

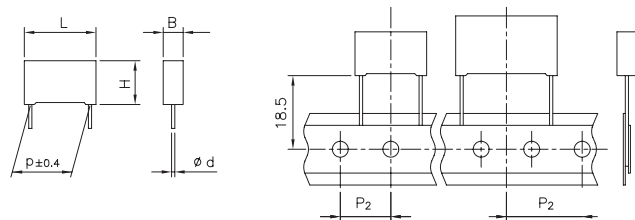
## METALLIZED POLYESTER FILM CAPACITOR DESIGNED FOR A.C. APPLICATIONS

Loose

Taped

Fig.1

Fig.2



| Ø d ±0.05 | P = 22.5 ÷ 27.5 | P = 37.5 |
|-----------|-----------------|----------|
|           | 0.8             | 1.0      |

All dimensions are in mm.

### 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 | 6 | 0 | 3 |   |   |   |   |   |    |    |    | -  |    |

Digit 1 to 3 Series code.

Digit 4 A.C. Rated voltage:  
3 = 300 Vac / 560 Vdc

Digit 5 Pitch (mm): N = 22.5; R = 27.5; W = 37.5

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 (Table1)

Digit 12 Identifies the dimensions and electrical characteristics.

Digit 13 Internal use

Digit 14 Capacitance tolerance:  
J=5%; K=10%; M=20%.

### GENERAL TECHNICAL DATA

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

**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, A.C. rated voltage, dielectric code, manufacturing data code.

**Climatic category:** 55/105/56 IEC 60068-1.

**Operating temperature range:** -55 to +105°C

**Related documents:** IEC 60384-2

**Typical applications:** This special R60 3 release is specifically designed for applications in series with the main, i.e.: power capacitive supply, line divider, with the request to long stability of capacitance value.

### HIGH Capacitance Stability

PRODUCT CODE: **R60 3**

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

### ELECTRICAL CHARACTERISTICS

**Rated voltage ( $V_R$ )** 300 Vac / 560 Vdc

**Rated temperature ( $T_R$ )** +85°C

**Temperature derated voltage:**

for temperatures between +85°C and the upper operating temperature a decreasing factor of 1.25 % per degree °C on the rated voltage  $V_R$  has to be applied.

**Capacitance range** 0.15µF to 6.8µF

**Capacitance values** E6 series (IEC 60063 Norm)

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

**Total self-inductance (L):** (lead length ~2mm)

| Pitch (mm) | 22.5 | 27.5 | 37.5 |
|------------|------|------|------|
| L(nH) ≈    | 18   | 18   | 22   |

**Dissipation factor (DF):**  $\tan \delta \times 10^{-4}$  at +25°C ±5°C:

| KhZ | C ≤ 1µF | C > 1µF |
|-----|---------|---------|
| 1   | ≤100    | ≤100    |
| 10  | ≤150    | -       |

**Insulation resistance:**

**Test conditions**

Temperature: +25°C ±5°C

Voltage charge time: 1 min

Voltage charge: 100 Vdc

**Performance**

≥30000 MΩ for C ≤0.33µF (50000 MΩ)\*

≥10000 s for C >0.33µF (17000 s)\*

\*Typical value

**Test voltage between terminations:**

2200 Vdc for 2 s at +25°C ±5°C

Table 1

| Standard packaging style | Lead length<br>(mm) | P <sub>2</sub><br>(mm) | Taping style<br>Fig. (No.) | Pitch<br>(mm) | Ordering code<br>(Digit 10 to 11) |
|--------------------------|---------------------|------------------------|----------------------------|---------------|-----------------------------------|
| AMMO-PACK                |                     | 19.05                  | 2                          | 22.5          | DQ                                |
| REEL Ø 500mm             |                     | 19.05                  | 2                          | 22.5/27.5     | CK                                |
| Loose, short leads       | 4 <sup>+2</sup>     |                        |                            |               | AA                                |
| Loose, long leads        | 25 <sup>-1/+2</sup> |                        |                            |               | 50                                |
| Loose, long leads        | 30 <sup>+5</sup>    |                        |                            |               | 40                                |

