# PME261 Series Metallized Impregnated Paper, 10.2 – 25.4 mm Lead Spacing, 400 – 1,000 VDC

## Overview

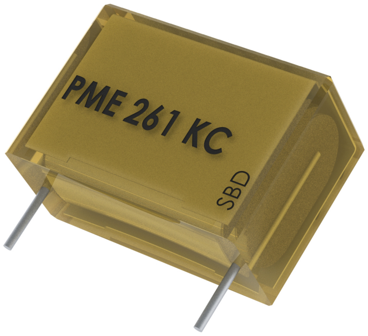
The PME261 Series is constructed of multilayer metallized paper, encapsulated and impregnated in self-extinguishing material meeting the requirements of UL 94 V–0.

## Applications

For general use in DC and low frequency pulse applications.

## Benefits

- Voltage range: 400 – 1,000 VDC; 220 – 500 VAC
- Capacitance range: 0.001 – 1 µF
- Lead spacing: 10.2 – 25.4 mm
- Capacitance tolerance: ±10%, ±20%, ±5% on request
- Climatic category: 40/70/56, IEC 60068–1
- Tape and reel packaging in accordance with IEC 60286–2
- RoHS Compliant and lead-free terminations
- Operating temperature range of -40˚C to +70˚C in AC applications



## Legacy Part Number System

| PME261 | K | A | 5100 | K | R30 |
|---|---|---|---|---|---|
| Series | Rated Voltage (VAC) | Lead Spacing (mm) | Capacitance Code (pF) | Capacitance Tolerance | Packaging |
| Metallized Paper | K = 220<br>E = 300<br>J = 500 | A = 10.2<br>B = 15.2<br>C = 20.3<br>E = 25.4 | The last three digits represent significant figures. First digit specifies the total number of digits in the capacitance value. | J = ±5%<br>K = ±10%<br>M = ±20% | See Ordering Options Table |

## New KEMET Part Number System

| P | 561 | H | E | 103 | K | 220 | A |
|---|---|---|---|---|---|---|---|
| Capacitor Class | Series | Lead Spacing (mm) | Size Code | Capacitance Code (pF) | Capacitance Tolerance | Rated Voltage (VAC) | Packaging |
| P = Paper | Metallized Paper General Purpose | H = 10.2<br>Q = 15.2<br>C = 20.3<br>E = 25.4 | See Dimension Table | First two digits indicate the two most significant digits of the capacitance value in picofarads. The third digit is the number of following zeroes. | J = ±5%<br>K = ±10%<br>M = ±20% | 220 = 220<br>300 = 300<br>500 = 500 | See Ordering Options Table |

## Benefits cont'd

- Operating temperature range of -40˚C to +100˚C in DC applications
- Excellent self-healing properties. Ensures long life even when subjected to frequent over-voltages.
- Good resistance to ionization due to impregnated dielectric
- IEC Publication 166 Type 1
- High dV/dt capability
- Approved according to SE–MIL–QPL
- The capacitors meet the most stringent IEC humidity class, 56 days
- The impregnated paper ensures excellent stability giving outstanding reliability properties, especially in applications having continuous operation

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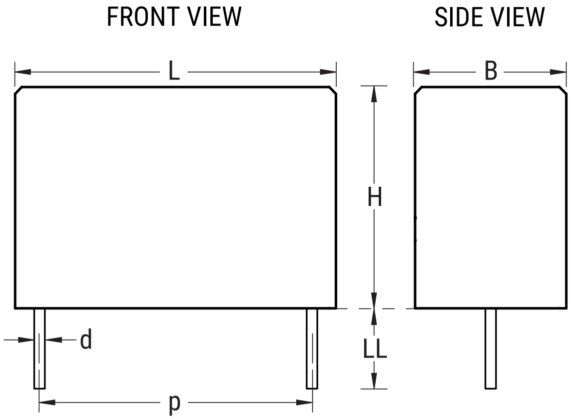
## Ordering Options Table

| Lead Spacing Nominal (mm) | Type of Leads and Packaging | Lead Length (mm) | KEMET Lead and Packaging Code | Legacy Lead and Packaging Code |
|---|---|---|---|---|
| **10.2** | **Standard Lead and Packaging Options** | | | |
| | Bulk (Bag) – Short Leads | 6 +0/-1 | C | R06 |
| | Bulk (Bag) – Max Length Leads | 17 +0/-1 | A | R17 |
| | Tape & Reel (Standard Reel) | $H_0$= 18.5 +/-0.5 | L | R19T0 |
| | **Other Lead and Packaging Options** | | | |
| | Tape & Reel (Large Reel) | $H_0$= 18.5 +/-0.5 | P | R19T1 |
| **Native 10.2 formed to 7.5** | Ammo Pack | $H_0$= 16.5 +/-0.5 | LAF3 | R30XA |
| | | | | |
| **15.2** | **Standard Lead and Packaging Options** | | | |
| | Bulk (Bag) – Short Leads | 6 +0/-1 | C | R06 |
| | Bulk (Bag) – Max Length Leads | 30 +5/-0 | A | R30 |
| | Tape & Reel (Standard Reel) | $H_0$= 18.5 +/-0.5 | L | R19T0 |
| | **Other Lead and Packaging Options** | | | |
| | Tape & Reel (Large Reel) | $H_0$= 18.5 +/-0.5 | P | R19T1 |
| | | | | |
| **20.3** | **Standard Lead and Packaging Options** | | | |
| | Bulk (Tray) – Short Leads | 6 +0/-1 | C | R06 |
| | Bulk (Bag) – Max Length Leads | 30 +5/-0 | A | R30 |
| | Tape & Reel (Standard Reel) | $H_0$= 18.5 +/-0.5 | L | R19T0 |
| | **Other Lead and Packaging Options** | | | |
| | Tape & Reel (Large Reel) | $H_0$= 18.5 +/-0.5 | P | R19T1 |

