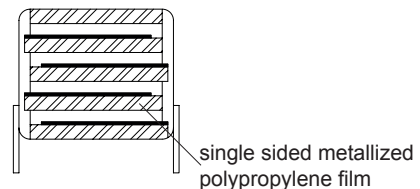
Standard packaging style	Lead length (mm)	Ordering code (Digit 10 to 11)
AMMO-PACK		DQ
REEL Ø 355mm		CK
Loose, short leads	4 <sup>+1.5</sup>	AA
Loose, long leads	17 <sup>+1/-2</sup>	Z3

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

**GENERAL TECHNICAL DATA**

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

**Winding scheme**



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

Mechanical version and packaging (Table1) \_\_\_\_\_  
Internal use \_\_\_\_\_  
Tolerance: J (±5%); K (±10%) \_\_\_\_\_

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

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

Mechanical version and packaging (Table1) \_\_\_\_\_  
Internal use \_\_\_\_\_  
Tolerance: H (±2.5%); J (±5%); K (±10%) \_\_\_\_\_

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

Mechanical version and packaging (Table1) \_\_\_\_\_  
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<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 (page 145).

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**ELECTRICAL CHARACTERISTICS**

**Rated voltage ( $V_R$ ):** 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  $V_R$  (d.c. and a.c.) has to be applied.

**Capacitance range:** 1000pF to 0.22  $\mu$ F

**Capacitance values:**

E12 series (IEC 60063 Norm).

**Capacitance tolerances** (measured at 1 kHz):

$\pm 2.5\%$  (H);  $\pm 5\%$  (J);  $\pm 10\%$  (K).

**Total self-inductance (L):**  $\approx 6$  nH

(lead length  $\approx 2$  mm).

**Temperature coefficient** (ppm/°C):

-200 (typical value).

**Dissipation factor (DF):**

$\text{tg} \delta 10^{-4}$  at +25°C  $\pm 5^\circ\text{C}$

kHz	MKP C $\leq 0.1 \mu\text{F}$	MKP C $> 0.1 \mu\text{F}$
	$\text{tg} \delta \times 10^{-4}$	$\text{tg} \delta \times 10^{-4}$
1	$\leq 6$	$\leq 6$
10	$\leq 10$	$\leq 10$
100	$\leq 30$	

**Dielectric absorption (DA):** 0.05%

**Insulation resistance:**

**Test conditions**

Temperature: +25°C  $\pm 5^\circ\text{C}$

Voltage charge time: 1 min

Voltage charge: 100Vdc

**Performance**

$\geq 1 \times 10^5 \text{ M}\Omega$  (Typ.value:  $5 \times 10^5 \text{ M}\Omega$ )

**Test voltage between terminations:**

$1.6 \times V_R$  applied for 2 s at +25°C  $\pm 5^\circ\text{C}$ .

**TEST METHOD AND PERFORMANCE**

**Damp heat, steady state:**

**Test conditions**

Temperature: +40°C  $\pm 2^\circ\text{C}$

Relative humidity (RH): 93%  $\pm 2\%$

Test duration: 56 days

**Performance**

Capacitance change  $|\Delta C/C|$ :  $\leq 3\%$

DF change ( $\Delta \text{tg} \delta$ ):  $\leq 10 \times 10^{-4}$  at 1kHz

Insulation resistance:  $\geq 50\%$  of initial limit.

**Endurance:**

**Test conditions**

Temperature: +85°C  $\pm 2^\circ\text{C}$

Test duration: 1000 h

Voltage applied:  $1.25 \times V_R$

**Performance**

Capacitance change  $|\Delta C/C|$ :  $\leq 3\%$

DF change ( $\Delta \text{tg} \delta$ ):  $\leq 10 \times 10^{-4}$  at 10kHz

Insulation resistance:  $\geq 50\%$  of initial limit.

**Resistance to soldering heat:**

**Test conditions**

Solder bath temperature: +260°C  $\pm 5^\circ\text{C}$

Dipping time (with heat screen): 10 s  $\pm 1$  s

**Performance**

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

DF change ( $\Delta \text{tg} \delta$ ):  $\leq 10 \times 10^{-4}$  at 10kHz

Insulation resistance:  $\geq$  initial limit.

