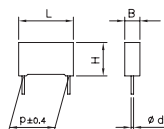
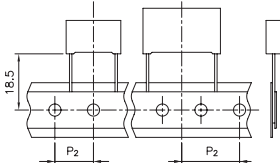


Loose

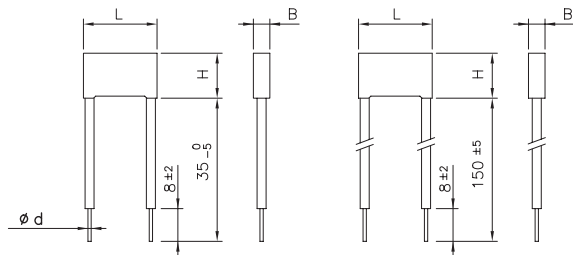


Taped

Fig.1 Fig.2



Insulated rigid leads

 Insulated flexible leads 0.5mm<sup>2</sup>


| 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.

## 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<sub>R</sub>):** 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<sup>-4</sup> 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<sup>5</sup> MΩ (5x10<sup>5</sup> 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

## 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.

| Pitch<br>(mm) | Box thickness (B)<br>(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 |

## 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<sub>R</sub> (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<sub>R</sub> + 1000Vac 0.1 s/h

**Performance**

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

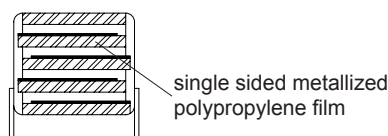
Solder bath temperature: +260°C ± 5°C

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

**Performance**

Capacitance change |ΔC/C|: ≤2%

**Winding scheme**



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

### APPROVALS

Not for use in series with the mains.  
See [www.kemet.com](http://www.kemet.com) for more information.

| Rated Cap. | 275 Vac / 560 Vdc<br>Std dimensions |      |      |      | Ø d | Max<br>dv/dt at<br>390Vdc<br>(V/µs) | Part Number |             |   |
|------------|-------------------------------------|------|------|------|-----|-------------------------------------|-------------|-------------|---|
|            | B                                   | H    | L    | p    |     |                                     |             |             |   |
| 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 - - M2 | 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%) \_\_\_\_\_

|  |                                                  |                                                                    |                                       |
|--|--------------------------------------------------|--------------------------------------------------------------------|---------------------------------------|
|  | ENEC<br>IEC 60384-14                             | Class X2                                                           | File No.V4413                         |
|  | UL 1414<br>(up to 1µF, 85°C;<br>250Vac)          | Across-the-line                                                    | File No.E97797                        |
|  | CSA - C22.2 No.1<br>(up to 1µF, 85°C;<br>250Vac) | Across-the-line<br>certified for<br>Canada                         | File No.E97797                        |
|  | UL 1283<br>(310 Vac)                             | Electromagnetic<br>Interference<br>Filters                         | File No.E85238                        |
|  | CSA - C22.2 No.8<br>(310 Vac)                    | Electromagnetic<br>Interference<br>Filters certified<br>for Canada | File No.E85238                        |
|  | GB/T 14472                                       | Class X2                                                           | File CQC03001008199<br>CQC03001008842 |

Approved according to IEC 60384-14  
According to IEC 60065

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



Table 1

| Standard<br>packaging style        | Lead<br>length<br>(mm) | Taping style           |               |               | Ordering<br>code<br>(Digit 10 to<br>11) |
|------------------------------------|------------------------|------------------------|---------------|---------------|-----------------------------------------|
|                                    |                        | P <sub>2</sub><br>(mm) | Fig.<br>(No.) | Pitch<br>(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                  | 25 <sup>-1/+2</sup>    |                        |               |               | 50                                      |
| Loose, long leads                  | 30 <sup>+5</sup>       |                        |               |               | 40                                      |
| Loose, insulated<br>rigid leads    | 30 <sup>+5</sup>       |                        |               |               | 51                                      |
| Loose, insulated<br>flexible leads | 150 <sup>±5</sup>      |                        |               |               | 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" and contact our Technical Service for choosing the safest solution.

