

Ø d ± 0.05	p ≤ 15*	22.5 ≤ p ≤ 27.5
	0.6	0.8

*Except for box ≥ 10x16x18 having Ød = 0.8 ± 0.05mm. All dimensions are in mm.

GENERAL TECHNICAL DATA

- Dielectric:** polypropylene film.
- Plates:** metal layer deposited by evaporation under vacuum.
- Winding:** non-inductive type.
- Leads:** tinned wire.
- Protection:** plastic case, thermosetting resin filled. Box material is solvent resistant and flame retardant according to UL94 V0.
- Marking :** Manufacturer's logo, series, capacitance, tolerance, rated voltage, capacitor class, dielectric code, climatic category, passive flammability category, manufacturing date code, approvals, manufacturing plant.
- Climatic category:** 40/110/56 IEC 60068-1
- Operating temperature range:** -40 to +110°C
- Related documents:** IEC 60384-14, EN 132400.

ELECTRICAL CHARACTERISTICS

- Rated voltage (V_R):** 310Vac; 50/60Hz
- Capacitance range:** 0.01µF to 2.2µF
- Capacitance values:** E6 series (IEC 60063 Norm).
- Capacitance tolerances** (measured at 1 kHz): ± 10% (K); ± 20% (M).
- Dissipation factor (DF):** tgδ × 10⁻⁴ at +25°C ± 5°C: ≤ 10 (6)* at 1kHz
- * Typical value
- Insulation resistance:**
 - Test conditions**
 - Temperature: +25°C ± 5°C
 - Voltage charge time: 1 min
 - Voltage charge: 100 Vdc
 - Performance**
 - ≥ 1 × 10⁵ MΩ (5 × 10⁵ MΩ)* for C ≤ 0.33µF
 - ≥ 30000 s (150000 s)* for C > 0.33µF
 - * Typical value

Test voltage between terminations (on all pieces): 1500Vac for 1 s + 2200Vdc for 1 s at +25°C ± 5°C

X1 CLASS (EN132400) - MKP Series METALLIZED POLYPROPYLENE FILM CAPACITOR SELF-HEALING PROPERTIES

Typical applications: interference suppression and «across-the-line» applications. Suitable for use in situations where failure of the capacitor would not lead to danger of electric shock. Class X1 shall be applied for PERMANENTLY CONNECTED APPARATUS.

Note: **PERMANENTLY CONNECTED APPARATUS:** apparatus which is intended for connection to the mains by a connection which cannot be loosened **BY HAND**.

BY HAND: operation that does not require the use of any object such as a tool, coin, etc.

PRODUCT CODE: **R49**

Note: R.49 series has replaced the 1.58 series (available only upon request). For new design we suggest the use of the R.49 series.

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**
 - Dielectric strength: no dielectric breakdown or flashover at 4.3 × V_R (d.c.)/1 min
 - Capacitance change |ΔC/C|: ≤ 5%
 - Insulation resistance: ≥ 50% of initial limit.

Endurance:

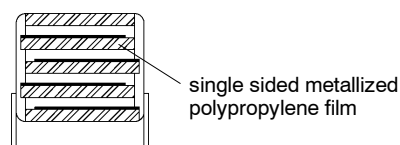
- Test conditions**
 - Temperature: +110°C ± 2°C
 - Test duration: 1000 h
 - Voltage applied: 1.25 × V_R + 1000Vac 0.1 s/h

- Performance**
 - Dielectric strength: no dielectric breakdown or flashover at 4.3 × V_R (d.c.)/1 min
 - Capacitance change |ΔC/C|: ≤ 10%
 - 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%




Winding scheme



**X1 CLASS (EN132400) - MKP Series
METALLIZED POLYPROPYLENE FILM CAPACITOR
SELF-HEALING PROPERTIES**

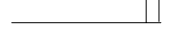

PRODUCT CODE: **R49**

APPROVALS

	IMQ EN 132400	Class X1	File No.CA08.00030
	CSA C22.2 N°1 (up to 1µF)	Across-the-line	File No.LR83890
	UL 1414 (up to 1µF)	Across-the-line	File No.E97797
	UL 1283	Electromagnetic Interference Filters	File No.E85238

CSA and UL 1414 for 250Vac only.
Approved according to IEC 60384-14:1993+ A1:1995
(EN132400:1994+A2:1998+A3:1998).
According to IEC 60065.

