

Overview

KEMET Z-PWS Power Line Ferrite Chip Beads are ideal for use in filtering and EMI Suppression for radiant and conductive noise on power lines.

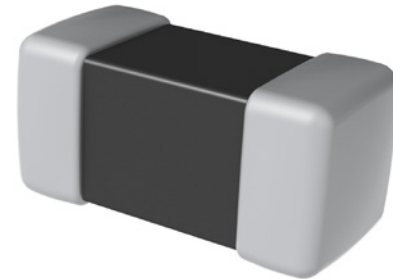
The chip size of this ferrite beads provide waveform correction of digital signals and high frequency noise suppression in various types of digital mobile equipments that require low power consumption.

Applications

- PC, tablet, peripherals
- Differential transmission line on USB
- Optical storage, HDD
- RF circuits
- Digital still camera
- Network security
- Switching regulators

Benefits

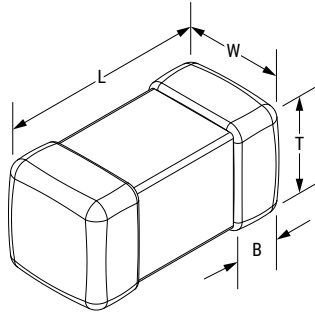
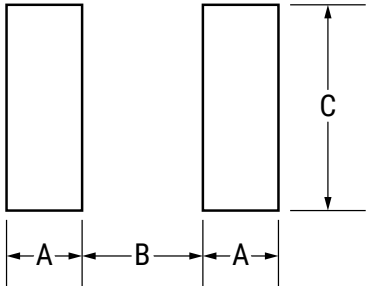
- Large withstand current
- High reliability and resistance to high energy
- Low stray capacitance due to wire wound structure
- Several material variations available to suit application requirements
- Impedance value from 8 – 110 Ω
- Rated current range from 4 – 6 A
- Operating temperature range from -40°C to +125°C



Part Number System

| Z | 1206 | C | 800 | A | PWS | T |
|--------------|--|----------------|--|--|-------------------------------------|-----------------|
| Ferrite Bead | EIA Case Size (L" x W") | Specification | Impedance Value (Ω) at 100 MHz | Material | Series | Packaging |
| | 0603 (1608 in mm) 0805 (2012 in mm) 1206 (3216 in mm) 1806 (4516 in mm) | C = Commercial | R = decimal point Examples: 8R0 = 8.0 Ω The first two digits represent the impedance value. The third digit indicates the number of zeros to be added. Examples: 800 = 80 Ω 111 = 110 Ω | A = Broadband applications B = MHz range applications G = GHz range applications | PWS = Power Line Ferrite Chip Beads | T = Tape & Reel |

Dimensions – Millimeters (Inches)

| Dimensions - Millimeters (Inches) | | | | | | Land Pattern - Millimeters | | |
|---|------------------|-------------------------------|-------------------------------|------------------------------|-------------------------------|---|-----|-----|
|  | | | | | |  | | |
| EIA Size Code | Metric Size Code | L Length | W Width | T Thickness | B Bandwidth | A | B | C |
| 0603 | 1608 | 1.60 (0.063) ±0.2 (0.008) | 0.80 (0.031) ±0.2 (0.008) | 0.80 (0.031) ±0.2 (0.008) | 0.30 (0.012) ±0.20 (0.008) | 1.0 | 1.0 | 1.0 |
| 0805 | 2012 | 2.00 (0.079) ±0.20 (0.008) | 1.25 (0.049) ±0.20 (0.008) | 0.85 (0.033) ±0.2 (0.008) | 0.50 (0.020) ±0.30 (0.012) | 1.4 | 1.2 | 1.7 |
| 1206 | 3216 | 3.20 (0.126) ±0.30 (0.012) | 1.60 (0.063) ±0.20 (0.008) | 1.10 (0.043) ±0.2 (0.008) | 0.50 (0.020) ±0.30 (0.012) | 1.4 | 2.2 | 2.0 |
| 1806 | 4516 | 4.50 (0.177) ±0.30 (0.012) | 1.60 (0.063) ±0.20 (0.008) | 1.10 (0.043) ±0.2 (0.008) | 0.50 (0.020) ±0.30 (0.012) | 1.75 | 3.5 | 2.0 |

