R79

MKP Series

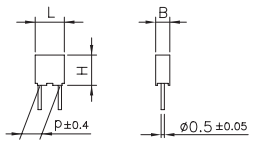
METALLIZED POLYPROPYLENE FILM CAPACITOR MULTIPURPOSE APPLICATIONS

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

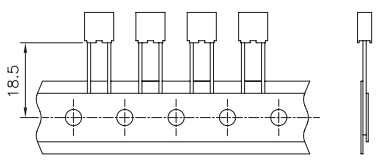
PRODUCT CODE: **R79**

p = 5mm

Loose



Taped



All dimensions are in mm.

Pitch	Box thickness	Maximum dimensions (mm)		
(mm)	(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)

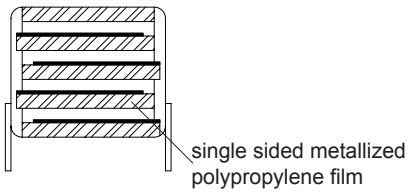
Standard packaging style	Lead length (mm)	Ordering code (Digit 10 to 11)
AMMO-PACK		DQ
REEL Ø 355mm		CK
Loose, short leads	4 $^{+1.5}$	AA
Loose, long leads	17 $^{+1/-2}$	Z3

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 thermical 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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p = 5 mm
PRODUCT CODE: **R79**

Rated Cap.	160Vdc/70Vac Std dimensions				Max dv/dt	Max K_0	Part Number
	B	H	L	p	(V/µs)	(V^2/µs)	
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.	250Vdc/160Vac Std dimensions				Max dv/dt	Max K_0	Part Number
	B	H	L	p	(V/µs)	(V^2/µs)	
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.	400Vdc/200Vac Std dimensions				Max dv/dt	Max K_0	Part Number
	B	H	L	p	(V/µs)	(V^2/µs)	
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.	630Vdc/220Vac* Std dimensions				Max dv/dt	Max K_0	Part Number
	B	H	L	p	(V/µs)	(V^2/µs)	
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 K_0 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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p = 5 mm

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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 µF

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):
tgd 10^{-4} at +25°C ±5°C

kHz	MKP C≤0.1 µF	MKP C>0.1 µF
	tgδx10^{-4}	tgδx10^{-4}
1	≤ 6	≤ 6
10	≤10	≤10
100	≤30	

Dielectric absorption (DA): 0.05%

Insulation resistance:

Test conditions

Temperature:	+25°C±5°C
Voltage charge time:	1 min
Voltage charge:	100Vdc

Performance
≥1x10^5 MΩ (Typ.value: 5x10^5 MΩ)

Test voltage between terminations:
1.6xV_R applied for 2 s at +25°C±5°C.

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 |:	≤3%
DF change (Δtgδ):	≤10x10^{-4} at 1kHz
Insulation resistance:	≥50% of initial limit.

Endurance:

Test conditions

Temperature:	+85°C±2°C
Test duration:	1000 h
Voltage applied:	1.25xV_R

Performance

Capacitance change |ΔC/C |:	≤3%
DF change (Δtgδ):	≤10x10^{-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 |ΔC/C |:	≤2%
DF change (Δtgδ):	≤10x10^{-4} at 10kHz
Insulation resistance:	≥ initial limit.

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

Storage: standard environmental conditions (see page 12).

