EN: This Datasheet/Document is presented by the manufacturer.

Please visit our website for pricing and availability at www.hestore.hu.

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R.46

X2 CLASS (IEC 60384-14) - MKP Series
METALLIZED POLYPROPYLENE FILM CAPACITOR
SELF-HEALING PROPERTIES

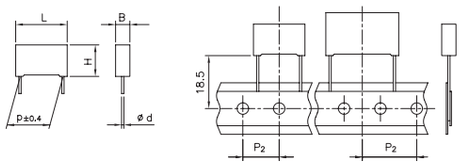
Typical applications: interference suppression and «across-the-line» applications. Suitable for use in situations where failure of the capacitor would not lead to danger of electric shock.

PRODUCT CODE: **R46**

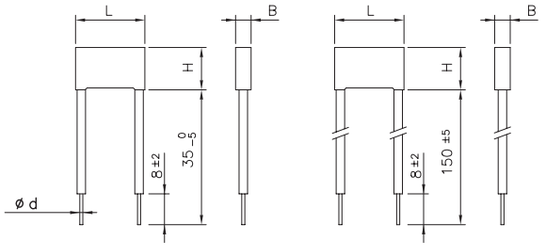
Note: R.46 series has replaced the 1.40 series and 1.47 series. For new design we suggest the use of the R.46 series.

Loose Taped

Fig.1 Fig.2



Insulated rigid leads Insulated flexible leads 0.5mm²



Ø d ±0.05	p ≤15	22.5 ≤ p ≤ 27.5	p = 37.5
	0.6 or 0.8*	0.8	1

*See size table.
All dimensions are in mm.

Pitch (mm)	Box thickness (B) (mm)	Maximum dimensions (mm)		
		B max	H max	L max
10.0	All	B +0.2	H +0.1	L +0.2
15.0	<7.5	B +0.2	H +0.1	L +0.3
15.0	≥7.5	B +0.2	H +0.1	L +0.5
22.5	All	B +0.2	H +0.1	L +0.3
27.5	All	B +0.2	H +0.1	L +0.3
37.5	All	B +0.3	H +0.1	L +0.3

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 60384-14.

ELECTRICAL CHARACTERISTICS

Rated voltage (V_R): 275Vac (50/60Hz) / 560 Vdc
300Vac (50/60Hz) / 630 Vdc

Capacitance range: 0.01µF to 10µF

Capacitance values: E6 series (IEC 60063 Norm).

Capacitance tolerances (measured at 1 kHz)**:**
±10% (K); ±20% (M);
tolerance ±5% (J) available upon request

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
≥1x10^5 MΩ (5x10^5 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

TEST METHOD AND PERFORMANCE

Damp heat, steady state:

Test conditions 1st
Temperature: +40°C ± 2°C
Relative humidity (RH): 93% ±2%
Test duration: 56 days

Test conditions 2nd
Temperature: +60°C ± 2°C
Relative humidity (RH): 95% ±2%
Test duration: 500 hours

Performance
Dielectric strength: no dielectric breakdown or flashover at 4.3 x 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 x V_R +1000Vac 0.1 s/h

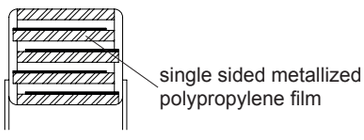
Performance
Dielectric strength: no dielectric breakdown or flashover at 4.3 x V_R (d.c.)/1 min
Capacitance change |ΔC/C|: ≤10%
Insulation resistance: ≥50% of initial limit.