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

MKT Series for 300 Vac  
**METALLIZED POLYESTER FILM CAPACITOR**  
**DESIGNED FOR A.C. APPLICATIONS**

| Rated Cap. | 300Vac / 560Vdc<br>Std dimensions |      |      |      | Max dv/dt<br>(V/μs) | Max K <sub>0</sub><br>(V <sup>2</sup> /μs) | Part Number     |
|------------|-----------------------------------|------|------|------|---------------------|--------------------------------------------|-----------------|
|            | B                                 | H    | L    | p    |                     |                                            |                 |
| 0.15 μF    | 7.0                               | 16.0 | 26.5 | 22.5 | 200                 | 120 E3                                     | R603N 3150--0-- |
| 0.18 μF    | 7.0                               | 16.0 | 26.5 | 22.5 | 200                 | 120 E3                                     | R603N 3180--0-- |
| 0.22 μF    | 7.0                               | 16.0 | 26.5 | 22.5 | 200                 | 120 E3                                     | R603N 3220--0-- |
| 0.27 μF    | 8.5                               | 17.0 | 26.5 | 22.5 | 200                 | 120 E3                                     | R603N 3270--0-- |
| 0.33 μF    | 10.0                              | 18.5 | 26.5 | 22.5 | 200                 | 120 E3                                     | R603N 3330--0-- |
| 0.39 μF    | 10.0                              | 18.5 | 26.5 | 22.5 | 200                 | 120 E3                                     | R603N 3390--0-- |
| 0.47 μF    | 11.0                              | 20.0 | 26.5 | 22.5 | 200                 | 120 E3                                     | R603N 3470--0-- |
| 0.56 μF    | 11.0                              | 20.0 | 26.5 | 22.5 | 200                 | 120 E3                                     | R603N 3560--0-- |
| 0.68 μF    | 13.0                              | 22.0 | 26.5 | 22.5 | 200                 | 120 E3                                     | R603N 3680--0-- |
| 0.47 μF    | 9.0                               | 17.0 | 32.0 | 27.5 | 150                 | 90 E3                                      | R603R 3470--0-- |
| 0.56 μF    | 11.0                              | 20.0 | 32.0 | 27.5 | 150                 | 90 E3                                      | R603R 3560--0-- |
| 0.68 μF    | 11.0                              | 20.0 | 32.0 | 27.5 | 150                 | 90 E3                                      | R603R 3680--0-- |
| 0.82 μF    | 11.0                              | 20.0 | 32.0 | 27.5 | 150                 | 90 E3                                      | R603R 3820--0-- |
| 1.0 μF     | 13.0                              | 22.0 | 32.0 | 27.5 | 150                 | 90 E3                                      | R603R 4100--0-- |
| 1.2 μF     | 13.0                              | 22.0 | 32.0 | 27.5 | 150                 | 90 E3                                      | R603R 4120--0-- |
| 1.5 μF     | 14.0                              | 28.0 | 32.0 | 27.5 | 150                 | 90 E3                                      | R603R 4150--0-- |
| 1.8 μF     | 14.0                              | 28.0 | 32.0 | 27.5 | 150                 | 90 E3                                      | R603R 4180--0-- |
| 2.2 μF     | 18.0                              | 33.0 | 32.0 | 27.5 | 150                 | 90 E3                                      | R603R 4220--0-- |
| 2.7 μF     | 18.0                              | 33.0 | 32.0 | 27.5 | 150                 | 90 E3                                      | R603R 4270--0-- |
| 3.3 μF     | 22.0                              | 37.0 | 32.0 | 27.5 | 150                 | 90 E3                                      | R603R 4330--0-- |
| 1.0 μF     | 11.0                              | 22.0 | 41.5 | 37.5 | 100                 | 60 E3                                      | R603W 4100--0-- |
| 1.2 μF     | 13.0                              | 24.0 | 41.5 | 37.5 | 100                 | 60 E3                                      | R603W 4120--0-- |
| 1.5 μF     | 16.0                              | 28.5 | 41.5 | 37.5 | 100                 | 60 E3                                      | R603W 4150--0-- |
| 1.8 μF     | 16.0                              | 28.5 | 41.5 | 37.5 | 100                 | 60 E3                                      | R603W 4180--0-- |
| 2.2 μF     | 19.0                              | 32.0 | 41.5 | 37.5 | 100                 | 60 E3                                      | R603W 4220--0-- |
| 2.7 μF     | 19.0                              | 32.0 | 41.5 | 37.5 | 100                 | 60 E3                                      | R603W 4270--0-- |
| 3.3 μF     | 20.0                              | 40.0 | 41.5 | 37.5 | 100                 | 60 E3                                      | R603W 4330--0-- |
| 3.9 μF     | 20.0                              | 40.0 | 41.5 | 37.5 | 100                 | 60 E3                                      | R603W 4390--0-- |
| 4.7 μF     | 24.0                              | 44.0 | 41.5 | 37.5 | 100                 | 60 E3                                      | R603W 4470--0-- |
| 5.6 μF     | 24.0                              | 44.0 | 41.5 | 37.5 | 100                 | 60 E3                                      | R603W 4560--0-- |
| 6.8 μF     | 30.0                              | 45.0 | 41.5 | 37.5 | 100                 | 60 E3                                      | R603W 4680--0-- |

Mechanical version and packaging

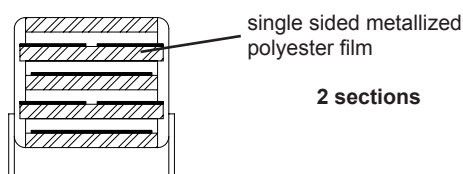
Internal use

Tolerance: J (±5%); K (±10%); M (±20%)

All dimensions are in mm

E12 series available upon request.

Appropriate for permanent operation at nominal voltage  
 (means 300 Vac at rated temperature 85°C).

**Winding scheme****TEST METHOD AND PERFORMANCE****Damp heat, steady state:****Test conditions 1st**

Temperature: +40°C±2°C  
 Voltage: 300 Vac (V<sub>R</sub>)  
 Relative humidity (RH): 93% ±2%  
 Test duration: 56 days

**Test conditions 2nd**

Temperature: +70°C±2°C  
 Voltage: 300 Vac (V<sub>T</sub>)  
 Relative humidity (RH): 93% ±2%  
 Test duration: 7 days

**Performance**

Capacitance change |ΔC/C|: ≤5%  
 DF change (Δtgδ): ≤50×10<sup>-4</sup> at 1kHz  
 Insulation resistance: ≥50% of initial limit.

**Endurance:****Test conditions**

Temperature: +105°C±2°C  
 Test duration: 1000 h  
 Voltage applied: 1.25×V<sub>R</sub> (375 Vac)

**Performance**

Capacitance change |ΔC/C|: ≤10%  
 DF change (Δtgδ): ≤30×10<sup>-4</sup> at 1kHz  
 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 ±1 s

**Performance**

Capacitance change |ΔC/C|: ≤2%  
 DF change (Δtgδ): ≤30×10<sup>-4</sup> at 1kHz  
 Insulation resistance: ≥ initial limit.

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

**Storage:** standard environmental conditions  
 (see page12)

**Performance:**

Capacitance change |ΔC/C|: ≤2%