

**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)

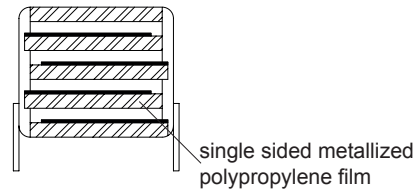
Standard packaging style	Lead length (mm)	Ordering code (Digit 10 to 11)
AMMO-PACK		DQ
REEL Ø 355mm		CK
Loose, short leads	4 ^{+1.5}	AA
Loose, long leads	17 ^{+1/-2}	Z3

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 ₀ (V ² /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 ₀ (V ² /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 ₀ (V ² /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 ₀ (V ² /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_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 145).

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MULTIPURPOSE APPLICATIONS**

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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 μ 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): ≈ 6 nH
(lead length ≈ 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 $\leq 0.1 \mu$ F	MKP C $> 0.1 \mu$ F
	$\text{tg}\delta \times 10^{-4}$	$\text{tg}\delta \times 10^{-4}$
1	≤ 6	≤ 6
10	≤ 10	≤ 10
100	≤ 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 ± 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.

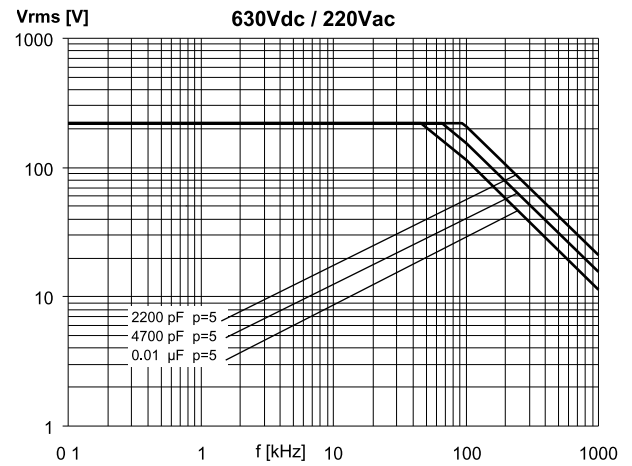
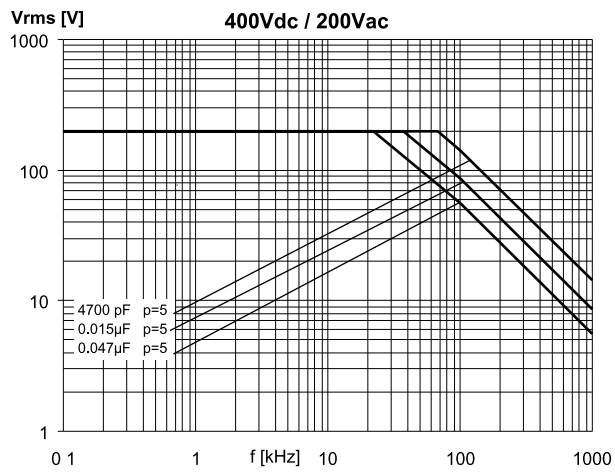
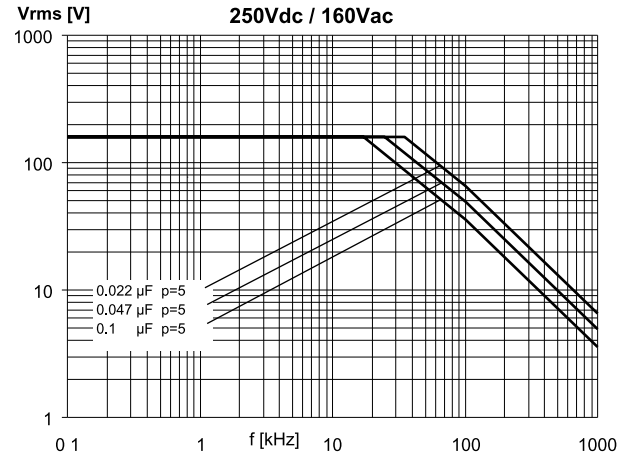
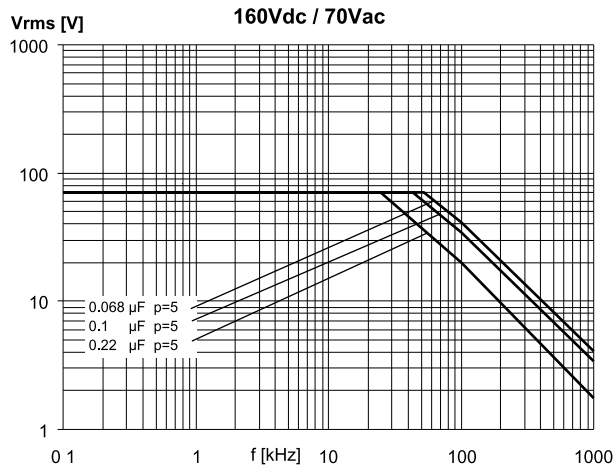
Long term stability (after two years):

Storage: standard environmental conditions (see page 12).