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



R.46

X2 CLASS (IEC 60384-14) - MKP Series
METALLIZED POLYPROPYLENE FILM CAPACITOR
SELF-HEALING PROPERTIES

Rated Cap.	275 Vac / 560 Vdc Std dimensions				Ø d	Max dv/dt at 390Vdc	Part Number	
	B	H	L	p		(V/ µs)		
0.010 µF	4.0	9.0	13.0	10.0	0.6	500	R46 KF 2100 - - N0	-
0.015 µF	4.0	9.0	13.0	10.0	0.6	500	R46 KF 2150 - - N0	-
0.022 µF	4.0	9.0	13.0	10.0	0.6	500	R46 KF 2220 - - N0	-
0.033 µF	5.0	11.0	13.0	10.0	0.6	500	R46 KF 2330 - - M1	-
0.047 µF	5.0	11.0	13.0	10.0	0.6	500	R46 KF 2470 - - N0	-
0.068 µF	6.0	12.0	13.0	10.0	0.6	500	R46 KF 2680 - - M1	-
0.10 µF	6.0	12.0	13.0	10.0	0.6	500	R46 KF 3100 - - M1	M
0.010 µF	5.0	11.0	18.0	15.0	0.6	400	R46 KI 2100 - - 01	-
0.015 µF	5.0	11.0	18.0	15.0	0.6	400	R46 KI 2150 - - 01	-
0.022 µF	5.0	11.0	18.0	15.0	0.6	400	R46 KI 2220 - - 01	-
0.033 µF	5.0	11.0	18.0	15.0	0.6	400	R46 KI 2330 - - 01	-
0.047 µF	5.0	11.0	18.0	15.0	0.6	400	R46 KI 2470 - - 01	-
0.068 µF	5.0	11.0	18.0	15.0	0.6	400	R46 KI 2680 - - 01	-
0.10 µF	5.0	11.0	18.0	15.0	0.6	400	R46 KI 3100 - - M1	-
0.15 µF	6.0	12.0	18.0	15.0	0.6	400	R46 KI 3150 - - M2	-
0.15 µF	9.0	12.5	18.0	15.0	0.6	400	R46 KI 3150 - - L2	-
0.22 µF	7.5	13.5	18.0	15.0	0.6	400	R46 KI 3220 - - M2	-
0.22 µF	9.0	12.5	18.0	15.0	0.6	400	R46 KI 3220 - - L2	-
0.22 µF	6.0	17.5	18.0	15.0	0.6	400	R46 KI 3220 - - 02	-
0.33 µF	8.5	14.5	18.0	15.0	0.6	400	R46 KI 3330 - - N0	-
0.33 µF	10.0	16.0	18.0	15.0	0.8	400	R46 KI 3330 - - M1	-
0.33 µF	9.0	12.5	18.0	15.0	0.6	400	R46 KI 3330 - - N1	M
0.33 µF	7.5	18.5	18.0	15.0	0.8	400	R46 KI 3330 - - 02	-
0.33 µF	13.0	12.0	18.0	15.0	0.8	400	R46 KI 3330 - - 01	-
0.47 µF	7.5	18.5	18.0	15.0	0.8	400	R46 KI 3470 - - 02	M
0.47 µF	10.0	16.0	18.0	15.0	0.8	400	R46 KI 3470 - - N0	M
0.47 µF	11.0	19.0	18.0	15.0	0.8	400	R46 KI 3470 - - M1	-
0.56 µF	11.0	19.0	18.0	15.0	0.8	400	R46 KI 3560 - - N0	-
0.60 µF	11.0	19.0	18.0	15.0	0.8	400	R46 KI 3600 - - N0	-
0.15 µF	6.0	15.0	26.5	22.5	0.8	200	R46 KN 3150 - - 01	-
0.22 µF	6.0	15.0	26.5	22.5	0.8	200	R46 KN 3220 - - M1	-
0.33 µF	6.0	15.0	26.5	22.5	0.8	200	R46 KN 3330 - - N0	-
0.47 µF	7.0	16.0	26.5	22.5	0.8	200	R46 KN 3470 - - N0	-
0.68 µF	10.0	18.5	26.5	22.5	0.8	200	R46 KN 3680 - - M2	-
1.0 µF	10.0	18.5	26.5	22.5	0.8	200	R46 KN 4100 - - N2	M
1.0 µF	11.0	20.0	26.5	22.5	0.8	200	R46 KN 4100 - - N1	-
0.47 µF	9.0	17.0	32.0	27.5	0.8	150	R46 KR 3470 - - 01	-
0.68 µF	9.0	17.0	32.0	27.5	0.8	150	R46 KR 3680 - - M1	-
1.0 µF	11.0	20.0	32.0	27.5	0.8	150	R46 KR 4100 - - M1	-
1.5 µF	13.0	22.0	32.0	27.5	0.8	150	R46 KR 4150 - - M1	-
2.2 µF	13.0	25.0	32.0	27.5	0.8	150	R46 KR 4220 - - M2	-
2.2 µF	14.0	28.0	32.0	27.5	0.8	150	R46 KR 4220 - - M1	-
3.3 µF	18.0	33.0	32.0	27.5	0.8	150	R46 KR 4330 - - M2	-
4.7 µF	18.0	33.0	32.0	27.5	0.8	150	R46 KR 4470 - - M2	-
4.7 µF	22.0	37.0	32.0	27.5	0.8	150	R46 KR 4470 - - M1	-
1.5 µF	11.0	22.0	41.5	37.5	1.0	100	R46 KW 4150 - - M1	-
2.2 µF	11.0	22.0	41.5	37.5	1.0	100	R46 KW 4220 - - M2	M
2.2 µF	13.0	24.0	41.5	37.5	1.0	100	R46 KW 4220 - - M1	-
3.3 µF	16.0	28.5	41.5	37.5	1.0	100	R46 KW 4330 - - M1	-
4.7 µF	16.0	28.5	41.5	37.5	1.0	100	R46 KW 4470 - - M2	M
4.7 µF	19.0	32.0	41.5	37.5	1.0	100	R46 KW 4470 - - M1	-
6.8 µF	20.0	40.0	41.5	37.5	1.0	100	R46 KW 4680 - - M2	-
6.8 µF	24.0	44.0	41.5	37.5	1.0	100	R46 KW 4680 - - M1	-
10.0 µF	30.0	45.0	41.5	37.5	1.0	100	R46 KW 5100 - - M1	-

Rated voltage (K=275Vac)
Mechanical version and packaging (Table 1)
Tolerance: K (±10%); M (±20%)

All dimensions are in mm

E12 Series available upon request

APPROVALS

(**)	ENEC IEC 60384-14	Class X2	File No.V4413
	CSA E 384-14 (up to 5.6µF)	Across-the-line	File No.154612 (LR 83890)
	UL 1414 (up to 1µF, 85°C; 250Vac)	Across-the-line	File No.E97797
	UL 1283 (310 Vac)	Electromagnetic Interference Filters	File No.E85238
	GB/T 14472	Class X2	File CQC3001008199 CQC3001008842

Approved according to IEC 60384-14 (ex-former EN 132400)
According to IEC 60065

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(**) ENEC mark has replaced all the following European National marks:

Table 1

Standard packaging style	Lead length (mm)	Taping style P_2 (mm)	Taping style Fig. (No.)	Taping style Pitch (mm)	Ordering code (Digit 10 to 11)
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 +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.

For “capacitor connected in serial with main line” (two - phase and three - phase net) application, please read the “SHORT GUIDE TO CHOOSE THE RIGHT FILM CAPACITORS” at pag. 152 and contact our Technical Service for choosing the safest solution.

