

PME271Y Series Metallized Impregnated Paper, Class Y2, 250 VAC

Overview

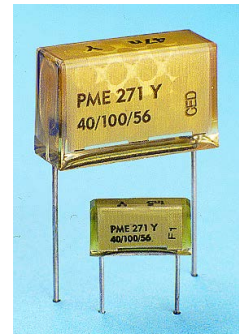
The PME271Y Series is constructed of multilayer metallized paper encapsulated and impregnated in self-extinguishing material meeting the requirements of UL 94 V-0.

Applications

Typical applications include worldwide use as electromagnetic interference suppressor in all Y2 applications, line-to-earth.

Benefits

- Approvals: ENEC, UL, CSA, CQC
- Rated voltage: 250 VAC 50/60 Hz
- Capacitance range: 0.001 – 0.1 μF
- Lead spacing: 10.2 – 25.4 mm
- Capacitance tolerance: $\pm 20\%$
- Climatic category: 40/100/56/B, 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 $+100^{\circ}\text{C}$
- 100% screening factory test at 3,000 VDC
- Highest possible safety regarding active and passive flammability
- Excellent self-healing properties ensure long life even when subjected to frequent over-voltages
- Good resistance to ionization due to impregnated dielectric
- High dV/dt capability
- Impregnated paper ensures excellent stability and reliability properties, particularly in applications with continuous operation



Legacy Part Number System

| PME271 | Y | 410 | M | R30 |
|----------------------|---------------------|---|-----------------------|----------------------------|
| Series | Rated Voltage (VAC) | Capacitance Code (pF) | Capacitance Tolerance | Lead and Packaging Code |
| Y2, Metallized Paper | Y = 250 | Digits 2 – 4(3) indicates the first three digits of the capacitance value. First digit indicates the total number of digits in the capacitance value. | M = $\pm 20\%$ | See Ordering Options Table |

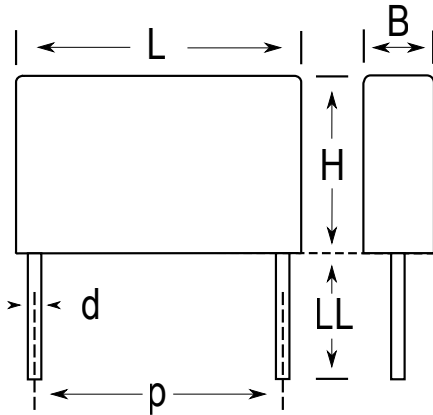
New KEMET Part Number System

| P | 271 | H | E | 102 | M | 250 | A |
|-----------------|----------------------|--|---------------------|---|-----------------------|---------------------|----------------------------|
| Capacitor Class | Series | Lead Spacing (mm) | Size Code | Capacitance Code (pF) | Capacitance Tolerance | Rated Voltage (VAC) | Lead and Packaging Code |
| P = Paper | Y2, Metallized Paper | H = 10.2 Q = 15.2 C = 20.3 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 zeros. | M = $\pm 20\%$ | 250 = 250 | See Ordering Options Table |

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 | 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 |
| 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 |
| 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



| p | | B | | H | | L | | d | |
|----------|-----------|----------|-----------|----------|-----------|----------|-----------|----------|-----------|
| Nominal | Tolerance | Nominal | Tolerance | Nominal | Tolerance | Nominal | Tolerance | Nominal | Tolerance |
| 10.2 | +/-0.4 | 3.9 | Maximum | 7.5 | Maximum | 13.5 | Maximum | 0.6 | +/-0.05 |
| 10.2 | +/-0.4 | 4.1 | Maximum | 8.2 | Maximum | 13.5 | Maximum | 0.6 | +/-0.05 |
| 10.2 | +/-0.4 | 5.1 | Maximum | 10.5 | Maximum | 13.5 | Maximum | 0.6 | +/-0.05 |
| 15.2 | +/-0.4 | 5.2 | Maximum | 10.5 | Maximum | 18.5 | Maximum | 0.8 | +/-0.05 |
| 15.2 | +/-0.4 | 5.5 | Maximum | 11 | Maximum | 18.5 | Maximum | 0.8 | +/-0.05 |
| 15.2 | +/-0.4 | 7.3 | Maximum | 13 | Maximum | 18.5 | Maximum | 0.8 | +/-0.05 |
| 20.3 | +/-0.4 | 7.6 | Maximum | 14 | Maximum | 24 | Maximum | 0.8 | +/-0.05 |
| 20.3 | +/-0.4 | 9 | Maximum | 15 | Maximum | 24 | Maximum | 0.8 | +/-0.05 |
| 20.3 | +/-0.4 | 11.3 | Maximum | 16.5 | Maximum | 24 | Maximum | 0.8 | +/-0.05 |
| 25.4 | +/-0.4 | 12.1 | Maximum | 19 | Maximum | 30.5 | Maximum | 1 | +/-0.05 |