Performance Characteristics

| Item | Performance Characteristics |
|-----------------------------|--|
| Impedance Range | 8 – 110 Ω, at 100 MHz |
| Impedance Tolerance | ±25% and ±30% |
| Rated Current Range | 4 – 6 A maximum |
| Rated DC Resistance Range | 0.004 – 0.014 Ω maximum |
| Operating Temperature Range | -40°C to +125°C (includes self temperature rise) |

Environmental Compliance

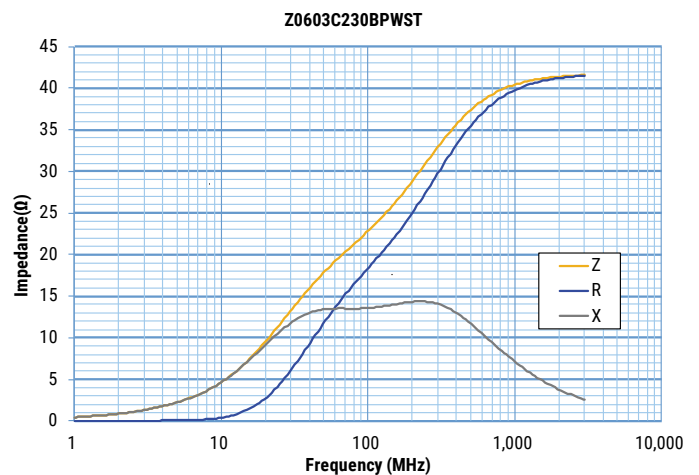
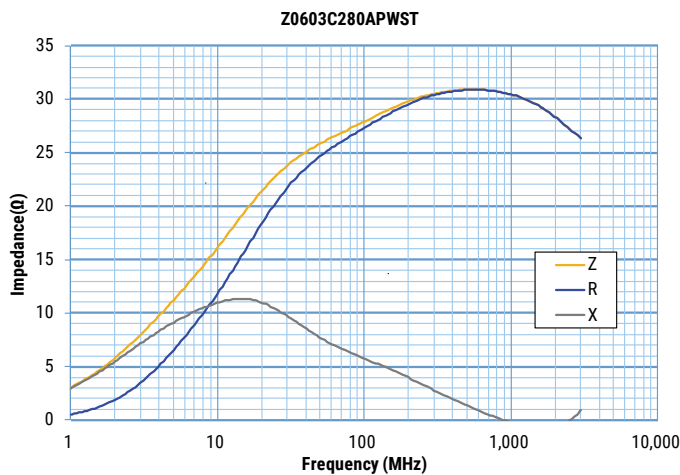
All KEMET Ferrite Beads are RoHS and REACH Compliant.