All dimensions are in mm

E12 Series available upon request

## X2 CLASS (IEC 60384-14) - MKP Series

### METALLIZED POLYPROPYLENE FILM CAPACITOR

#### SELF-HEALING PROPERTIES

#### APPROVALS

| Rated Cap. | 275 Vac / 560 Vdc<br>Std dimensions |      |      |      | Ø d | Max<br>dv/dt at<br>390Vdc<br>(V/µs) | Part Number |      |        |   |
|------------|-------------------------------------|------|------|------|-----|-------------------------------------|-------------|------|--------|---|
|            | B                                   | H    | L    | p    |     |                                     |             |      |        |   |
| 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%)

|                                                                                   |                                                  |                                                                    |                                          |
|-----------------------------------------------------------------------------------|--------------------------------------------------|--------------------------------------------------------------------|------------------------------------------|
|  | ENEC<br>IEC 60384-14                             | Class X2                                                           | File No.V4413                            |
|  | UL 1414<br>(up to 1µF, 85°C;<br>250Vac)          | Across-the-line                                                    | File No.E97797                           |
|                                                                                   | CSA - C22.2 No.1<br>(up to 1µF, 85°C;<br>250Vac) | Across-the-line<br>certified for<br>Canada                         | File No.E97797                           |
|                                                                                   | UL 1283<br>(310 Vac)                             | Electromagnetic<br>Interference<br>Filters                         | File No.E85238                           |
|                                                                                   | CSA - C22.2 No.8<br>(310 Vac)                    | Electromagnetic<br>Interference<br>Filters certified<br>for Canada | File No.E85238                           |
|  | GB/T 14472                                       | Class X2                                                           | File<br>CQC03001008199<br>CQC03001008842 |

Approved according to IEC 60384-14

According to IEC 60065

Not for use in series with the mains.

See [www.kemet.com](http://www.kemet.com) for more information.

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



Table 1

| Standard<br>packaging style        | Lead<br>length<br>(mm) | Taping style           |               |               | Ordering<br>code<br>(Digit 10 to 11) |
|------------------------------------|------------------------|------------------------|---------------|---------------|--------------------------------------|
|                                    |                        | P <sub>2</sub><br>(mm) | Fig.<br>(No.) | Pitch<br>(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                  | 25 <sup>-1/+2</sup>    |                        |               |               | 50                                   |
| Loose, long leads                  | 30 <sup>+5</sup>       |                        |               |               | 40                                   |
| Loose, insulated<br>rigid leads    | 30 <sup>+5</sup>       |                        |               |               | 51                                   |
| Loose, insulated<br>flexible leads | 150 <sup>±5</sup>      |                        |               |               | 52                                   |

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

All dimensions are in mm

E12 Series available upon request

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" and contact our Technical Service for choosing the safest solution.