## Ordering Options Table cont'd

| Lead Spacing Nominal (mm) | Type of Leads and Packaging | Lead Length (mm) | KEMET Lead and Packaging Code | Legacy Lead and Packaging Code |
|---|---|---|---|---|
| **25.4** | **Standard Lead and Packaging Options** | | | |
| | Bulk (Tray) – Short Leads | 6 +0/-1 | C | R06 |
| | Bulk (Bag) – Max Length Leads | 30 +5/-0 | A | R30 |

## Dimensions – Millimeters



| Size Code | p | | B | | H | | L | | d | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **Nominal** | **Tolerance** | **Nominal** | **Tolerance** | **Nominal** | **Tolerance** | **Nominal** | **Tolerance** | **Nominal** | **Tolerance** |
| HE | 10.2 | +/-0.4 | 3.9 | Maximum | 7.5 | Maximum | 13.5 | Maximum | 0.6 | +/-0.05 |
| HL | 10.2 | +/-0.4 | 5.1 | Maximum | 10.5 | Maximum | 13.5 | Maximum | 0.6 | +/-0.05 |
| QE | 15.2 | +/-0.4 | 5.2 | Maximum | 10.5 | Maximum | 18.5 | Maximum | 0.8 | +/-0.05 |
| QM | 15.2 | +/-0.4 | 7.3 | Maximum | 13.0 | Maximum | 18.5 | Maximum | 0.8 | +/-0.05 |
| QP | 15.2 | +/-0.4 | 7.8 | Maximum | 13.5 | Maximum | 18.5 | Maximum | 0.8 | +/-0.05 |
| CE | 20.3 | +/-0.4 | 7.6 | Maximum | 14.0 | Maximum | 24.0 | Maximum | 0.8 | +/-0.05 |
| CG | 20.3 | +/-0.4 | 8.4 | Maximum | 14.0 | Maximum | 24.0 | Maximum | 0.8 | +/-0.05 |
| CJ | 20.3 | +/-0.4 | 9.0 | Maximum | 15.0 | Maximum | 24.0 | Maximum | 0.8 | +/-0.05 |
| CP | 20.3 | +/-0.4 | 11.3 | Maximum | 16.5 | Maximum | 24.0 | Maximum | 0.8 | +/-0.05 |
| EH | 25.4 | +/-0.4 | 10.6 | Maximum | 17.3 | Maximum | 30.5 | Maximum | 1 | +/-0.05 |
| EL | 25.4 | +/-0.4 | 15.3 | Maximum | 22.0 | Maximum | 30.5 | Maximum | 1 | +/-0.05 |
| **Note: See Ordering Options Table for lead length (LL) options.** | | | | | | | | | | |

## Performance Characteristics

| Rated Voltage $V_R$ (VDC) | 400 | 630 | 1000 |
|---|---|---|---|
| Rated Voltage $V_R$ (VAC) | 220 | 300 | 500 |
| Capacitance Range (µF) | 0.0082 – 1.0 | 0.001 – 0.15 | 0.001 – 0.1 |
| Capacitance Tolerance | ±10%, ±20%, ±5% on request | | |
| Temperature Range | -40 to +70°C | | |
| | -40 to +100°C | | |
| Climatic Category | 40/070/56 | | |
| Dissipation Factor tanδ | Maximum Values at +23°C | | |
| | **1 kHz** | | **1.3%** |
| Insulation Resistance | Measured at +20°C, According to IEC 60384–2 | | |
| | Minimum Values Between Terminals | | |
| | C ≤ 0.33 µF | | ≥ 12,000 MΩ |
| | C > 0.33 µF | | ≥ 4,000 MΩ • µF |
| | PME261 K measured at 100 VDC after 60 seconds, +23°C | | |
| | PME261 E and J measured at 500 VDC after 60 seconds, +23°C | | |

## Environmental Test Data

| Test | IEC Publication | Procedure |
|---|---|---|
| Vibration | IEC 60068–2–6 Test Fc | 3 directions at 2 hours each 10 – 55 Hz at 0.75 mm or 98 $m/s^2$ |
| Bump | IEC 60068–2–29 Test Eb | 4,000 bumps at 390 $m/s^2$ |
| Solderability | IEC 60068–2–20 Test Ta | Solder globule method<br>Wetting time<br>for d ≤ 0.8 < 1 second<br>for d > 0.8 < 1.5 seconds |
| Passive Flammability | IEC 60695–2–2 | |
| Damp Heat Steady State | IEC 60068-2-3 Test Ca | +40°C and 90 – 95% RH, 56 days |

## Environmental Compliance

All KEMET Metallized Impregnated Paper capacitors are RoHS Compliant.