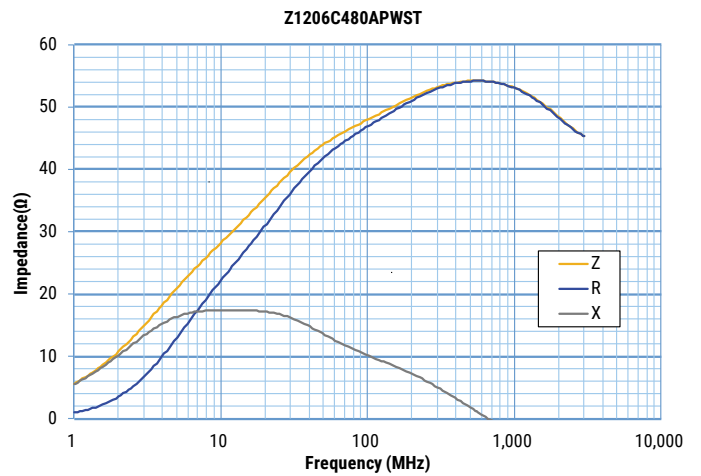
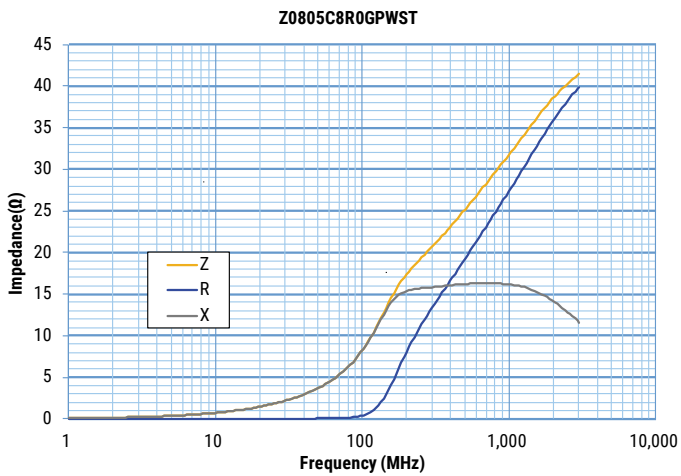
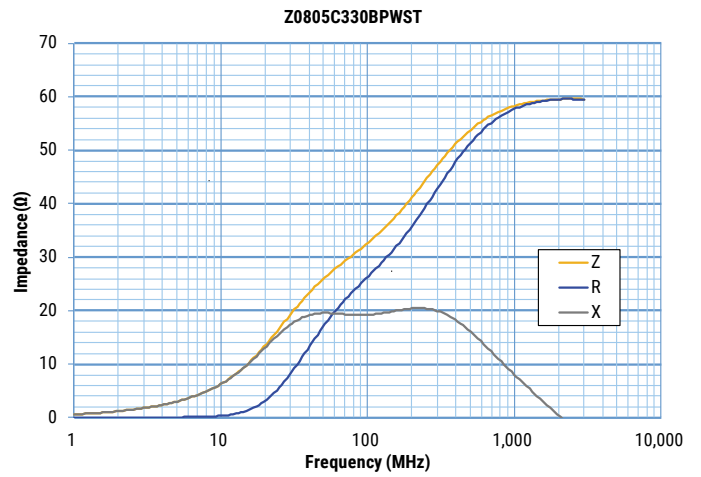
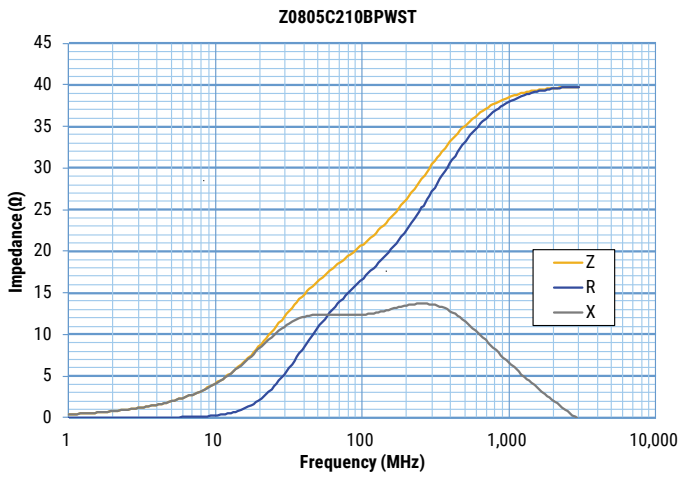
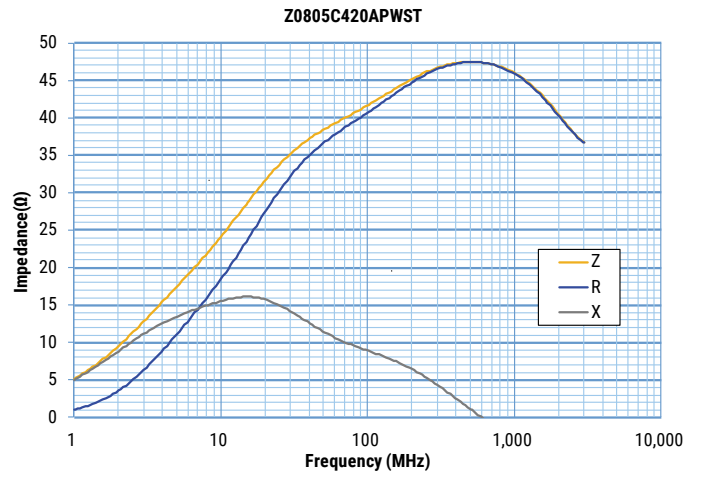
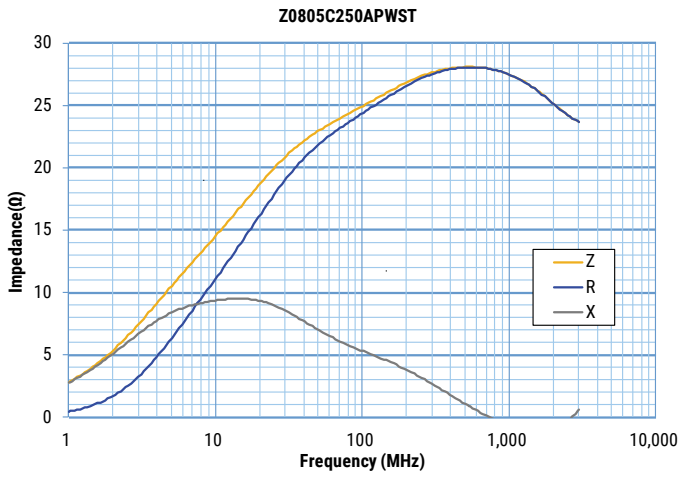
Table 1 – Ratings & Part Number Reference