Note: See Ordering Options Table for lead length (LL) options.




Performance Characteristics

| | | |
|--------------------------------|--|------|
| Rated Voltage | 250 VAC 50/60 Hz | |
| Capacitance Range | 0.001 – 0.1 μ F | |
| Capacitance Tolerance | \pm 20% | |
| Temperature Range | -40°C to +100°C | |
| Climatic Category | 40/100/56/B | |
| Approvals | ENEC, UL, CSA, CQC | |
| Dissipation Factor | Maximum Values at +23°C | |
| | 1 kHz | 1.3% |
| Test Voltage Between Terminals | The 100% screening factory test is carried out at 3,000 VDC. The voltage level is selected to meet the requirements in applicable equipment standards. All electrical characteristics are checked after the test. It is not permitted to repeat this test as there is a risk to damage the capacitor. KEMET is not liable in such case for any failures. | |
| Insulation Resistance | Minimum Value Between Terminals | |
| | \geq 12,000 M Ω | |
| In DC Applications | Recommended voltage \leq 1,000 VDC | |

Environmental Test Data

| Test | IEC Publication | Procedure |
|----------------------|------------------------|--|
| Vibration | IEC 60068–2–6 Test Fc | 3 directions at 2 hours each 10 – 500 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 |
| Active Flammability | IEC 60384–14 | |
| Passive Flammability | IEC 60384–14 | Needle-flame test |
| Humidity | IEC 60068–2–3 Test Ca | +40°C and 90 – 95% RH |

Approvals

| Mark | Specification | File Number |
|---|-----------------------------|-------------|
|  | EN/IEC 60384-14 | SE/0140-27C |
|  | UL 1283 (250 VAC) | E100117 |
| | CSA – C22.2 No. 8 (250 VAC) | E100117 |
|  | CQC | 10001043355 |

Environmental Compliance

All KEMET EMI capacitors are RoHS Compliant.



RoHS Compliant

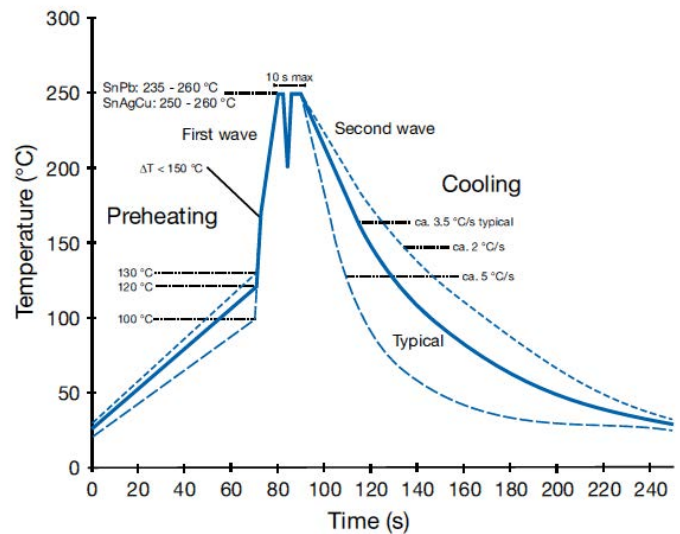
Table 1 – Ratings & Part Number Reference