Performance

Capacitance change |ΔC/C |:	≤0.5%

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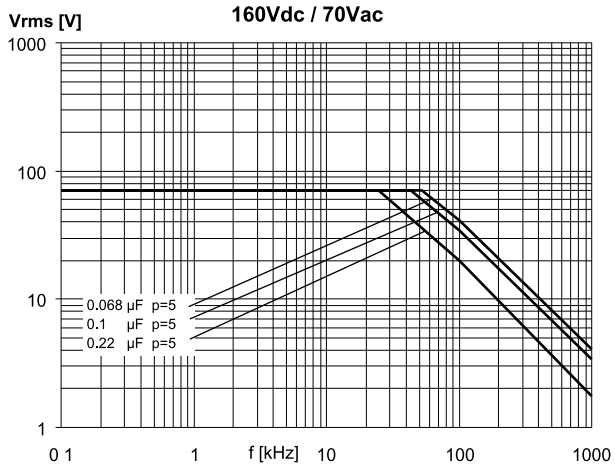
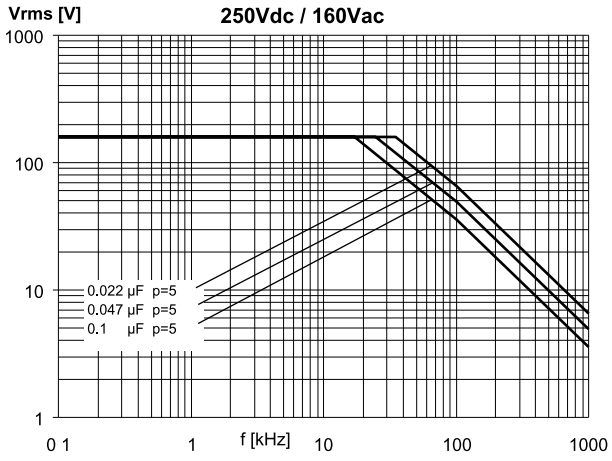
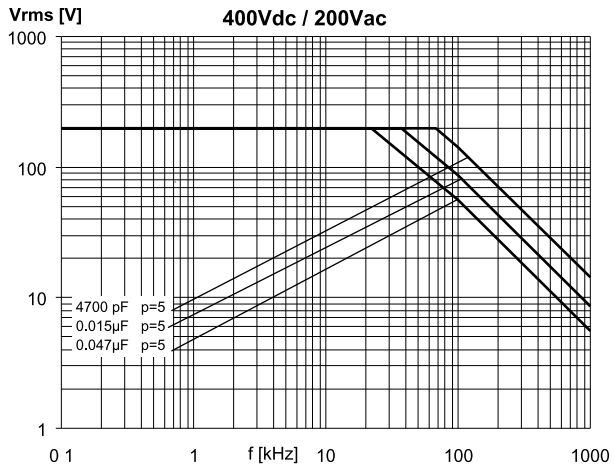
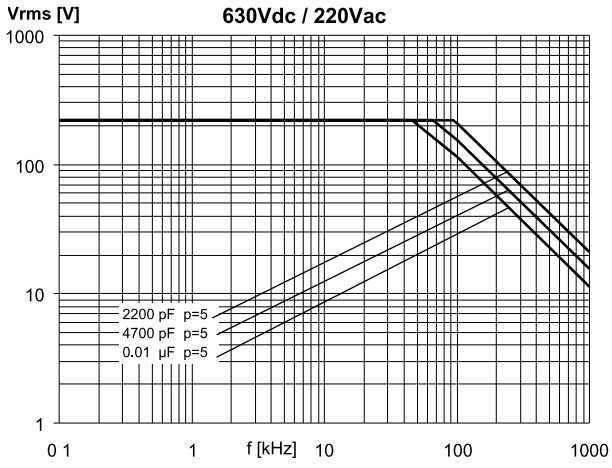
MAX. VOLTAGE (Vr.m.s.) VERSUS FREQUENCY (sinusoidal wave-form / Th ≤ 40°C)









Note: p (pitch) in mm.