# Table 1 – Ratings & Part Number Reference

| Capacitance Value (µF) | Maximum Dimensions in mm | | | Lead Spacing (p) | dV/dt (V/µs) | New Kemet Part Number | Legacy Part Number |
|---|---|---|---|---|---|---|---|
| | B | H | L | | | | |
| 0.0082 | 3.9 | 7.5 | 13.5 | 10.2 | 2000 | P561HE822(1)220(2) | PME261KA4820(1)(2) |
| 0.010 | 3.9 | 7.5 | 13.5 | 10.2 | 2000 | P561HE103(1)220(2) | PME261KA5100(1)(2) |
| 0.015 | 5.1 | 10.5 | 13.5 | 10.2 | 2000 | P561HL153(1)220(2) | PME261KA5150(1)(2) |
| 0.022 | 5.1 | 10.5 | 13.5 | 10.2 | 2000 | P561HL223(1)220(2) | PME261KA5220(1)(2) |
| 0.033 | 5.2 | 10.5 | 18.5 | 15.2 | 1600 | P561QE333(1)220(2) | PME261KB5330(1)(2) |
| 0.047 | 5.2 | 10.5 | 18.5 | 15.2 | 1300 | P561QE473(1)220(2) | PME261KB5470(1)(2) |
| 0.068 | 7.3 | 13.0 | 18.5 | 15.2 | 1100 | P561QM683(1)220(2) | PME261KB5680(1)(2) |
| 0.1 | 7.3 | 13.0 | 18.5 | 15.2 | 850 | P561QM104(1)220(2) | PME261KB6100(1)(2) |
| 0.15 | 7.6 | 14.0 | 24.0 | 20.3 | 700 | P561CE154(1)220(2) | PME261KC6150(1)(2) |
| 0.22 | 8.4 | 14.0 | 24.0 | 20.3 | 560 | P561CG224(1)220(2) | PME261KC6220(1)(2) |
| 0.33 | 11.3 | 16.5 | 24.0 | 20.3 | 430 | P561CP334(1)220(2) | PME261KC6330(1)(2) |
| 0.47 | 10.6 | 17.3 | 30.5 | 25.4 | 370 | P561EH474(1)220(2) | PME261KE6470(1)(2) |
| 0.68 | 15.3 | 22.0 | 30.5 | 25.4 | 300 | P561EL684(1)220(2) | PME261KE6680(1)(2) |
| 1 | 15.3 | 22.0 | 30.5 | 25.4 | 220 | P561EL105(1)220(2) | PME261KE7100(1)(2) |
| 0.001 | 3.9 | 7.5 | 13.5 | 10.2 | 2000 | P561HE102(1)300(2) | PME261EA4100(1)(2) |
| 0.0015 | 3.9 | 7.5 | 13.5 | 10.2 | 2000 | P561HE152(1)300(2) | PME261EA4150(1)(2) |
| 0.0022 | 3.9 | 7.5 | 13.5 | 10.2 | 2000 | P561HE222(1)300(2) | PME261EA4220(1)(2) |
| 0.0033 | 3.9 | 7.5 | 13.5 | 10.2 | 2000 | P561HE332(1)300(2) | PME261EA4330(1)(2) |
| 0.0047 | 3.9 | 7.5 | 13.5 | 10.2 | 2000 | P561HE472(1)300(2) | PME261EA4470(1)(2) |
| 0.0068 | 3.9 | 7.5 | 13.5 | 10.2 | 2000 | P561HE682(1)300(2) | PME261EA4680(1)(2) |
| 0.01 | 5.1 | 10.5 | 13.5 | 10.2 | 2000 | P561HL103(1)300(2) | PME261EA5100(1)(2) |
| 0.015 | 5.1 | 10.5 | 13.5 | 10.2 | 2000 | P561HL153(1)300(2) | PME261EA5150(1)(2) |
| 0.022 | 5.2 | 10.5 | 18.5 | 15.2 | 2000 | P561QE223(1)300(2) | PME261EB5220(1)(2) |
| 0.033 | 5.2 | 10.5 | 18.5 | 15.2 | 2000 | P561QE333(1)300(2) | PME261EB5330(1)(2) |
| 0.047 | 7.3 | 13.0 | 18.5 | 15.2 | 1600 | P561QM473(1)300(2) | PME261EB5470(1)(2) |
| 0.068 | 7.3 | 13.0 | 18.5 | 15.2 | 1200 | P561QM683(1)300(2) | PME261EB5680(1)(2) |
| 0.1 | 7.6 | 14.0 | 24.0 | 20.3 | 900 | P561CE104(1)300(2) | PME261EC6100(1)(2) |
| 0.15 | 9.0 | 15.0 | 24.0 | 20.3 | 650 | P561CJ154(1)300(2) | PME261EC6150(1)(2) |
| 0.001 | 3.9 | 7.5 | 13.5 | 10.2 | 2000 | P561HE102(1)500(2) | PME261JA4100(1)(2) |
| 0.0015 | 3.9 | 7.5 | 13.5 | 10.2 | 2000 | P561HE152(1)500(2) | PME261JA4150(1)(2) |
| 0.0022 | 3.9 | 7.5 | 13.5 | 10.2 | 2000 | P561HE222(1)500(2) | PME261JA4220(1)(2) |
| 0.0033 | 3.9 | 7.5 | 13.5 | 10.2 | 2000 | P561HE332(1)500(2) | PME261JA4330(1)(2) |
| 0.0047 | 5.1 | 10.5 | 13.5 | 10.2 | 2000 | P561HL472(1)500(2) | PME261JA4470(1)(2) |
| 0.0068 | 5.1 | 10.5 | 13.5 | 10.2 | 2000 | P561HL682(1)500(2) | PME261JA4680(1)(2) |
| 0.01 | 5.2 | 10.5 | 18.5 | 15.2 | 2000 | P561QE103(1)500(2) | PME261JB5100(1)(2) |
| 0.015 | 5.2 | 10.5 | 18.5 | 15.2 | 2000 | P561QE153(1)500(2) | PME261JB5150(1)(2) |
| 0.022 | 7.3 | 13.0 | 18.5 | 15.2 | 2000 | P561QM223(1)500(2) | PME261JB5220(1)(2) |
| 0.033 | 7.8 | 13.5 | 18.5 | 15.2 | 2000 | P561QP333(1)500(2) | PME261JB5330(1)(2) |
| 0.047 | 7.6 | 14.0 | 24.0 | 20.3 | 2000 | P561CE473(1)500(2) | PME261JC5470(1)(2) |
| 0.068 | 9.0 | 15.0 | 24.0 | 20.3 | 1400 | P561CJ683(1)500(2) | PME261JC5680(1)(2) |
| 0.1 | 11.3 | 16.5 | 24.0 | 20.3 | 950 | P561CP104(1)500(2) | PME261JC6100(1)(2) |
| **Capacitance Value (µF)** | **B (mm)** | **H (mm)** | **L (mm)** | **Lead Spacing (p)** | **dV/dt (V/µs)** | **New KEMET Part Number** | **Legacy Part Number** |