| Part Number | Impedance (Ω) at 100 MHz | Impedance Tolerance | Rated Current (A) Maximum | DC Resistance (Ω) Maximum |
|----------------|-----------------------------------|---------------------|---------------------------|------------------------------------|
| Z0603C280APWST | 28 | $\pm 30\%$ | 4 | 0.007 |
| Z0603C230BPWST | 23 | $\pm 30\%$ | 4 | 0.007 |
| Z0805C250APWST | 25 | $\pm 30\%$ | 6 | 0.004 |
| Z0805C420APWST | 42 | $\pm 25\%$ | 4 | 0.008 |
| Z0805C210BPWST | 21 | $\pm 30\%$ | 6 | 0.004 |
| Z0805C330BPWST | 33 | $\pm 25\%$ | 4 | 0.008 |
| Z0805C8R0GPWST | 8 | $\pm 30\%$ | 4 | 0.008 |
| Z1206C480APWST | 48 | $\pm 30\%$ | 6 | 0.005 |
| Z1206C800APWST | 80 | $\pm 25\%$ | 4 | 0.010 |
| Z1206C380BPWST | 38 | $\pm 30\%$ | 6 | 0.005 |
| Z1206C600BPWST | 60 | $\pm 25\%$ | 4 | 0.010 |
| Z1806C720APWST | 72 | $\pm 30\%$ | 6 | 0.007 |
| Z1806C111APWST | 110 | $\pm 25\%$ | 4 | 0.014 |
| Z1806C560BPWST | 56 | $\pm 30\%$ | 6 | 0.007 |
| Z1806C900BPWST | 90 | $\pm 25\%$ | 4 | 0.014 |
| Part Number | Impedance | Impedance Tolerance | Rated Current | DC Resistance |