Rated Cap. (*)	310 Vac				Ød	Max dv/dt at 440Vdc (V/µs)	Part Number
	B	H	L	p			
0.010 µF	5.0	11.0	13.0	10.0	0.6	600	R49AF 2100 -- 01 -
0.015 µF	5.0	11.0	13.0	10.0	0.6	600	R49AF 2150 -- 01 -
0.022 µF	6.0	12.0	13.0	10.0	0.6	600	R49AF 2220 -- 01 -
0.033 µF	6.0	12.0	13.0	10.0	0.6	600	R49AF 2330 -- 01 -
0.010 µF	5.0	11.0	18.0	15.0	0.6	500	R49AI 2100 -- 01 -
0.015 µF	5.0	11.0	18.0	15.0	0.6	500	R49AI 2150 -- 01 -
0.022 µF	5.0	11.0	18.0	15.0	0.6	500	R49AI 2220 -- 01 -
0.033 µF	5.0	11.0	18.0	15.0	0.6	500	R49AI 2330 -- 01 -
0.047 µF	6.0	12.0	18.0	15.0	0.6	500	R49AI 2470 -- 01 -
0.068 µF	6.0	12.0	18.0	15.0	0.6	500	R49AI 2680 -- M1M
0.068 µF	7.5	13.5	18.0	15.0	0.6	500	R49AI 2680 -- 01 -
0.10 µF	7.5	13.5	18.0	15.0	0.6	500	R49AI 3100 -- M1M
0.10 µF	8.5	14.5	18.0	15.0	0.6	500	R49AI 3100 -- 01 -
0.15 µF	10.0	16.0	18.0	15.0	0.8	500	R49AI 3150 -- 01 -
0.10 µF	6.0	15.0	26.5	22.5	0.8	400	R49AN 3100 -- 01 -
0.15 µF	7.0	16.0	26.5	22.5	0.8	400	R49AN 3150 -- 01 -
0.22 µF	8.5	17.0	26.5	22.5	0.8	400	R49AN 3220 -- 01 -
0.33 µF	10.0	18.5	26.5	22.5	0.8	400	R49AN 3330 -- 01 -
0.47 µF	11.0	20.0	26.5	22.5	0.8	400	R49AN 3470 -- 01M
0.33 µF	9.0	17.0	32.0	27.5	0.8	200	R49AR 3330 -- 01 -
0.47 µF	11.0	20.0	32.0	27.5	0.8	200	R49AR 3470 -- 01 -
0.68 µF	13.0	22.0	32.0	27.5	0.8	200	R49AR 3680 -- 01 -
1.0 µF	14.0	28.0	32.0	27.5	0.8	200	R49AR 4100 -- 01 -
1.5 µF	18.0	33.0	32.0	27.5	0.8	200	R49AR 4150 -- 01 -
2.2 µF	22.0	37.0	32.0	27.5	0.8	200	R49AR 4220 -- 01 -

Mechanical version and packaging (Table 1) 
Tolerance: K (±10%); M (±20%) 

E12 Series available upon request

All dimensions are in mm

Table 1

Standard packaging style	Lead length (mm)	Taping style			Ordering code (Digit 10 to 11)
		P ₂ (mm)	Fig. (No.)	Pitch (mm)	
AMMO-PACK		12.70	1	10.0/15.0	DQ
AMMO-PACK		19.05	2	22.5	DQ
REEL Ø355mm		12.70	1	10.0/15.0	CK
REEL Ø500mm		19.05	2	22.5/27.5	CK
Loose, short leads	4 ⁺²				00
Loose, long leads	25 ^{-1/+2}				50
Loose, long leads	30 ⁺⁵				40
Loose, insulated rigid leads	30 ⁺⁵				51
Loose, insulated flexible leads	150 ^{±5}				52

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