R.46

X2 CLASS (IEC 60384-14) - MKP Series

METALLIZED POLYPROPYLENE FILM CAPACITOR

SELF-HEALING PROPERTIES

Rated Cap.	275 Vac / 560 Vdc Std dimensions				Ø d	Max dv/dt at 390Vdc	Part Number		
	B	H	L	p		(V/ µs)			
0.033 µF	4.0	9.0	13.0	10.0	0.6	500	R46 KF	2330 - - P0	-
0.047 µF	4.0	9.0	13.0	10.0	0.6	500	R46 KF	2470 - - P0	-
0.068 µF	5.0	11.0	13.0	10.0	0.6	500	R46 KF	2680 - - P0	-
0.1 µF	5.0	11.0	13.0	10.0	0.6	500	R46 KF	3100 - - P1	M
0.1 µF	6.0	12.0	13.0	10.0	0.6	500	R46 KF	3100 - - P0	-
0.15 µF	6.0	12.0	13.0	10.0	0.6	500	R46 KF	3150 - - P0	M
0.15 µF	5.0	11.0	18.0	15.0	0.6	400	R46 KI	3150 - - P0	-
0.22 µF	6.0	12.0	18.0	15.0	0.6	400	R46 KI	3220 - - P0	-
0.33 µF	7.5	13.5	18.0	15.0	0.6	400	R46 KI	3330 - - P0	-
0.33 µF	9.0	12.5	18.0	15.0	0.6	400	R46 KI	3330 - - P1	
0.33 µF	6.0	17.5	18.0	15.0	0.6	400	R46 KI	3330 - - P2	-
0.47 µF	8.5	14.5	18.0	15.0	0.6	400	R46 KI	3470 - - P0	
0.47 µF	9.0	12.5	18.0	15.0	0.6	400	R46 KI	3470 - - P1	M
0.47 µF	6.0	17.5	18.0	15.0	0.6	400	R46 KI	3470 - - P2	M
0.47 µF	7.5	18.5	18.0	15.0	0.8	400	R46 KI	3470 - - P3	-
0.68 µF	10.0	16.0	18.0	15.0	0.8	400	R46 KI	3680 - - P1	M
0.68 µF	11.0	19.0	18.0	15.0	0.8	400	R46 KI	3680 - - P0	-
0.82 µF	11.0	19.0	18.0	15.0	0.8	400	R46 KI	3820 - - P0	M
0.47 µF	6.0	15.0	26.5	22.5	0.8	200	R46 KN	3470 - - P1	-
0.56 µF	6.0	15.0	26.5	22.5	0.8	200	R46 KN	3560 - - P1	M
0.56 µF	7.0	16.0	26.5	22.5	0.8	200	R46 KN	3560 - - P0	-
0.68 µF	7.0	16.0	26.5	22.5	0.8	200	R46 KN	3680 - - P0	-
1.0 µF	8.5	17.0	26.5	22.5	0.8	200	R46 KN	4100 - - P1	M
1.0 µF	10.0	18.5	26.5	22.5	0.8	200	R46 KN	4100 - - P0	-
1.5 µF	10.0	18.5	26.5	22.5	0.8	200	R46 KN	4150 - - P1	M
1.5 µF	11.0	20.0	26.5	22.5	0.8	200	R46 KN	4150 - - P0	-
2.2 µF	13.0	22.0	26.5	22.5	0.8	200	R46 KN	4220 - - P0	M
1.0 µF	9.0	17.0	32.0	27.5	0.8	150	R46 KR	4100 - - P0	-
1.5 µF	11.0	20.0	32.0	27.5	0.8	150	R46 KR	4150 - - P0	-
2.2 µF	13.0	22.0	32.0	27.5	0.8	150	R46 KR	4220 - - P0	-
3.3 µF	14.0	28.0	32.0	27.5	0.8	150	R46 KR	4330 - - P0	-
4.7 µF	14.0	28.0	32.0	27.5	0.8	150	R46 KR	4470 - - P1	M
4.7 µF	18.0	33.0	32.0	27.5	0.8	150	R46 KR	4470 - - P0	-
6.8 µF	22.0	37.0	32.0	27.5	0.8	150	R46 KR	4680 - - P0	-
2.2 µF	11.0	22.0	41.5	37.5	1.0	100	R46 KW	4220 - - P0	-
3.3 µF	13.0	24.0	41.5	37.5	1.0	100	R46 KW	4330 - - P0	-
4.7 µF	16.0	28.5	41.5	37.5	1.0	100	R46 KW	4470 - - P0	-
6.8 µF	19.0	32.0	41.5	37.5	1.0	100	R46 KW	4680 - - P0	-
10.0 µF	20.0	40.0	41.5	37.5	1.0	100	R46 KW	5100 - - P0	-

Rated voltage (K=275Vac)
Mechanical version and packaging (Table 1)
Tolerance: K (±10%); M (±20%)

IN PROGRESS

All dimensions are in mm

E12 Series available upon request

APPROVALS

(**)	ENEC IEC 60384-14	Class X2	File No.V4413
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	UL 1414 (up to 1µF, 85°C; 250Vac)	Across-the-line	File No.E97797 in progress
	UL 1283 (310 Vac)	Electromagnetic Interference Filters	File No.E85238
	GB/T 14472	Class X2	File CQC3001008199 CQC3001008842

Approved according to IEC 60384-14 (ex-former EN 132400)
According to IEC 60065

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Table 1

Standard packaging style	Lead length (mm)	Taping style P_2 (mm)	Taping style Fig. (No.)	Taping style Pitch (mm)	Ordering code (Digit 10 to 11)
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 +2				00
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Loose, long leads	30 +5				40
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Loose, insulated flexible leads	150 ±5				52

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

For “capacitor connected in serial with main line” (two - phase and three - phase net) application, please read the “SHORT GUIDE TO CHOOSE THE RIGHT FILM CAPACITORS” at pag. 152 and contact our Technical Service for choosing the safest solution.