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

**Storage:** standard environmental conditions (see page 12).

**Performance**

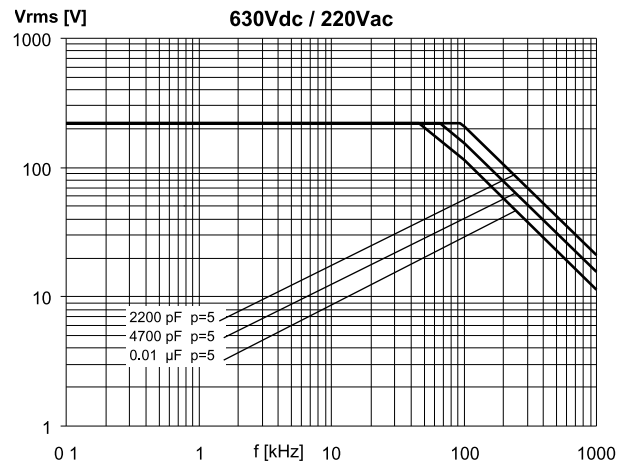
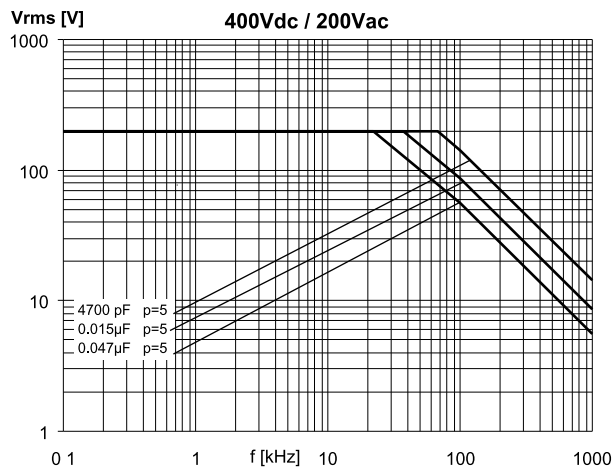
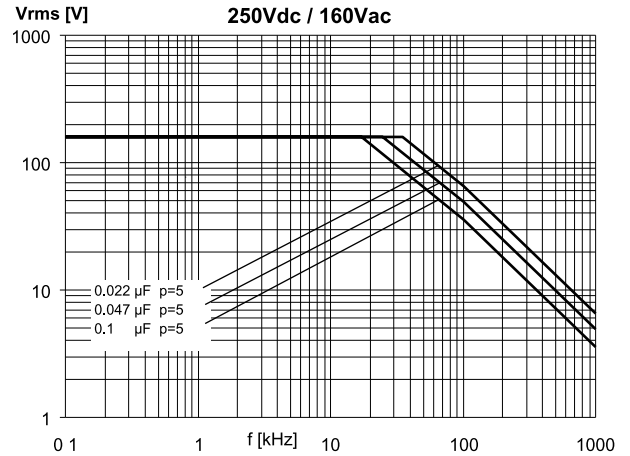
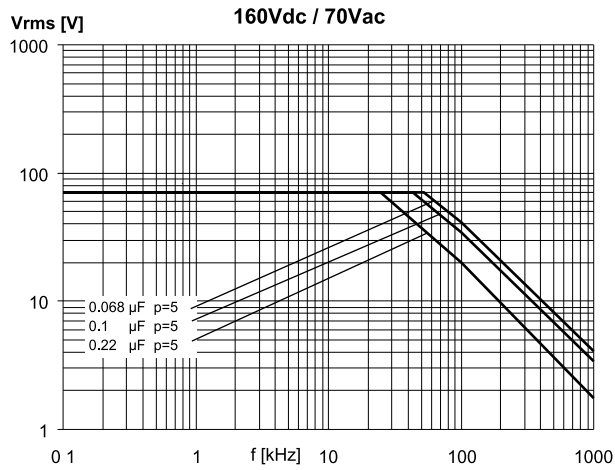
Capacitance change  $|\Delta C/C|$ :  $\leq 0.5\%$

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**MAX. VOLTAGE (Vr.m.s.) VERSUS FREQUENCY (sinusoidal wave-form / Th ≤ 40°C)**