*(1) K = ±10%, M = ±20%, J = ±5% on request.*
*(2) Insert lead and packaging code. See Ordering Options Table for available options.*

## Soldering Process

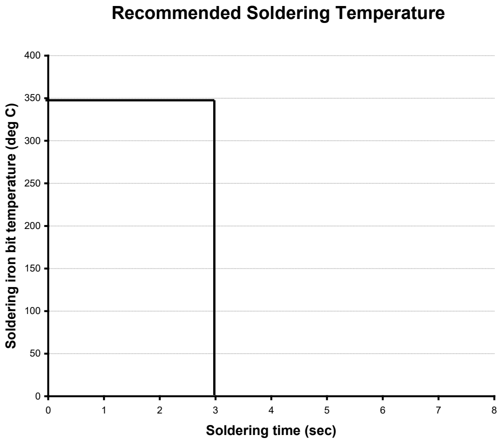
The implementation of the RoHS directive has resulted in the selection of SnAgCu (SAC) alloys or SnCu alloys as primary solder. This has increased the liquidus temperature from that of 183ºC for SnPb eutectic alloy to 217 – 221ºC for the new alloys. As a result, the heat stress to the components, even in wave soldering, has increased considerably due to higher pre-heat and wave temperatures. Polypropylene capacitors are especially sensitive to heat (the melting point of polypropylene is 160 – 170ºC). Wave soldering can be destructive, especially for mechanically small polypropylene capacitors (with lead spacing of 5 mm to 15 mm), and great care has to be taken during soldering. The recommended solder profiles from KEMET should be used. Please consult KEMET with any questions. In general, the wave soldering curve from IEC Publication 61760-1 Edition 2 serves as a solid guideline for successful soldering. Please see Figure 1.

Reflow soldering is not recommended for through-hole film capacitors. Exposing capacitors to a soldering profile in excess of the above the recommended limits may result to degradation or permanent damage to the capacitors.

Do not place the polypropylene capacitor through an adhesive curing oven to cure resin for surface mount components. Insert through-hole parts after the curing of surface mount parts. Consult KEMET to discuss the actual temperature profile in the oven, if through-hole components must pass through the adhesive curing process. A maximum two soldering cycles is recommended. Please allow time for the capacitor surface temperature to return to a normal temperature before the second soldering cycle.