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METALLIZED POLYPROPYLENE FILM CAPACITOR
SELF-HEALING PROPERTIES

Rated Cap.	300 Vac / 630 Vdc Std dimensions				Ø d	Max dv/dt at 390Vdc	Part Number	
	B	H	L	p		(V/ µs)		
0.010 µF	5.0	11.0	13.0	10.0	0.6	500	R46 3F 2100 - - M1	-
0.015 µF	5.0	11.0	13.0	10.0	0.6	500	R46 3F 2150 - - M1	-
0.022 µF	5.0	11.0	13.0	10.0	0.6	500	R46 3F 2220 - - M1	-
0.033 µF	5.0	11.0	13.0	10.0	0.6	500	R46 3F 2330 - - M1	-
0.047 µF	6.0	12.0	13.0	10.0	0.6	500	R46 3F 2470 - - M1	-
0.068 µF	6.0	12.0	13.0	10.0	0.6	500	R46 3F 2680 - - M1	-
0.1 µF	6.0	12.0	13.0	10.0	0.6	500	R46 3F 3100 - - M1	M
0.010 µF	5.0	11.0	18.0	15.0	0.6	400	R46 3I 2100 - - 01	-
0.015 µF	5.0	11.0	18.0	15.0	0.6	400	R46 3I 2150 - - 01	-
0.022 µF	5.0	11.0	18.0	15.0	0.6	400	R46 3I 2220 - - 01	-
0.033 µF	5.0	11.0	18.0	15.0	0.6	400	R46 3I 2330 - - 01	-
0.047 µF	5.0	11.0	18.0	15.0	0.6	400	R46 3I 2470 - - 01	-
0.068 µF	5.0	11.0	18.0	15.0	0.6	400	R46 3I 2680 - - 01	-
0.10 µF	5.0	11.0	18.0	15.0	0.6	400	R46 3I 3100 - - M1	M
0.10 µF	6.0	12.0	18.0	15.0	0.6	400	R46 3I 3100 - - 01	-
0.15 µF	6.0	12.0	18.0	15.0	0.6	400	R46 3I 3150 - - M2	M
0.15 µF	7.5	13.5	18.0	15.0	0.6	400	R46 3I 3150 - - M1	-
0.22 µF	7.5	13.5	18.0	15.0	0.6	400	R46 3I 3220 - - M2	M
0.22 µF	8.5	14.5	18.0	15.0	0.6	400	R46 3I 3220 - - M1	-
0.22 µF	9.0	12.5	18.0	15.0	0.6	400	R46 3I 3220 - - L2	-
0.33µF	10.0	16.0	18.0	15.0	0.8	400	R46 3I 3330 - - M1	-
0.33 µF	13.0	12.0	18.0	15.0	0.8	400	R46 3I 3330 - - 01	-
0.47 µF	11.0	19.0	18.0	15.0	0.8	400	R46 3I 3470 - - M1	-
0.15 µF	6.0	15.0	26.5	22.5	0.8	200	R46 3N 3150 - - 01	-
0.22 µF	6.0	15.0	26.5	22.5	0.8	200	R46 3N 3220 - - M1	-
0.33 µF	7.0	16.0	26.5	22.5	0.8	200	R46 3N 3330 - - M1	-
0.47 µF	8.5	17.0	26.5	22.5	0.8	200	R46 3N 3470 - - M1	-
0.68 µF	10.0	18.5	26.5	22.5	0.8	200	R46 3N 3680 - - M2	-
1.0 µF	13.0	22.0	26.5	22.5	0.8	200	R46 3N 4100 - - M1	-
0.47 µF	9.0	17.0	32.0	27.5	0.8	150	R46 3R 3470 - - 01	-
0.68 µF	9.0	17.0	32.0	27.5	0.8	150	R46 3R 3680 - - M1	-
1.0 µF	11.0	20.0	32.0	27.5	0.8	150	R46 3R 4100 - - M1	-
1.5 µF	13.0	22.0	32.0	27.5	0.8	150	R46 3R 4150 - - M1	-
2.2 µF	13.0	25.0	32.0	27.5	0.8	150	R46 3R 4220 - - M2	-
2.2 µF	14.0	28.0	32.0	27.5	0.8	150	R46 3R 4220 - - M1	-
2.2 µF	18.0	33.0	32.0	27.5	0.8	150	R46 3R 4220 - - 01	-
3.3 µF	18.0	33.0	32.0	27.5	0.8	150	R46 3R 4330 - - M2	-
3.3 µF	22.0	37.0	32.0	27.5	0.8	150	R46 3R 4330 - - M1	-
4.7 µF	18.0	33.0	32.0	27.5	0.8	150	R46 3R 4470 - - M2	-
4.7 µF	22.0	37.0	32.0	27.5	0.8	150	R46 3R 4470 - - M1	-
1.5 µF	11.0	22.0	41.5	37.5	1.0	100	R46 3W 4150 - - M1	-
2.2 µF	11.0	22.0	41.5	37.5	1.0	100	R46 3W 4220 - - M2	M
2.2 µF	13.0	24.0	41.5	37.5	1.0	100	R46 3W 4220 - - M1	-
3.3 µF	16.0	28.5	41.5	37.5	1.0	100	R46 3W 4330 - - M1	-
4.7 µF	16.0	28.5	41.5	37.5	1.0	100	R46 3W 4470 - - M2	M
4.7 µF	19.0	32.0	41.5	37.5	1.0	100	R46 3W 4470 - - M1	-
6.8 µF	20.0	40.0	41.5	37.5	1.0	100	R46 3W 4680 - - M2	-
6.8 µF	24.0	44.0	41.5	37.5	1.0	100	R46 3W 4680 - - M1	-
10.0 µF	30.0	45.0	41.5	37.5	1.0	100	R46 3W 5100 - - M1	-

Rated voltage (3=300Vac)
Mechanical version and packaging (Table 1)
Tolerance: K (±10%); M (±20%)

All dimensions are in mm
E12 Series available upon request

APPROVALS

(**)	ENEC IEC 60384-14	Class X2	File No.V4413
	CSA E 384-14-95 (up to 5.6µF)	Across-the-line	File No.154612 (LR 83890)
	UL 1414 up to 1µF, 85°C; 250Vac)	Across-the-line	File No.E97797
	UL 1283 (310 Vac)	Electromagnetic Interference Filters	File No.E85238
	GB/T 14472	Class X2	File CQC3001008199 CQC3001008842

Approved according to IEC 60384-14 (ex-former EN 132400)
According to IEC 60065

(**) ENEC mark has replaced all the following European National marks:

Table 1

Standard packaging style	Lead length (mm)	Taping style P_2 (mm)	Taping style Fig. (No.)	Taping style Pitch (mm)	Ordering code (Digit 10 to 11)
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^{+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	$150^{\pm5}$				52

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

For “capacitor connected in serial with main line” (two - phase and three - phase net) application, please read the “SHORT GUIDE TO CHOOSE THE RIGHT FILM CAPACITORS” at pag. 152 and contact our Technical Service for choosing the safest solution.

