

# 1.40

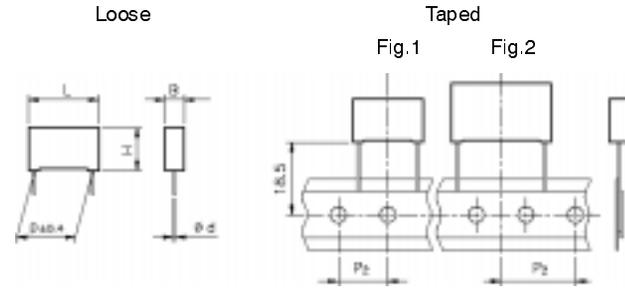
## X2 CLASS (EN132400) - MKT Series METALLIZED POLYESTER FILM CAPACITOR

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.

PRODUCT CODE: **R40**

ARCOTRONICS



Ø d ± 0.05	p = 10	p ≥ 15
	0.6	0.8

All dimensions are in mm.

### GENERAL TECHNICAL DATA

**Dielectric:** polyester film (polyethylene terephthalate).

**Plates:** metal layer deposited by evaporation under vacuum.

**Winding:** non-inductive type.

**Leads:** tinned wire.

**Protection:** plastic case, polyurethane 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:

40/100/21 IEC 60068-1 (Standard version)

55/100/56 IEC 60068-1 (Miniature version)

**Operating temperature range:** -40 to +100 °C

#### Related documents:

IEC 60384-14 2nd edition 1993 plus amendment A1: 1995;  
EN 132400

### ELECTRICAL CHARACTERISTICS

**Rated voltage (V<sub>R</sub>):** 275Vac; 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):

$\text{tg} \delta \times 10^{-4}$  at +25°C ± 5°C: ≤ 100 (60)\* at 1kHz

\* Typical value

#### Insulation resistance:

##### Test conditions

Temperature: +25°C ± 5°C

Voltage charge time: 1 min

Voltage charge: 100 Vdc

##### Performance

≥ 3 × 10<sup>4</sup> MΩ (5 × 10<sup>4</sup> MΩ)\* for C ≤ 0.33µF

≥ 10000 s (17000 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

### TEST METHOD AND PERFORMANCE

#### Damp heat, steady state:

##### Test conditions

Temperature: +40°C ± 2°C

Relative humidity (RH): 93% ± 2%

Test duration: 21 days (Standard version)  
56 days (Miniature version)

##### Performance

Dielectric strength: no dielectric breakdown or  
flashover at 4.3 × V<sub>R</sub> (d.c.)/1 min

Capacitance change (ΔC/C): ≤ ± 5%

Insulation resistance: ≥ 50% of initial limit.

#### Endurance:

##### Test conditions

Temperature: +100°C ± 2°C

Test duration: 1000 h

Voltage applied: 1.25 × V<sub>R</sub> + 1000Vac 0.1 s/h

##### Performance

Dielectric strength: no dielectric breakdown or  
flashover at 4.3 × V<sub>R</sub> (d.c.)/1 min

Capacitance change (ΔC/C): ≤ ± 10%

Insulation resistance: ≥ 50% of initial limit.

#### Resistance to soldering heat:

##### Test conditions

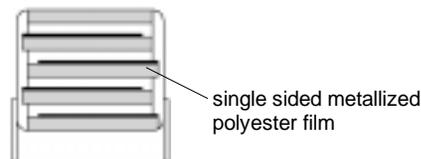
Solder bath temperature: +260°C ± 5°C

Dipping time (with heat screen): 10 s ± 1 s

##### Performance

Capacitance change (ΔC/C): ≤ ± 2%

#### Winding scheme



single sided metallized  
polyester film

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**METALLIZED POLYESTER FILM CAPACITOR**  
 SELF-HEALING PROPERTIES  
 PRODUCT CODE: R40

**Standard version** (All dimensions are in mm)

Rated Cap.	275 Vac				Max dv/dt at 390Vdc (V/μs)	Part Number
	B	H	L	p		
0.010 μF	5.0	11.0	18.0	15.0	300	R40.KI. 2100.- -.01.-
0.015 μF	5.0	11.0	18.0	15.0	300	R40.KI. 2150.- -.01.-
0.022 μF	5.0	11.0	18.0	15.0	300	R40.KI. 2220.- -.01.-
0.033 μF	5.0	11.0	18.0	15.0	300	R40.KI. 2330.- -.01.-
0.047 μF	5.0	11.0	18.0	15.0	300	R40.KI. 2470.- -.01.-
0.068 μF	5.0	11.0	18.0	15.0	300	R40.KI. 2680.- -.01.-
0.10 μF	6.0	12.0	18.0	15.0	300	R40.KI. 3100.- -.01.-
0.15 μF	8.5	14.5	18.0	15.0	300	R40.KI. 3150.- -.01.-
0.22 μF	10.0	16.0	18.0	15.0	300	R40.KI. 3220.- -.01.-
0.15 μF	6.0	15.0	26.5	22.5	180	R40.KN.3150.- -.01.-
0.22 μF	7.0	16.0	26.5	22.5	180	R40.KN.3220.- -.01.-
0.33 μF	8.5	17.0	26.5	22.5	180	R40.KN.3330.- -.01.-
0.47 μF	10.0	18.5	26.5	22.5	180	R40.KN.3470.- -.01.-
0.68 μF	11.0	20.0	32.0	27.5	130	R40.KR.3680.- -.01.-
1.0 μF	13.0	22.0	32.0	27.5	130	R40.KR.4100.- -.01.-
1.5 μF	15.0	24.5	32.0	27.5	130	R40.KR.4150.- -.01.-
2.2 μF	18.0	33.0	32.0	27.5	130	R40.KR.4220.- -.01.-