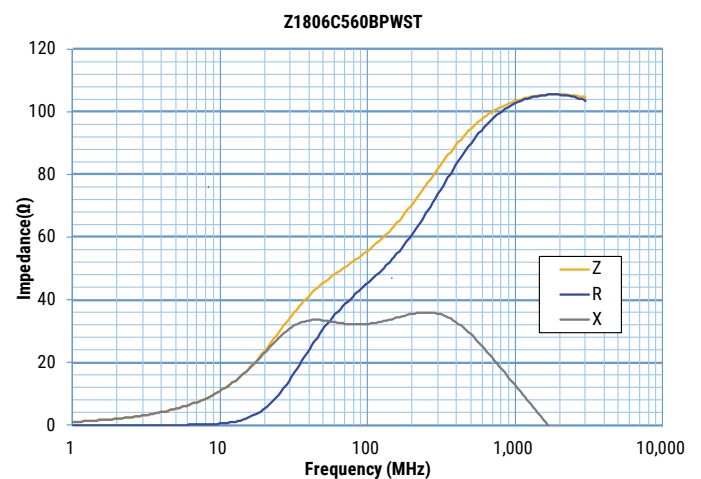
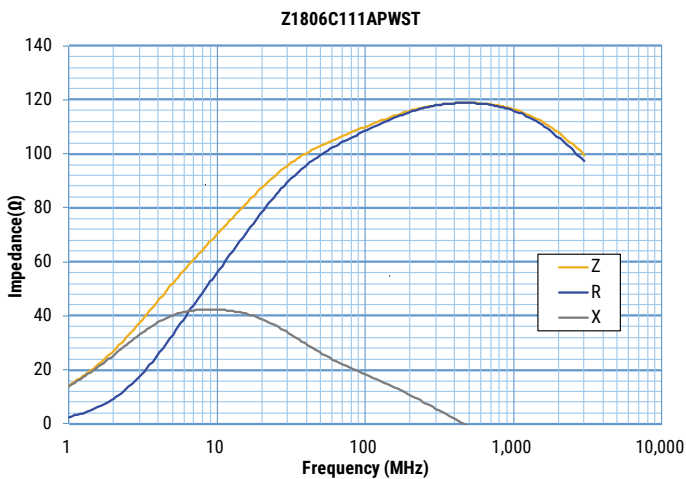
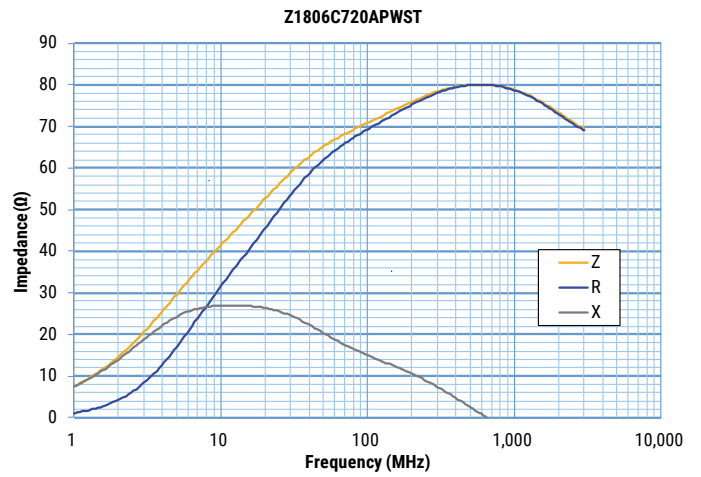
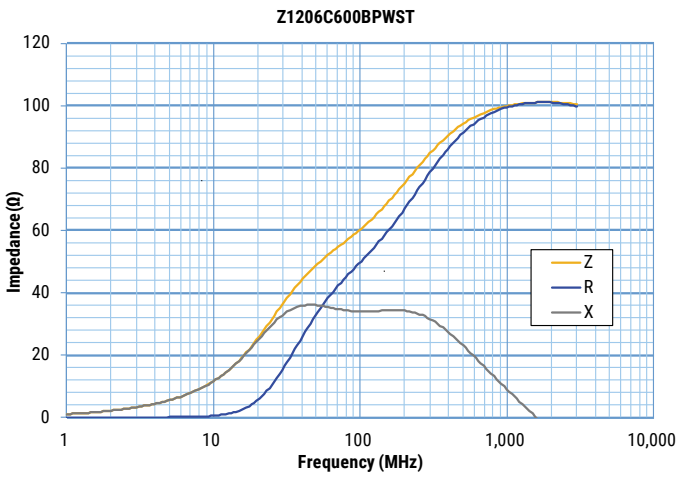
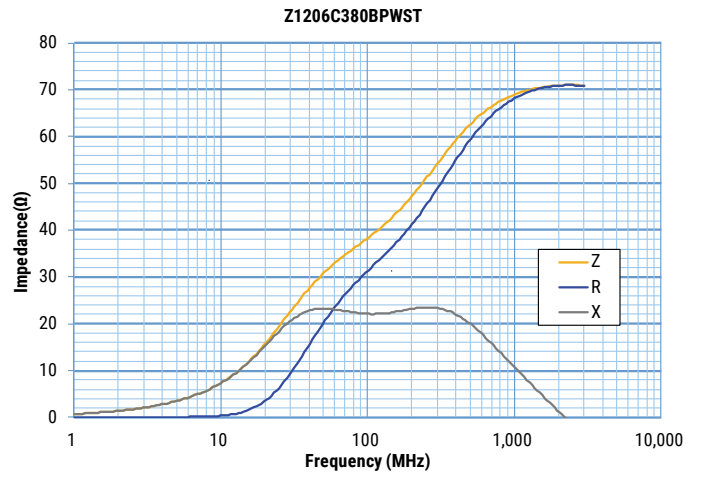
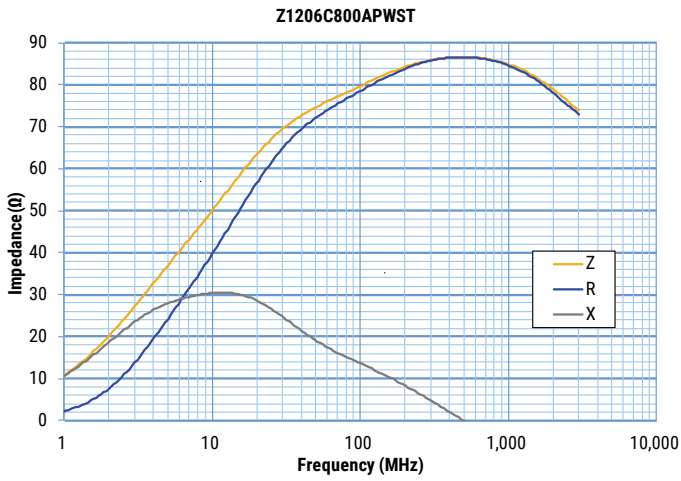
Frequency Characteristics