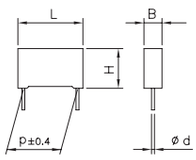
R.46

X2 CLASS (IEC 60384-14) - MKP
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.

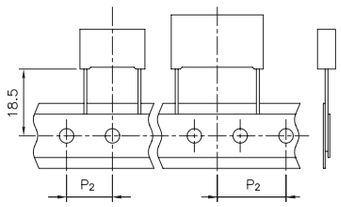
PRODUCT CODE: **R46**

Loose



Taped

Fig.1 Fig.2



Ø d ±0.05	p ≤15	p = 22.5
	0.6 or 0.8*	0.8

*See size table.
All dimensions are in mm.

NEW 125°C

Rated Cap.	275 Vac / 560 Vdc Std dimensions B	H	L	p	Ø d	Max dv/dt at 390Vdc (V/ µs)	Part Number
0.010 µF	5.0	11.0	13.0	10.0	0.6	500	R46 K F 2100 - - H1 -
0.015 µF	5.0	11.0	13.0	10.0	0.6	500	R46 K F 2150 - - H1 -
0.022 µF	5.0	11.0	13.0	10.0	0.6	500	R46 K F 2220 - - H1 -
0.033 µF	5.0	11.0	13.0	10.0	0.6	500	R46 K F 2330 - - H1 -
0.047 µF	6.0	12.0	13.0	10.0	0.6	500	R46 K F 2470 - - H1 -
0.068 µF	6.0	12.0	13.0	10.0	0.6	500	R46 K F 2680 - - H1 M
0.010 µF	5.0	11.0	18.0	15.0	0.6	400	R46 K I 2100 - - H1 -
0.015 µF	5.0	11.0	18.0	15.0	0.6	400	R46 K I 2150 - - H1 -
0.022 µF	5.0	11.0	18.0	15.0	0.6	400	R46 K I 2220 - - H1 -
0.033 µF	5.0	11.0	18.0	15.0	0.6	400	R46 K I 2330 - - H1 -
0.047 µF	5.0	11.0	18.0	15.0	0.6	400	R46 K I 2470 - - H1 -
0.068 µF	5.0	11.0	18.0	15.0	0.6	400	R46 K I 2680 - - H1 -
0.10 µF	6.0	12.0	18.0	15.0	0.6	400	R46 K I 3100 - - H1 -
0.15 µF	6.0	17.5	18.0	15.0	0.6	400	R46 K I 3150 - - H2 -
0.15 µF	9.0	12.5	18.0	15.0	0.6	400	R46 K I 3150 - - H3 -
0.15 µF	7.5	13.5	18.0	15.0	0.6	400	R46 K I 3150 - - H1 -
0.22 µF	8.5	14.5	18.0	15.0	0.6	400	R46 K I 3220 - - H1 -
0.22 µF	6.0	17.5	18.0	15.0	0.6	400	R46 K I 3220 - - H2 M
0.22 µF	9.0	12.5	18.0	15.0	0.6	400	R46 K I 3220 - - H3 M
0.22 µF	7.5	18.5	18.0	15.0	0.8	400	R46 K I 3220 - - H4 -
0.33 µF	10.0	16.0	18.0	15.0	0.8	400	R46 K I 3330 - - H1 M
0.33 µF	7.5	18.5	18.0	15.0	0.8	400	R46 K I 3330 - - H2 M
0.33 µF	13.0	12.0	18.0	15.0	0.8	400	R46 K I 3330 - - H3 M
0.47 µF	11.0	19.0	18.0	15.0	0.8	400	R46 K I 3470 - - H1 M
0.15 µF	6.0	15.0	26.5	22.5	0.8	200	R46 K N 3150 - - H1 -
0.22 µF	6.0	15.0	26.5	22.5	0.8	200	R46 K N 3220 - - H1 -
0.33 µF	7.0	16.0	26.5	22.5	0.8	200	R46 K N 3330 - - H1 -
0.47 µF	10.0	18.5	26.5	22.5	0.8	200	R46 K N 3470 - - H1 -
0.68 µF	11.0	20.0	26.5	22.5	0.8	200	R46 K N 3680 - - H1 -
1.0 µF	13.0	22.0	26.5	22.5	0.8	200	R46 K N 4100 - - H1 -

Rated voltage (K=275Vac)
Mechanical version and packaging (Table 1)
Tolerance: K (±10%); M (±20%)

E12 Series available upon request
All dimensions are in mm

For “capacitor connected in serial with main line” (two - phase and three - phase net) application, please read the “SHORT GUIDE TO CHOOSE THE RIGHT FILM CAPACITORS” at pag. 152 and contact our Technical Service for choosing the safest solution.

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: 40/125/56 IEC 60068-1
Operating temperature range: -40 to +125°C
Related documents: IEC 60384-14; EN 60384-14

ELECTRICAL CHARACTERISTICS

Rated voltage (V_R): 275 Vac (50/60Hz) / 560 Vdc
Capacitance range: 0.01µF to 1µF

TEST METHOD AND PERFORMANCE

Endurance:

Test conditions

Temperature: +125°C±2°C
Test duration: 1000 h
Voltage applied: 1.25 x V_R +1000Vac 0.1 s/h

Performance

Dielectric strength: no dielectric breakdown or flashover at 4.3 x V_R (d.c.)/1 min
Capacitance change |ΔC/C|: ≤ 10%
Insulation resistance: ≥ 50% of initial limit.