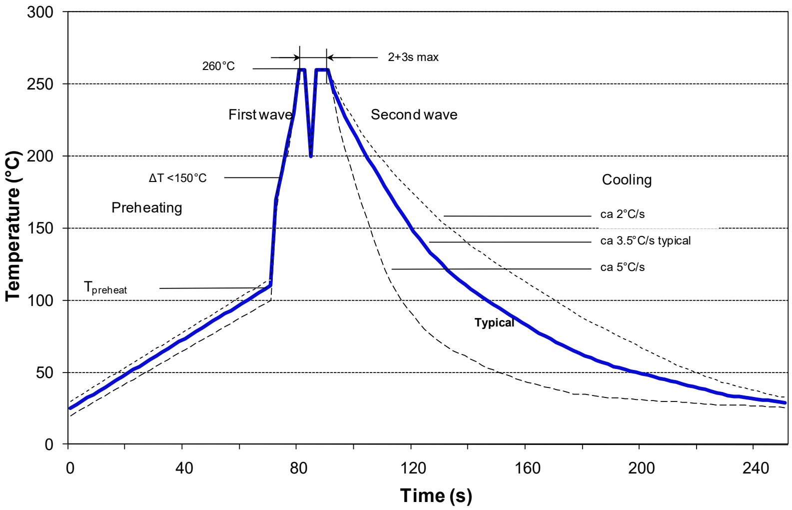
### Manual Soldering Recommendations

Following is the recommendation for manual soldering with a soldering iron.



The soldering iron tip temperature should be set at 350°C (+10°C maximum) with the soldering duration not to exceed more than 3 seconds.

### Wave Soldering Recommendations



## Soldering Process cont'd

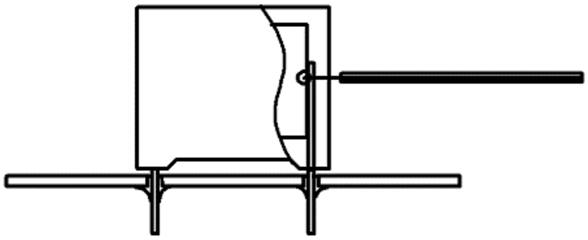
### Wave Soldering Recommendations cont'd

1. The table indicates the maximum set-up temperature of the soldering process
Figure 1

| Dielectric Film Material | Maximum Preheat Temperature | | | Maximum Peak Soldering Temperature | |
|---|---|---|---|---|---|
| | Capacitor Pitch ≤ 10 mm | Capacitor Pitch = 15 mm | Capacitor Pitch > 15 mm | Capacitor Pitch ≤ 15 mm | Capacitor Pitch > 15 mm |
| Polyester | 130°C | 130°C | 130°C | 270°C | 270°C |
| Polypropylene | 100°C | 110°C | 130°C | 260°C | 270°C |
| Paper | 130°C | 130°C | 140°C | 270°C | 270°C |
| Polyphenylene Sulphide | 150°C | 150°C | 160°C | 270°C | 270°C |

2. The maximum temperature measured inside the capacitor:
Set the temperature so that inside the element the maximum temperature is below the limit:

| Dielectric Film Material | Maximum temperature measured inside the element |
|---|---|
| Polyester | 160°C |
| Polypropylene | 110°C |
| Paper | 160°C |
| Polyphenylene sulphide | 160°C |