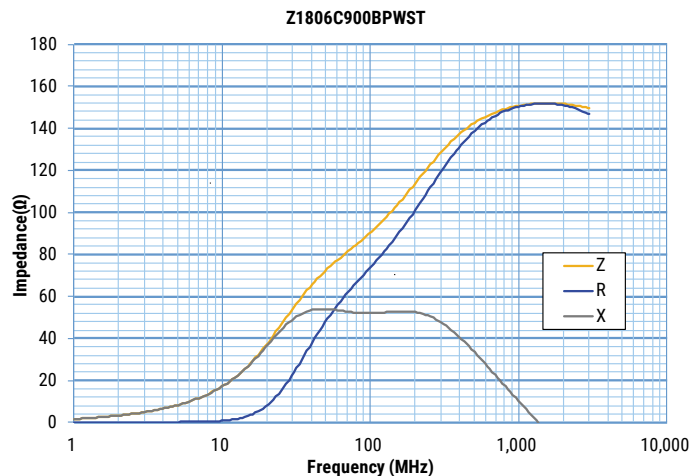
Frequency Characteristics cont.



Frequency Characteristics cont.

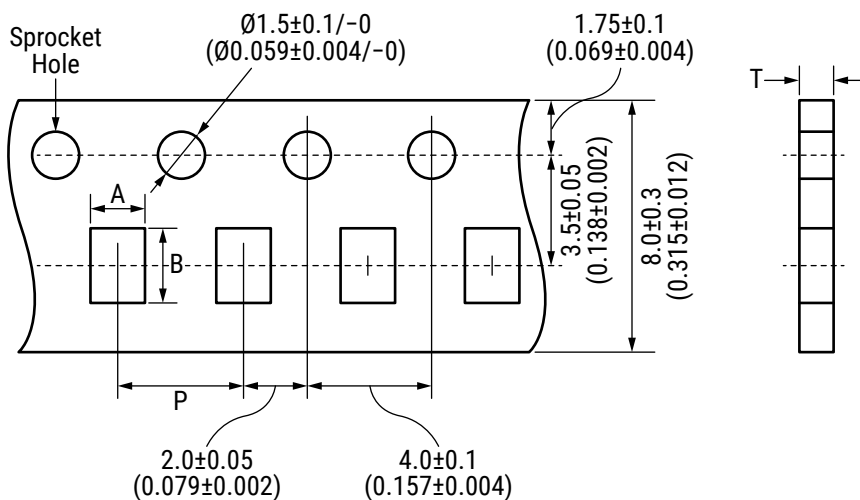


Frequency Characteristics cont.