APPROVALS

(**)	ENEC IEC 60384-14	Class X2	File No.CA08.00063
	CSA E 384-14-95	Across-the-line	File No.154612 (LR83890)
	UL 1414 up to 1µF, 85°C; 250Vac)	Across-the-line	File No.E97797
	UL 1283 (310 Vac)	Electromagnetic Interference Filters	File No.E85238

Approved according to IEC 60384-14 (ex-former EN 132400)
According to IEC 60065
(**) ENEC mark has replaced all the following European National marks:

R.46S

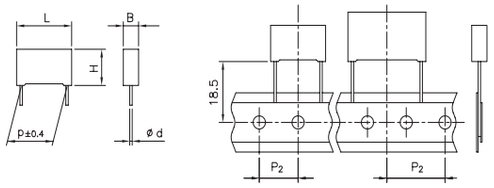
X2 CLASS (IEC 60384-14) - MKP Series
METALLIZED POLYPROPYLENE FILM CAPACITOR
SELF-HEALING PROPERTIES

Typical applications: This special R46 release is specifically designed for applications with particular protection against severe ambient conditions.

PRODUCT CODE: **R46**

Loose Taped

Fig.1 Fig.2



Ø d ±0.05	p ≤15	22.5 ≤ p ≤ 27.5	p = 37.5
	0.6 or 0.8*	0.8	1.0

*See size table.

All dimensions are in mm.

Pitch	Box thickness (B)	Maximum dimensions (mm)		
(mm)	(mm)	B max	H max	L max
10.0	All	B +0.2	H +0.1	L +0.2
15.0	<7.5	B +0.2	H +0.1	L +0.3
15.0	≥7.5	B +0.2	H +0.1	L +0.5
22.5	All	B +0.2	H +0.1	L +0.3
27.5	All	B +0.2	H +0.1	L +0.3
37.5	All	B +0.3	H +0.1	L +0.3

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 60384-14.

ELECTRICAL CHARACTERISTICS

Rated voltage (V_R): 275Vac (50/60Hz) / 560 Vdc

Capacitance range: 0.022µF to 10µF

Capacitance values: E6 series (IEC 60063 Norm).

Capacitance tolerances (measured at 1 kHz)**:**
±10% (K); ±20% (M).
tolerance ±5% (J) available upon request

Dissipation factor (DF):
tgδ 10^{-4} at +25°C ±5°C: ≤15 (8)* at 1kHz
* Typical value

Insulation resistance:

Test conditions

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

Performance

≥1x10^5 MΩ (5x10^5 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

TEST METHOD AND PERFORMANCE

Damp heat, steady state:

Test conditions 1st

Temperature: +40°C ± 2°C
Relative humidity (RH): 93% ±2%
Test duration: 56 days

Test conditions 2nd

Temperature: +60°C ± 2°C
Relative humidity (RH): 95% ±2%
Test duration: 500 hours

Test conditions 3rd

Temperature: +40°C ± 2°C
Relative humidity (RH): 93% ±2%
Test duration: 500 hours
Voltage value: 230 Vac, 50 Hz

Performance

Dielectric strength: no dielectric breakdown or flashover at 4.3 x 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 x V_R +1000Vac 0.1 s/h

Performance

Dielectric strength: no dielectric breakdown or flashover at 4.3 x 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%