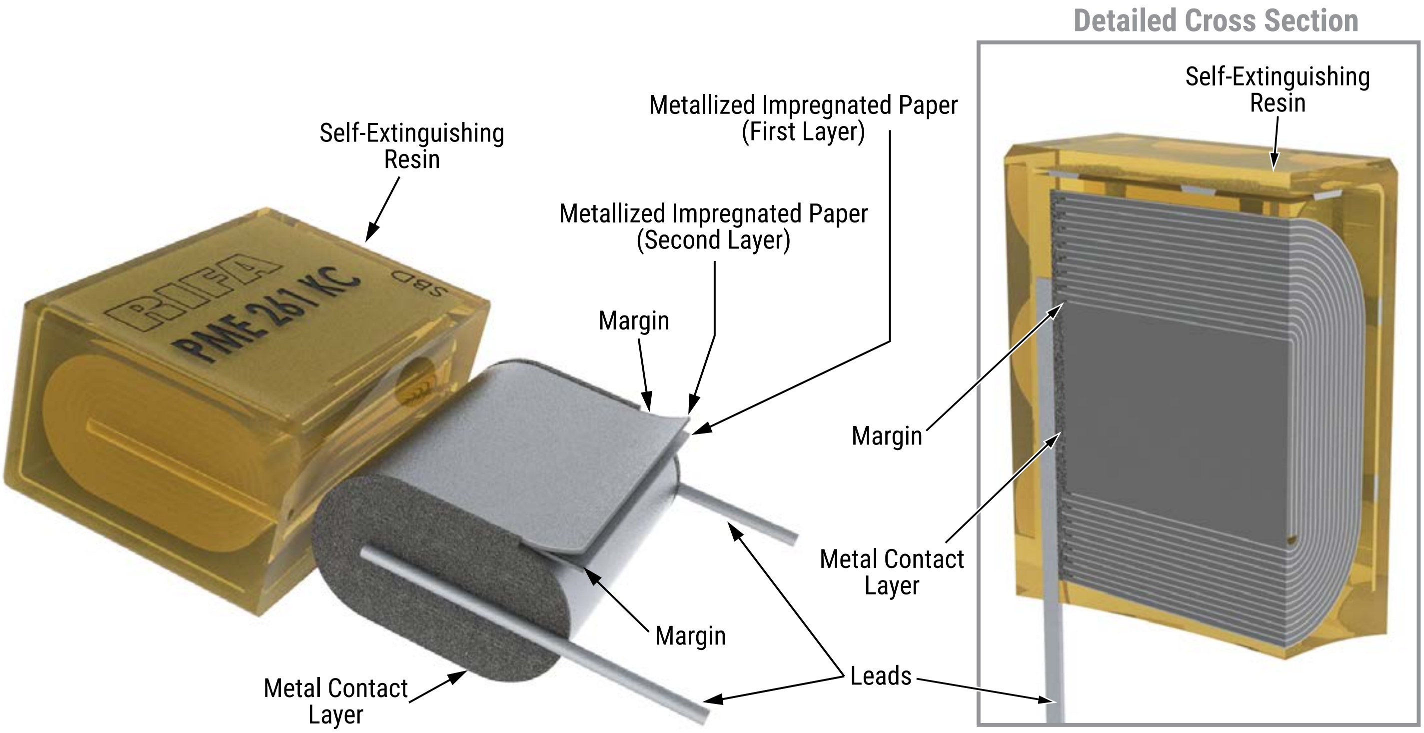
*Temperature monitored inside the capacitor.*

### Selective Soldering Recommendations

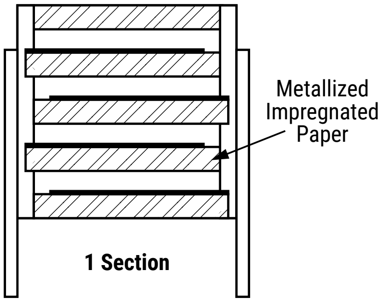
Selective dip soldering is a variation of reflow soldering. In this method, the printed circuit board with through-hole components to be soldered is preheated and transported over the solder bath as in normal flow soldering without touching the solder. When the board is over the bath, it is stopped and pre-designed solder pots are lifted from the bath with molten solder only at the places of the selected components, and pressed against the lower surface of the board to solder the components.

The temperature profile for selective soldering is similar to the double wave flow soldering outlined in this document, **however, instead of two baths, there is only one bath with a time from 3 to 10 seconds.** In selective soldering, the risk of overheating is greater than in double wave flow soldering, and great care must be taken so that the parts are not overheated.