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

| Rated Cap. | 300 Vac / 630 Vdc<br>Std dimensions |      |      |      | Ø d | Max<br>dv/dt at<br>390Vdc<br>(V/µs) | Part Number |      |       |   |
|------------|-------------------------------------|------|------|------|-----|-------------------------------------|-------------|------|-------|---|
|            | B                                   | H    | L    | p    |     |                                     |             |      |       |   |
| 0.010 µF   | 4.0                                 | 9.0  | 13.0 | 10.0 | 0.6 | 500                                 | R46 3F      | 2100 | -- N0 | - |
| 0.015 µF   | 4.0                                 | 9.0  | 13.0 | 10.0 | 0.6 | 500                                 | R46 3F      | 2150 | -- N0 | - |
| 0.022 µF   | 4.0                                 | 9.0  | 13.0 | 10.0 | 0.6 | 500                                 | R46 3F      | 2220 | -- N0 | - |
| 0.033 µF   | 5.0                                 | 11.0 | 13.0 | 10.0 | 0.6 | 500                                 | R46 3F      | 2330 | -- M1 | - |
| 0.047 µF   | 5.0                                 | 11.0 | 13.0 | 10.0 | 0.6 | 500                                 | R46 3F      | 2470 | -- N0 | - |
| 0.068 µF   | 6.0                                 | 12.0 | 13.0 | 10.0 | 0.6 | 500                                 | R46 3F      | 2680 | -- M1 | - |
| 0.10 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 | - |
| 0.15 µF    | 6.0                                 | 12.0 | 18.0 | 15.0 | 0.6 | 400                                 | R46 3I      | 3150 | -- M2 | - |
| 0.15 µF    | 9.0                                 | 12.5 | 18.0 | 15.0 | 0.6 | 400                                 | R46 3I      | 3150 | -- L2 | - |
| 0.22 µF    | 7.5                                 | 13.5 | 18.0 | 15.0 | 0.6 | 400                                 | R46 3I      | 3220 | -- M2 | - |
| 0.22 µF    | 9.0                                 | 12.5 | 18.0 | 15.0 | 0.6 | 400                                 | R46 3I      | 3220 | -- L2 | - |
| 0.22 µF    | 6.0                                 | 17.5 | 18.0 | 15.0 | 0.6 | 400                                 | R46 3I      | 3220 | -- 02 | - |
| 0.33 µF    | 8.5                                 | 14.5 | 18.0 | 15.0 | 0.6 | 400                                 | R46 3I      | 3330 | -- N0 | - |
| 0.33 µF    | 10.0                                | 16.0 | 18.0 | 15.0 | 0.8 | 400                                 | R46 3I      | 3330 | -- 02 | - |
| 0.33 µF    | 7.5                                 | 18.5 | 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    | 10.0                                | 16.0 | 18.0 | 15.0 | 0.8 | 400                                 | R46 3I      | 3470 | -- N0 | M |
| 0.47 µF    | 11.0                                | 19.0 | 18.0 | 15.0 | 0.8 | 400                                 | R46 3I      | 3470 | -- M1 | - |
| 0.56 µF    | 11.0                                | 19.0 | 18.0 | 15.0 | 0.8 | 400                                 | R46 3I      | 3560 | -- N0 | - |
| 0.60 µF    | 11.0                                | 19.0 | 18.0 | 15.0 | 0.8 | 400                                 | R46 3I      | 3600 | -- N0 | - |
| 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    | 6.0                                 | 15.0 | 26.5 | 22.5 | 0.8 | 200                                 | R46 3N      | 3330 | -- N0 | - |
| 0.47 µF    | 7.0                                 | 16.0 | 26.5 | 22.5 | 0.8 | 200                                 | R46 3N      | 3470 | -- N0 | - |
| 0.68 µF    | 10.0                                | 18.5 | 26.5 | 22.5 | 0.8 | 200                                 | R46 3N      | 3680 | -- M2 | - |
| 1.0 µF     | 10.0                                | 18.5 | 26.5 | 22.5 | 0.8 | 200                                 | R46 3N      | 4100 | -- N2 | M |
| 1.0 µF     | 11.0                                | 20.0 | 26.5 | 22.5 | 0.8 | 200                                 | R46 3N      | 4100 | -- N1 | - |
| 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 | - |
| 3.3 µF     | 18.0                                | 33.0 | 32.0 | 27.5 | 0.8 | 150                                 | R46 3R      | 4330 | -- M2 | - |
| 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<br>IEC 60384-14                             | Class X2                                                           | File No.V4413                        |
|  | UL 1414<br>(up to 1µF, 85°C;<br>250Vac)          | Across-the-line                                                    | File No.E97797                       |
|                                                                                   | CSA - C22.2 No.1<br>(up to 1µF, 85°C;<br>250Vac) | Across-the-line<br>certified for<br>Canada                         | File No.E97797                       |
|                                                                                   | UL 1283<br>(310 Vac)                             | Electromagnetic<br>Interference<br>Filters                         | File No.E85238                       |
|                                                                                   | CSA - C22.2 No.8<br>(310 Vac)                    | Electromagnetic<br>Interference<br>Filters certified for<br>Canada | File No.E85238                       |
|  | GB/T 14472                                       | Class X2                                                           | FileCQC03001008199<br>CQC03001008842 |

Approved according to IEC 60384-14

According to IEC 60065

Not for use in series with the mains.

See [www.kemet.com](http://www.kemet.com) for more information.

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National marks:



Table 1

| Standard<br>packaging style        | Lead<br>length<br>(mm) | Taping style           |               |               | Ordering<br>code<br>(Digit 10 to 11) |
|------------------------------------|------------------------|------------------------|---------------|---------------|--------------------------------------|
|                                    |                        | P <sub>2</sub><br>(mm) | Fig.<br>(No.) | Pitch<br>(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                  | 25 <sup>-1/2</sup>     |                        |               |               | 50                                   |
| Loose, long leads                  | 30 <sup>+5</sup>       |                        |               |               | 40                                   |
| Loose, insulated<br>rigid leads    | 30 <sup>+5</sup>       |                        |               |               | 51                                   |
| Loose, insulated<br>flexible leads | 150 <sup>±5</sup>      |                        |               |               | 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” and contact our Technical Service for choosing the safest solution.