R.46S

X2 CLASS (IEC60384-14) - MKP Series

METALLIZED POLYPROPYLENE FILM CAPACITOR

SELF-HEALING PROPERTIES

Rated Cap. (*)	275 Vac / 560 Vdc Std dimensions				Ø d	Max dv/dt at 390Vdc	Part Number		
	B	H	L	p		(V/ µs)			
0.022 µF	4.0	9.0	13.0	10.0	0.6	500	R46 KF	2220 - - S0	-
0.033 µF	5.0	11.0	13.0	10.0	0.6	500	R46 KF	2330 - - S0	-
0.047 µF	5.0	11.0	13.0	10.0	0.6	500	R46 KF	2470 - - S0	-
0.068 µF	6.0	12.0	13.0	10.0	0.6	500	R46 KF	2680 - - S0	-
0.068 µF	5.0	11.0	18.0	15.0	0.6	400	R46 KI	2680 - - S0	-
0.10 µF	5.0	11.0	18.0	15.0	0.6	400	R46 KI	3100 - - S1	M
0.10 µF	6.0	12.0	18.0	15.0	0.6	400	R46 KI	3100 - - S0	-
0.15 µF	6.0	12.0	18.0	15.0	0.6	400	R46 KI	3150 - - S1	M
0.15 µF	7.5	13.5	18.0	15.0	0.6	400	R46 KI	3150 - - S0	-
0.22 µF	7.5	13.5	18.0	15.0	0.6	400	R46 KI	3220 - - S1	M
0.22 µF	8.5	14.5	18.0	15.0	0.6	400	R46 KI	3220 - - S0	-
0.22 µF	6.0	17.5	18.0	15.0	0.6	400	R46 KI	3220 - - S2	-
0.22 µF	9.0	12.5	18.0	15.0	0.6	400	R46 KI	3220 - - S3	-
0.33 µF	13.0	12.0	18.0	15.0	0.8	400	R46 KI	3330 - - S1	-
0.33 µF	10.0	16.0	18.0	15.0	0.8	400	R46 KI	3330 - - S0	-
0.33 µF	7.5	18.5	18.0	15.0	0.8	400	R46 KI	3330 - - S2	-
0.47 µF	11.0	19.0	18.0	15.0	0.8	400	R46 KI	3470 - - S0	-
0.22 µF	6.0	15.0	26.5	22.5	0.8	200	R46 KN	3220 - - S0	-
0.33 µF	6.0	15.0	26.5	22.5	0.8	200	R46 KN	3330 - - S1	M
0.33 µF	7.0	16.0	26.5	22.5	0.8	200	R46 KN	3330 - - S0	-
0.47 µF	7.0	16.0	26.5	22.5	0.8	200	R46 KN	3470 - - S1	M
0.47 µF	8.5	17.0	26.5	22.5	0.8	200	R46 KN	3470 - - S0	-
0.68 µF	10.0	18.5	26.5	22.5	0.8	200	R46 KN	3680 - - S0	-
1.0 µF	10.0	18.5	26.5	22.5	0.8	200	R46 KN	4100 - - S2	M
1.0 µF	11.0	20.0	26.5	22.5	0.8	200	R46 KN	4100 - - S1	-
1.0 µF	13.0	22.0	26.5	22.5	0.8	200	R46 KN	4100 - - S0	-
1.2 µF	13.0	22.0	26.5	22.5	0.8	200	R46 KN	4120 - - S0	-
0.47 µF	9.0	17.0	32.0	27.5	0.8	150	R46 KR	3470 - - S0	-
0.68 µF	9.0	17.0	32.0	27.5	0.8	150	R46 KR	3680 - - S1	-
1.0 µF	11.0	20.0	32.0	27.5	0.8	150	R46 KR	4100 - - S1	-
1.5 µF	13.0	22.0	32.0	27.5	0.8	150	R46 KR	4150 - - S1	-
2.2 µF	13.0	25.0	32.0	27.5	0.8	150	R46 KR	4220 - - S2	-
3.3 µF	18.0	33.0	32.0	27.5	0.8	150	R46 KR	4330 - - S2	-
4.7 µF	18.0	33.0	32.0	27.5	0.8	150	R46 KR	4470 - - S2	-
1.5 µF	11.0	22.0	41.5	37.5	1.0	100	R46 KW	4150 - - S1	-
2.2 µF	11.0	22.0	41.5	37.5	1.0	100	R46 KW	4220 - - S2	M
2.2 µF	13.0	24.0	41.5	37.5	1.0	100	R46 KW	4220 - - S1	-
3.3 µF	16.0	28.5	41.5	37.5	1.0	100	R46 KW	4330 - - S1	-
4.7 µF	16.0	28.5	41.5	37.5	1.0	100	R46 KW	4470 - - S2	M
4.7 µF	19.0	32.0	41.5	37.5	1.0	100	R46 KW	4470 - - S1	-
6.8 µF	20.0	40.0	41.5	37.5	1.0	100	R46 KW	4680 - - S2	-
10.0 µF	30.0	45.0	41.5	37.5	1.0	100	R46 KW	5100 - - S1	-

Rated voltage (K=275Vac)
Mechanical version and packaging (Table 1)
Tolerance: K (±10%); M (±20%)

E12 Series available upon request

All dimensions are in mm

APPROVALS

(**)	ENEC IEC 60384-14	Class X2	File No.V4413
	CSA E 384-14-95 (up to 5.6 µF)	Across-the-line	File No.154612 (LR 83890)
	UL 1414 up to 1µF, 85°C; 250Vac)	Across-the-line	File No.E97797
	UL 1283 (310 Vac)	Electromagnetic Interference Filters	File No.E85238
	GB/T 14472	Class X2	File CQC3001008199 CQC3001008842

Approved according to IEC 60384-14 (ex-former EN 132400)
According to IEC 60065

(**) ENEC mark has replaced all the following European National marks:

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 Ø500mm		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.

R.46+R

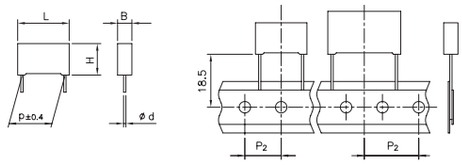
Capacitors with discharge resistor
X2 CLASS (IEC 60384-14) - MKP Series
METALLIZED POLYPROPYLENE FILM CAPACITOR
SELF-HEALING PROPERTIES

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.

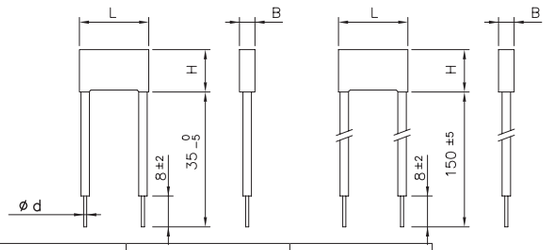
PRODUCT CODE: **R46**

Loose Taped

Fig.1 Fig.2



Insulated rigid leads Insulated flexible leads 0.5mm²



Ø d ±0.05	P= 22.5 to 27.5	p = 37.5
	0.8	1

All dimensions are in mm.

Pitch	Box thickness (B)	Maximum dimensions (mm)		
(mm)	(mm)	B max	H max	L max
22.5	All	B +0.2	H +0.1	L +0.3
27.5	All	B +0.2	H +0.1	L +0.3
37.5	All	B +0.3	H +0.1	L +0.3

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 60384-14.

ELECTRICAL CHARACTERISTICS

Rated voltage (V_R): 275Vac (50/60Hz) / 560 Vdc
300Vac (50/60Hz) / 630 Vdc

Capacitance range: 0.22µF to 10µF

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
≥1x10^5 MΩ (5x10^5 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

TEST METHOD AND PERFORMANCE

Damp heat, steady state:

Test conditions 1st
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 x 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 x V_R +1000Vac 0.1 s/h

Performance
Dielectric strength: no dielectric breakdown or flashover at 4.3 x 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%

APPROVALS

	ENEC IEC 60384-14	Class X2	File No.V4413
	UL 1414 up to 1µF, 85°C; 250Vac)	Across-the-line	File No.E97797
	UL 1283 (250 Vac-105°C)	Electromagnetic Interference Filters	File No.E85238

Approved according to IEC 60384-14 (ex-former EN 132400)
According to IEC 60065.