## Construction

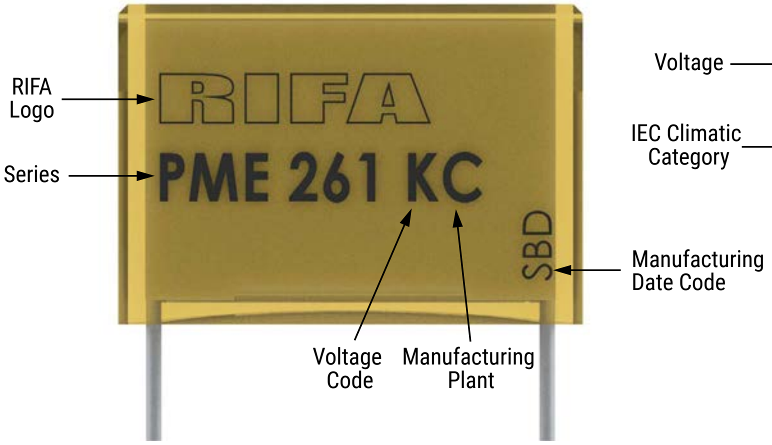


### Winding Scheme

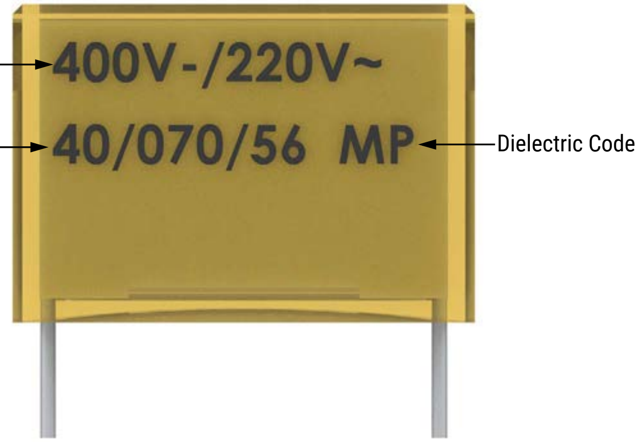


## Marking

**FRONT**



**BACK**



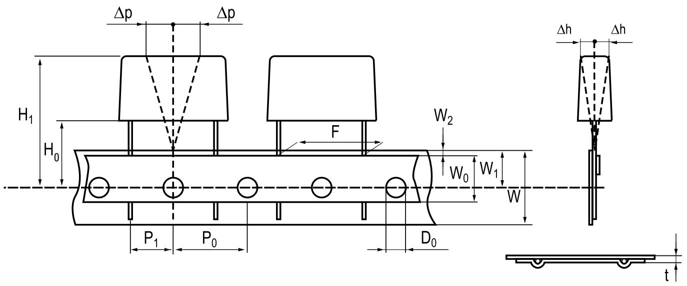
**TOP**

## Packaging Quantities

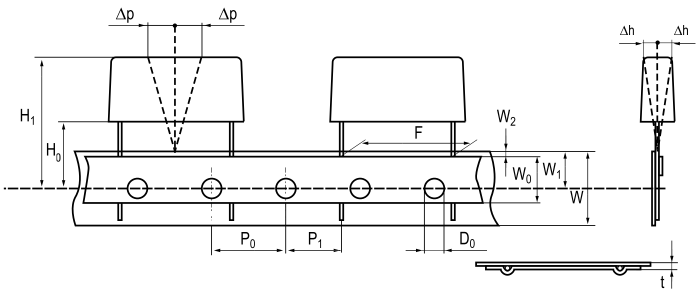
| Lead Spacing (mm) | Thickness (mm) | Height (mm) | Length (mm) | Bulk Short Leads | Bulk Long Leads | Standard Reel ø 360 mm | Large Reel ø 500 mm | Ammo Formed |
|---|---|---|---|---|---|---|---|---|
| **10.2** | 3.9 | 7.5 | 13.5 | 2000 | 1000 | 700 | 1400 | 800 |
| | 4.1 | 8.2 | 13.5 | 2000 | 1000 | 600 | | 780 |
| | 5.1 | 10.5 | 13.5 | 1600 | 800 | 600 | 1200 | 630 |
| **15.2** | 5.5 | 12.5 | 18 | 1000 | 500 | 600 | | |
| | 6.5 | 12.5 | 18 | 600 | 400 | 400 | | |
| | 7.5 | 14.5 | 18 | 600 | 400 | 400 | | |
| | 8.5 | 16 | 18 | 400 | 250 | 400 | | |
| | 5.2 | 10.5 | 18.5 | 1000 | 500 | 600 | | |
| | 5.5 | 11 | 18.5 | 1000 | 500 | 500 | | |
| | 6 | 12.5 | 18.5 | 600 | 400 | 400 | | |
| | 7.3 | 13 | 18.5 | 600 | 400 | 400 | 800 | |
| | 7.8 | 13.5 | 18.5 | 600 | 400 | 400 | | |
| | 8.5 | 14.3 | 18.5 | 500 | 300 | 350 | | |
| **20.3** | 7.6 | 14 | 24 | 1500 | 250 | 250 | 500 | |
| | 8.4 | 14 | 24 | 1200 | 200 | 250 | 500 | |
| | 9 | 15 | 24 | 1500 | 200 | 250 | | |
| | 11.3 | 16.5 | 24 | 1000 | 150 | 180 | 400 | |
| **25.4** | 10.6 | 16.1 | 30.5 | 1000 | 150 | | | |
| | 10.5 | 17.3 | 30.5 | 1000 | 100 | | | |
| | 12.1 | 19 | 30.5 | 800 | 100 | | | |
| | 15.3 | 22 | 30.5 | 600 | 75 | | | |