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MULTIPURPOSE APPLICATIONS

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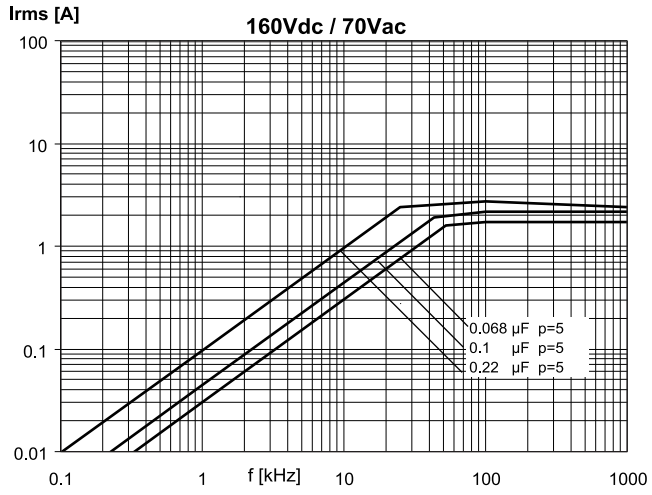
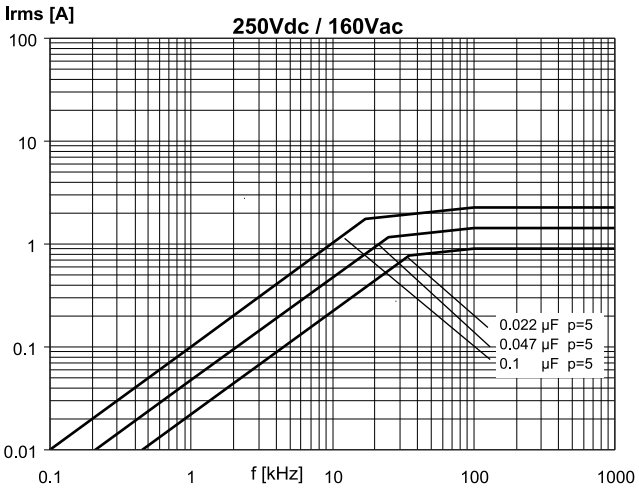
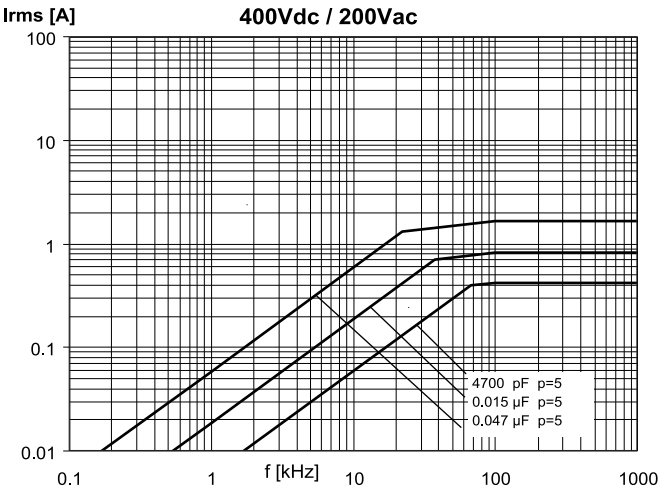
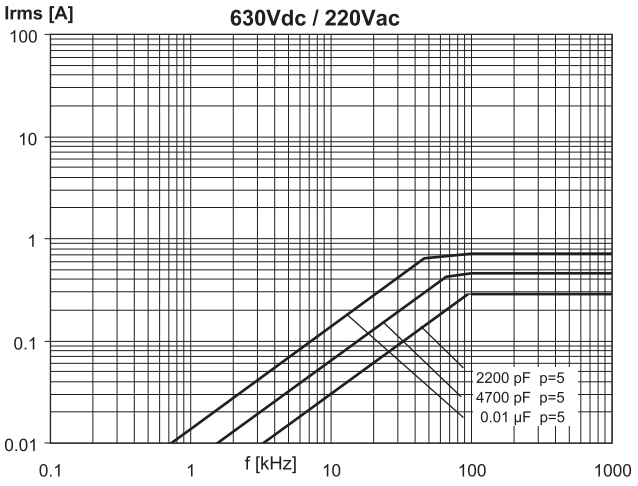
MAX. CURRENT (Ir.m.s.) VERSUS FREQUENCY (sinusoidal wave-form / Th ≤ 40°C)









Note: p (pitch) in mm.