| Capacitance Value (μF) | Maximum Dimensions in mm | | | Lead Spacing (p) | f _o (MHz) | dV/dt (V/μs) | New KEMET Part Number | Legacy Part Number |
|------------------------|--------------------------|--------|--------|------------------|----------------------|--------------|-----------------------|--------------------|
| | B | H | L | | | | | |
| 0.0010 | 3.9 | 7.5 | 13.5 | 10.2 | 53 | 2000 | P271HE102M250(1) | PME271Y410M(1) |
| 0.0015 | 3.9 | 7.5 | 13.5 | 10.2 | 44 | 2000 | P271HE152M250(1) | PME271Y415M(1) |
| 0.0022 | 3.9 | 7.5 | 13.5 | 10.2 | 37 | 2000 | P271HE222M250(1) | PME271Y422M(1) |
| 0.0033 | 4.1 | 8.2 | 13.5 | 10.2 | 30 | 2000 | P271HH332M250(1) | PME271Y433M(1) |
| 0.0047 | 5.1 | 10.5 | 13.5 | 10.2 | 24 | 2000 | P271HL472M250(1) | PME271Y447M(1) |
| 0.0068 | 5.2 | 10.5 | 18.5 | 15.2 | 19 | 1400 | P271QE682M250(1) | PME271Y468M(1) |
| 0.0100 | 5.2 | 10.5 | 18.5 | 15.2 | 16 | 1400 | P271QE103M250(1) | PME271Y510M(1) |
| 0.0150 | 5.5 | 11.0 | 18.5 | 15.2 | 13 | 1400 | P271QH153M250(1) | PME271Y515M(1) |
| 0.0220 | 7.3 | 13.0 | 18.5 | 15.2 | 9.8 | 1400 | P271QM223M250(1) | PME271Y522M(1) |
| 0.0330 | 7.6 | 14.0 | 24.0 | 20.3 | 7.0 | 1000 | P271CE333M250(1) | PME271Y533M(1) |
| 0.0470 | 9.0 | 15.0 | 24.0 | 20.3 | 6.0 | 1000 | P271CJ473M250(1) | PME271Y547M(1) |
| 0.0680 | 11.3 | 16.5 | 24.0 | 20.3 | 4.6 | 600 | P271CP683M250(1) | PME271Y568M(1) |
| 0.1000 | 12.1 | 19.0 | 30.5 | 25.4 | 3.9 | 400 | P271EJ104M250(1) | PME271Y610M(1) |
| Capacitance Value (μF) | B (mm) | H (mm) | L (mm) | Lead Spacing (p) | f _o (MHz) | dV/dt (V/μs) | New KEMET Part Number | Legacy Part Number |

(1) Insert ordering code for lead type and packaging. See Ordering Options Table for available options.

Soldering Process

The implementation of the RoHS Directive has required the use of SnAgCu (SAC) or SnCu alloys as primary solder. These alloys require a higher liquidus temperature (217°C – 221°C) as compared to SnPb eutectic alloy (183°C). Due to the higher pre-heat and wave temperatures, the heat stress to components has increased considerably. Polypropylene capacitors are especially sensitive to soldering temperature due to the relatively low melting point of polypropylene material (160°C – 170°C). As a result, wave soldering can be destructive, especially to mechanically small polypropylene capacitors with lead spacings of 5 – 10 mm. For more information, please refer to KEMET's Recommended Soldering Profiles or contact a KEMET representative. IEC Publication 61760–1 Edition 2 may also be consulted for general guidelines.



Marking

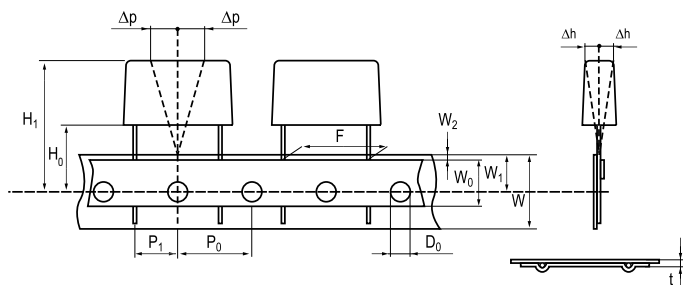
- KEMET's logo
- Series
- Capacitance
- Rated voltage
- Capacitor class
- Approval marks
- IEC climatic category
- Passive flammability class
- Manufacturing date code
- SH for self-healing