Performance

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

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



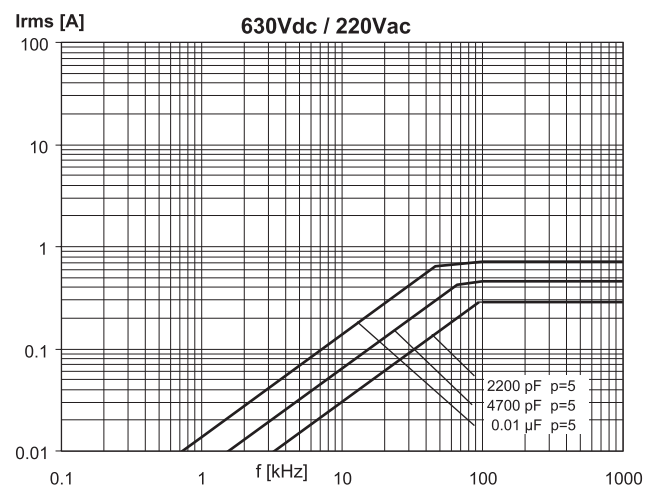
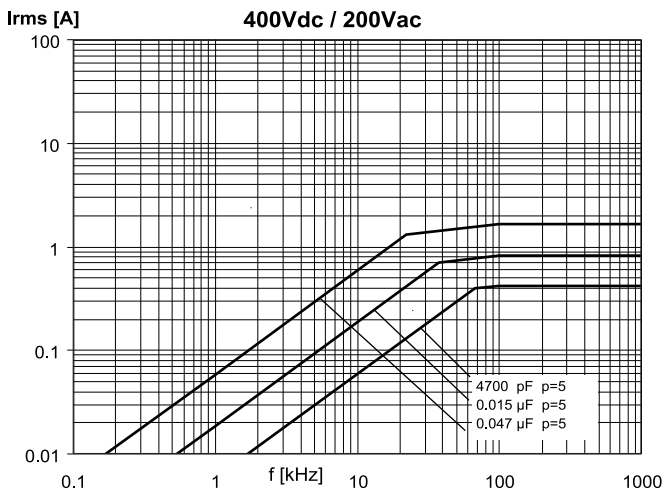
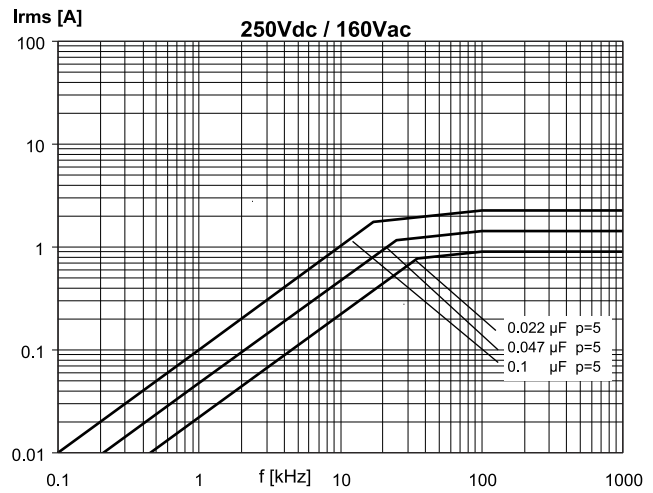
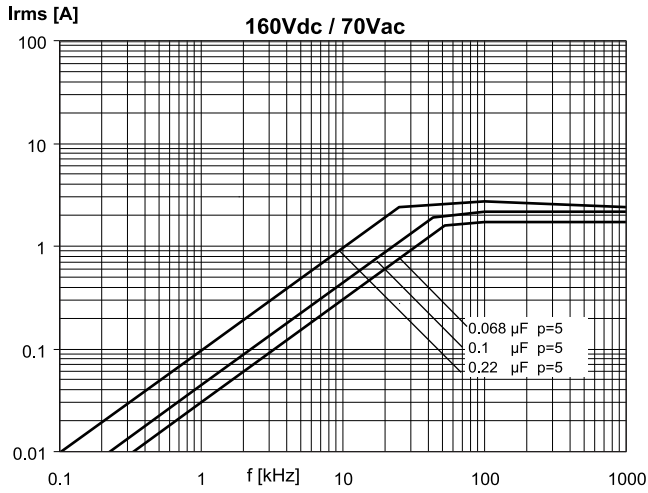
Note: p (pitch) in mm.

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MULTIPURPOSE APPLICATIONS**

p = 5 mm

PRODUCT CODE: **R79**

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



Note: p (pitch) in mm.

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