# Lead Taping & Packaging (IEC 60286–2)

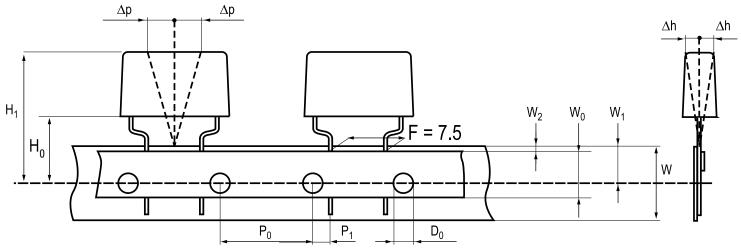
### Lead Spacing 10.2 – 15.2 mm



### Lead Spacing 20.3 – 22.5 mm



### Formed Leads from 10.2 to 7.5 mm



## Taping Specification

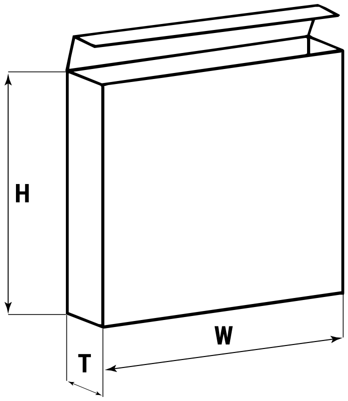
| Dimensions in mm | | | | | | | | Standard IEC 60286–2 |
|---|---|---|---|---|---|---|---|---|
| Lead spacing | +6/−0.1 | F | Formed 7.5 | 10.2 | 15.2 | 20.3 | 22.5 | F |
| Carrier tape width | +/−0.5 | W | 18 | 18 | 18 | 18 | 18 | $18^{+1/-0.5}$ |
| Hold-down tape width | +/−0.3 | $W_0$ | 9 | 12 | 12 | 12 | 12 | |
| Position of sprocket hole | +/−0.5 | $W_1$ | 9 | 9 | 9 | 9 | 9 | $9^{+0.75/-0.5}$ |
| Distance between tapes | Maximum | $W_2$ | 3 | 3 | 3 | 3 | 3 | 3 |
| Sprocket hole diameter | +/−0.2 | $D_0$ | 4 | 4 | 4 | 4 | 4 | 4 |
| Feed hole lead spacing | +/−0.3 | $P_0$(1) | 12.7(4) | 12.7 | 12.7 | 12.7 | 12.7 | 12.7 |
| Distance lead – feed hole | +/−0.7 | $P_1$ | 3.75 | 7.6 | 5.1 | 8.9 | 5.3 | $P^1$ |
| Deviation tape – plane | Maximum | Δp | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 |
| Lateral deviation | Maximum | Δh | 2 | 2 | 2 | 2 | 2 | 2 |
| Total thickness | +/−0.2 | t | 0.7 | 0.7 | 0.7 | 0.7 | $0.9^{MAX}$ | $0.9^{MAX}$ |
| Sprocket hole/cap body | Nominal | $H_0$(2) | $18^{+2/-0}$ | $18^{+2/-0}$ | $18^{+2/-0}$ | $18^{+2/-0}$ | $18.5^{+/-0.5}$ | $18^{+2/-0}$ |
| Sprocket hole/top of cap body | Maximum | $H_1$(3) | 35 | 35 | 35 | 35 | 58 | $58^{MAX}$ |

*(1) Maximum cumulative feed hole error, 1 mm per 20 parts.*
*(2) 16.5 mm available on request.*
*(3) Depending on case size.*
*(4) 15 mm available on request.*

# Lead Taping & Packaging (IEC 60286–2) cont'd

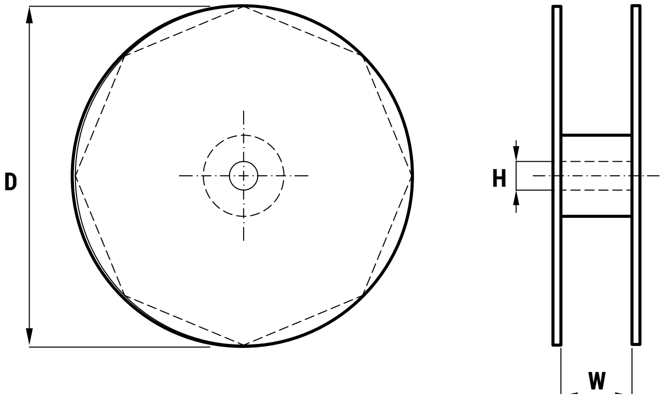
## Ammo Specifications

| Series | Dimensions (mm) | | |
|---|---|---|---|
| | H | W | T |
| R4x, R4x+R, R7x, RSB | 360 | 340 | 59 |
| F5A, F5B, F5D | | | |
| F6xx, F8xx | | | |
| PHExxx, PMExxx, PMRxxx | 330 | 330 | 50 |



## Reel Specifications

| Series | Dimensions (mm) | | |
|---|---|---|---|
| | D | H | W |
| R4x, R4x+R, R7x, RSB | 355<br>500 | 30<br>25 | 55 (Max) |
| F5A, F5B, F5D | | | |
| F6xx, F8xx | | | |
| PHExxx, PMExxx, PMRxxx | 360<br>500 | 30 | 46 (Max) |



## Manufacturing Date Code (IEC–60062)

| Y = Year, Z = Month | | | |
|---|---|---|---|
| Year | Code | Month | Code |
| 2000 | M | January | 1 |
| 2001 | N | February | 2 |
| 2002 | P | March | 3 |
| 2003 | R | April | 4 |
| 2004 | S | May | 5 |
| 2005 | T | June | 6 |
| 2006 | U | July | 7 |
| 2007 | V | August | 8 |
| 2008 | W | September | 9 |
| 2009 | X | October | O |
| 2010 | A | November | N |
| 2011 | B | December | D |
| 2012 | C | | |
| 2013 | D | | |
| 2014 | E | | |
| 2015 | F | | |
| 2016 | H | | |
| 2017 | J | | |
| 2018 | K | | |
| 2019 | L | | |
| 2020 | M | | |

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