Packaging Quantities

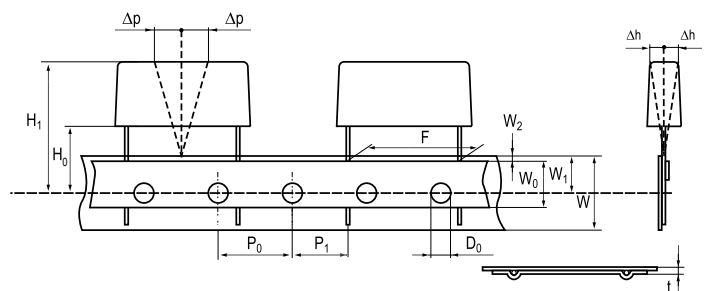
| Lead Spacing (mm) | Thickness (mm) | Height (mm) | Length (mm) | Bulk Short Leads | Bulk Long Leads | Standard Reel ø 360 mm | Large Reel ø 500 mm | Ammo Formed |
|-------------------|----------------|-------------|-------------|------------------|-----------------|------------------------|---------------------|-------------|
| 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)

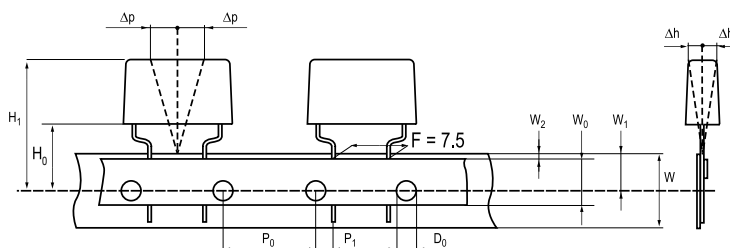
Lead Spacing 10.2 – 15.2 mm



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 |
|-------------------------------|------------------|-------------------------------|---------------------|---------------------|---------------------|---------------------|------------------------|-------------------------|
| | +6/-0.1 | F | Formed 7.5 | 10.2 | 15.2 | 20.3 | 22.5 | F |
| 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.

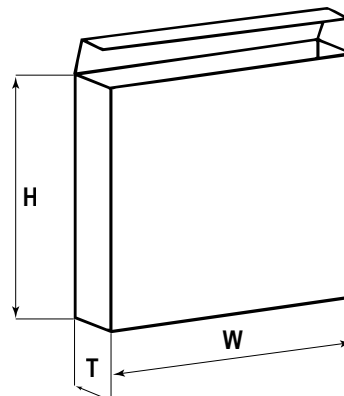
(3) Depending on case size.

(4) 15 mm available on request.

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

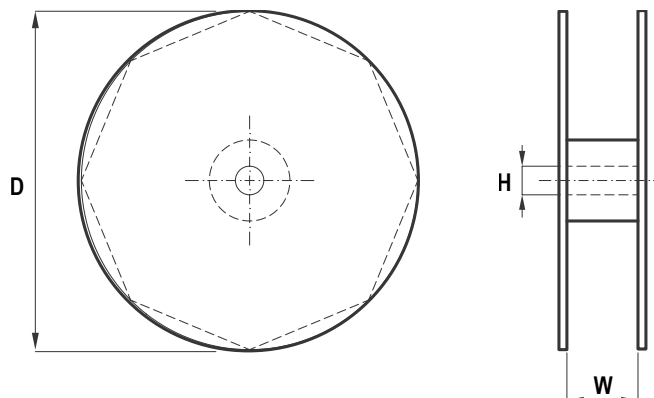
Ammo Specifications

| 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 | 355 500 | 30 | 55 (Max) |
| F5A, F5B, F5D | | 25 | |
| F6xx, F8xx | | | |
| PHExxx, PMExxx, PMRxxx | 360 500 | 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 | 0 |
| 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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