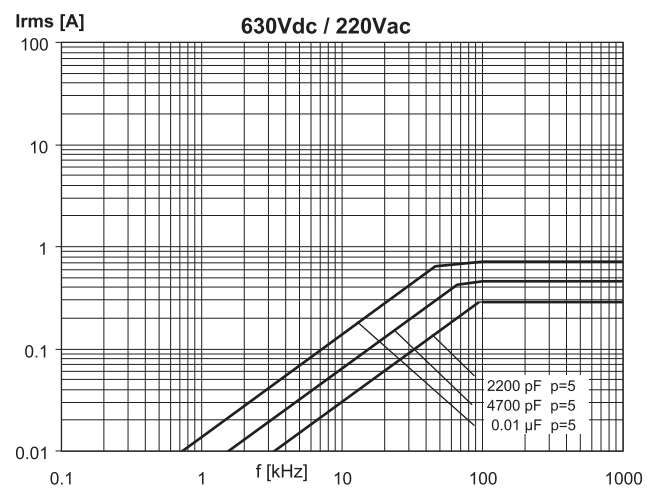
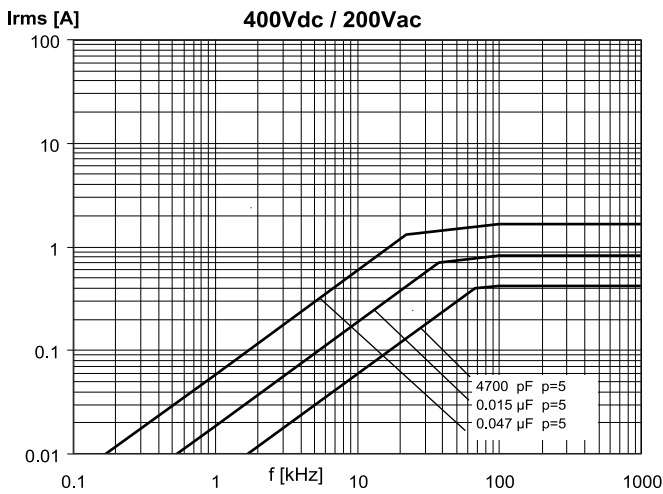
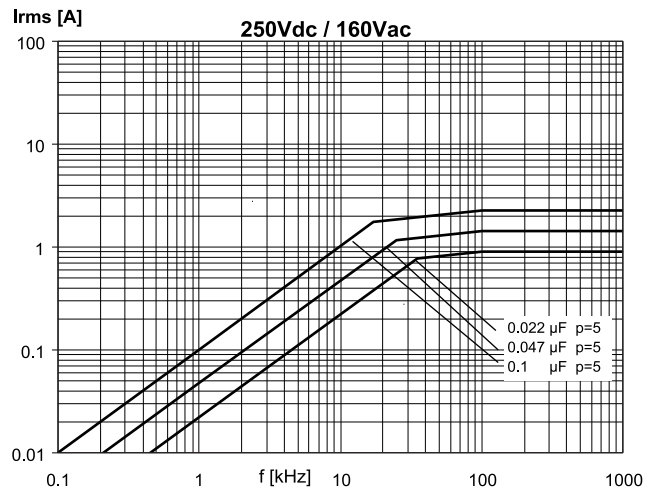
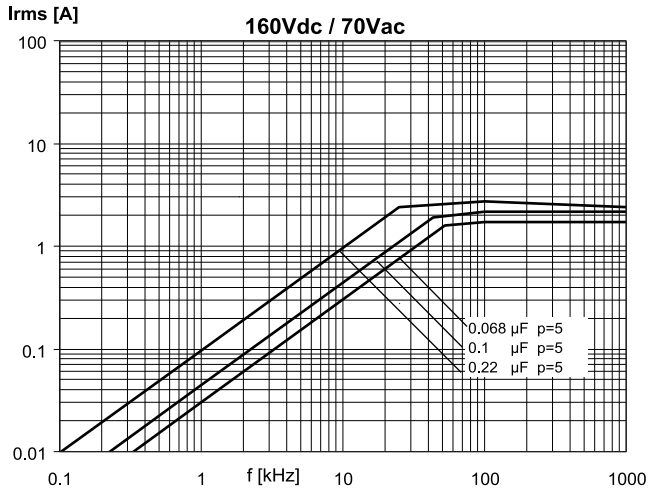
Note: p (pitch) in mm.

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



Note: p (pitch) in mm.