R.46+R

Capacitors with discharge resistor
X2 CLASS (IEC 60384-14) - MKP Series
METALLIZED POLYPROPYLENE FILM CAPACITOR
SELF-HEALING PROPERTIES

PRODUCT CODE: **R46**

Rated Cap. (*)	275 Vac / 560 Vdc Std dimensions B	H	L	p	Ø d	Max dv/dt at 390Vdc (V/ µs)	Part Number
0.22 µF	7.0	16.0	26.5	22.5	0.8	200	R46KN 3220 - - 01 - -
0.33 µF	8.5	17.0	26.5	22.5	0.8	200	R46KN 3330 - - 01 - -
0.47 µF	10.0	18.5	26.5	22.5	0.8	200	R46KN 3470 - - 01 - -
0.68 µF	11.0	20.0	26.5	22.5	0.8	200	R46KN 3680 - - 01 - -
0.47 µF	11.0	20.0	32.0	27.5	0.8	150	R46KR 3470 - - 01 - -
0.68 µF	11.0	20.0	32.0	27.5	0.8	150	R46KR 3680 - - M1 - -
1.0 µF	13.0	22.0	32.0	27.5	0.8	150	R46KR 4100 - - M1 - -
1.5 µF	13.0	22.0	32.0	27.5	0.8	150	R46KR 4150 - - M1 - -
2.2 µF	14.0	28.0	32.0	27.5	0.8	150	R46KR 4220 - - M1 - -
3.3 µF	18.0	33.0	32.0	27.5	0.8	150	R46KR 4330 - - M2 - -
4.7 µF	22.0	37.0	32.0	27.5	0.8	150	R46KR 4470 - - M1 - -
1.5 µF	11.0	22.0	41.5	37.5	1.0	100	R46KW 4150 - - M1 - -
2.2 µF	13.0	24.0	41.5	37.5	1.0	100	R46KW 4220 - - M1 - -
3.3 µF	16.0	28.5	41.5	37.5	1.0	100	R46KW 4330 - - M1 - -
4.7 µF	19.0	32.0	41.5	37.5	1.0	100	R46KW 4470 - - M1 - -
6.8 µF	20.0	40.0	41.5	37.5	1.0	100	R46KW 4680 - - M2 - -
10.0 µF	24.0	44.0	41.5	37.5	1.0	100	R46KW 5100 - - M1 - -

Rated voltage (K=275Vac)
Mechanical version and packaging (Table 1)
Tolerance: K (±10%); M (±20%)
Value of discharge resistor (Table 2)

Rated Cap. (*)	300 Vac / 630 Vdc Std dimensions B	H	L	p	Ø d	Max dv/dt at 390Vdc (V/ µs)	Part Number
0.22 µF	7.0	16.0	26.5	22.5	0.8	200	R463N 3220 - - 01 - -
0.33 µF	8.5	17.0	26.5	22.5	0.8	200	R463N 3330 - - 01 - -
0.47 µF	10.0	18.5	26.5	22.5	0.8	200	R463N 3470 - - 01 - -
0.68 µF	11.0	20.0	26.5	22.5	0.8	200	R463N 3680 - - 01 - -
0.47 µF	11.0	20.0	32.0	27.5	0.8	150	R463R 3470 - - 01 - -
0.68 µF	11.0	20.0	32.0	27.5	0.8	150	R463R 3680 - - M1 - -
1.0 µF	13.0	22.0	32.0	27.5	0.8	150	R463R 4100 - - M1 - -
1.5 µF	13.0	22.0	32.0	27.5	0.8	150	R463R 4150 - - M1 - -
2.2 µF	14.0	28.0	32.0	27.5	0.8	150	R463R 4220 - - M1 - -
3.3 µF	18.0	33.0	32.0	27.5	0.8	150	R463R 4330 - - M2 - -
4.7 µF	22.0	37.0	32.0	27.5	0.8	150	R463R 4470 - - M1 - -
1.5 µF	11.0	22.0	41.5	37.5	1.0	100	R463W 4150 - - M1 - -
2.2 µF	13.0	24.0	41.5	37.5	1.0	100	R463W 4220 - - M1 - -
3.3 µF	16.0	28.5	41.5	37.5	1.0	100	R463W 4330 - - M1 - -
4.7 µF	19.0	32.0	41.5	37.5	1.0	100	R463W 4470 - - M1 - -
6.8 µF	20.0	40.0	41.5	37.5	1.0	100	R463W 4680 - - M2 - -
10.0 µF	24.0	44.0	41.5	37.5	1.0	100	R463W 5100 - - M1 - -

Rated voltage (3=300Vac)
Mechanical version and packaging (Table 1)
Tolerance: K (±10%); M (±20%)
Value of discharge resistor (Table 2)

Table 1

Standard packaging style	Lead length (mm)	Taping style P_2 (mm)	Fig. (No.)	Pitch (mm)	Ordering code (Digit 10 to 11)
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 $^{\pm5}$				52

PRODUCT CODE SYSTEM

The part number, comprising 15 digits, is formed as follows:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
R	4	6										-		-

Digit 1 to 3	Series code.
Digit 4	a.c. rated voltage: K = 275Vac; 3 = 300Vac
Digit 5	Pitch: N = 22.5; R = 27.5; W = 37.5 mm
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/or packaging (table 1)
Digit 12	Identifies the dimensions and electrical characteristics.
Digit 13	Internal use
Digit 14	Capacitance tolerance: K=±10%; M=±20%
Digit 15	Value of the discharge resistor (tolerance±10%) according to the following table*:

Table 2

R	code (-)
470 kΩ	E
680 kΩ	F
1 MΩ	G
1.2 MΩ	L
1.5 MΩ	N
2.2 MΩ	P
3.3 MΩ	Q
4.7 MΩ	S
6.8 MΩ	T
10 MΩ	V

*Other resistors are avaible upon request.

All dimensions are in mm