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

**Approvals**

	IMQ	EN 132400 CB	Class X2	File No. V3905 File No. IT-1562/1
	VDE	EN 132400	Class X2	File No.108807
	SEV	EN 132400	Class X2	File No.98,770601
	DEMKO	EN 132400	Class X2	File No.106394
	SEMKO	EN 132400	Class X2	File No.9839064
	ÖVE	EN 132400	Class X2	File No.1275-005-02
	FI IEC	EN 132400	Class X2	File No.FI11586
	NEMKO	EN 132400	Class X2	File No.P98102052
	CSA C22.2 N° 1 (up to 1μF)		Across-the-line	File No.LR 83890-18
	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 EN132400 (IEC60384-14 2nd Edition '93 plus Amendment A1:1995).  
 According to IEC 60065.

**Miniature version** (All dimensions are in mm)

Rated Cap.	275 Vac				Max dv/dt at 390Vdc (V/μs)	Part Number
	B	H	L	p		
0.010 μF	4.0	9.0	13.0	10.0	400	R40.KF. 2100.- -.M1.-
0.015 μF	5.0	11.0	13.0	10.0	400	R40.KF. 2150.- -.M1.-
0.022 μF	5.0	11.0	13.0	10.0	400	R40.KF. 2220.- -.M1.-
0.033 μF	5.0	11.0	13.0	10.0	400	R40.KF.2330.- -.M2.M
0.033 μF	6.0	12.0	13.0	10.0	400	R40.KF.2330.- -.M1.-
0.047 μF	6.0	12.0	13.0	10.0	400	R40.KF.2470.- -.M1.-
0.010 μF	5.0	11.0	18.0	15.0	200	R40.KI. 2100.- -.M1.-
0.015 μF	5.0	11.0	18.0	15.0	200	R40.KI. 2150.- -.M1.-
0.022 μF	5.0	11.0	18.0	15.0	200	R40.KI. 2220.- -.M1.-
0.033 μF	5.0	11.0	18.0	15.0	200	R40.KI. 2330.- -.M1.-
0.047 μF	5.0	11.0	18.0	15.0	200	R40.KI. 2470.- -.M1.-
0.068 μF	5.0	11.0	18.0	15.0	200	R40.KI. 2680.- -.M1.-
0.10 μF	6.0	12.0	18.0	15.0	200	R40.KI. 3100.- -.M1.-
0.15 μF	7.5	13.5	18.0	15.0	200	R40.KI. 3150.- -.M1.-
0.22 μF	8.5	14.5	18.0	15.0	200	R40.KI. 3220.- -.M1.-
0.33 μF	10.0	16.0	18.0	15.0	200	R40.KI. 3330.- -.M1.-
0.15 μF	6.0	15.0	26.5	22.5	120	R40.KN.3150.- -.M1.-
0.22 μF	6.0	15.0	26.5	22.5	120	R40.KN.3220.- -.M1.-
0.33 μF	7.0	16.0	26.5	22.5	120	R40.KN.3330.- -.M1.-
0.47 μF	8.5	17.0	26.5	22.5	120	R40.KN.3470.- -.M1.-
0.68 μF	10.0	18.5	26.5	22.5	120	R40.KN.3680.- -.M1.-
0.47 μF	9.0	17.0	32.0	27.5	100	R40.KR.3470.- -.M1.-
0.68 μF	9.0	17.0	32.0	27.5	100	R40.KR.3680.- -.M1.-
1.0 μF	11.0	20.0	32.0	27.5	100	R40.KR.4100.- -.M1.-
1.5 μF	15.0	24.5	32.0	27.5	100	R40.KR.4150.- -.M1.-
2.2 μF	18.0	33.0	32.0	27.5	100	R40.KR.4220.- -.M1.-

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

Table 1 ( for more detailed information, please refer to page 15).

Standard packaging style	Lead length (mm)	Taping style			Ordering code (Digit 10 to 11)
		P <sub>2</sub> (mm)	Fig. (No.)	Pitch (mm)	
AMMO-PACK		12.70	1	10.0/15.0	DQ
AMMO-PACK		19.05	2	22.5	DQ
REEL Ø500mm		12.70	1	10.0/15.0	CK
REEL Ø500mm		19.05	2	22.5/27.5	CK
Loose, short leads	4 <sup>+2</sup>				00
Loose, long leads	30 <sup>+5</sup>				50

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