Taping Specifications - Millimeters (Inches)

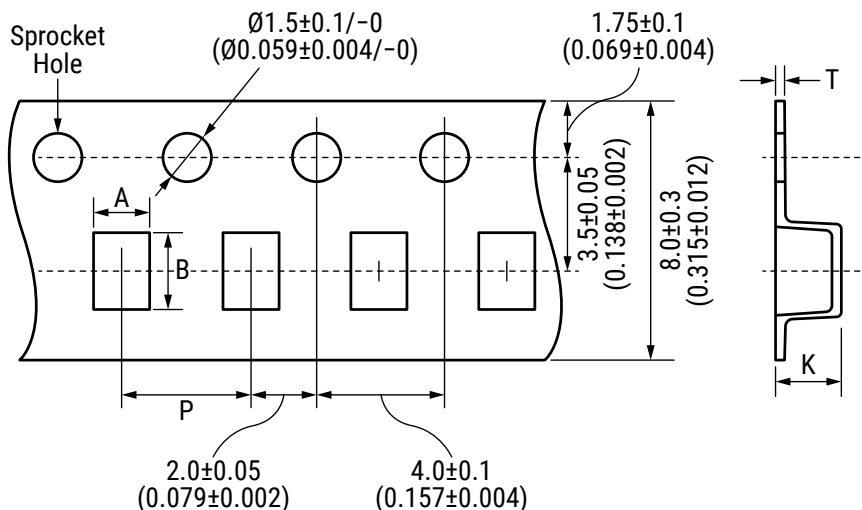
0603, 0805 Paper Tape 8mm Width



| EIA Case Size | Metric Case Size | Height | Reel Quantity | | Cavity | | Pitch | Thickness |
|---------------|------------------|--------|---------------|-----------|--------|------|-------|-----------|
| | | | | | A | B | P | T |
| 0603 | 1608 | 0.8 | 4,000 | Nominal | 1.0 | 1.8 | 4.0 | 1.1 |
| | | | | Tolerance | ±0.2 | ±0.2 | ±0.2 | Maximum |
| 0805 | 2012 | 0.85 | 4,000 | Nominal | 1.5 | 2.3 | 4.0 | 1.1 |
| | | | | Tolerance | ±0.2 | ±0.2 | ±0.2 | Maximum |

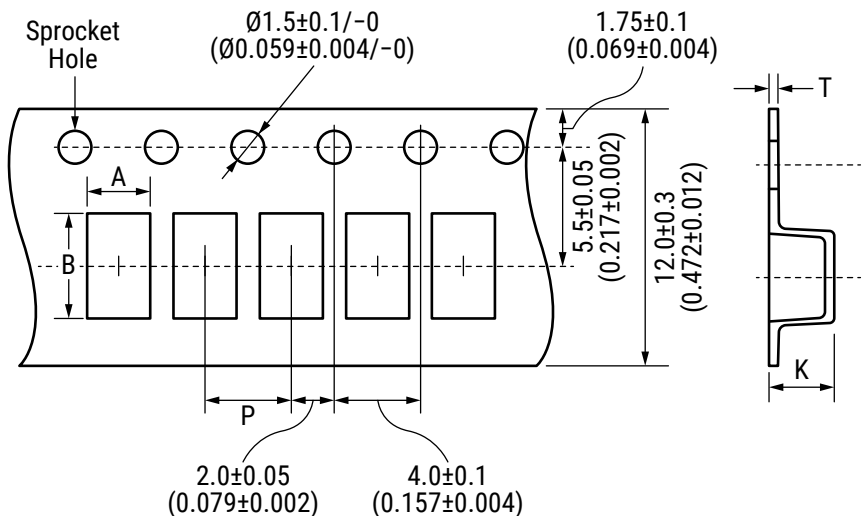
Taping Specifications - Millimeters (Inches) cont.

1206 Embossed (Plastic) Tape 8mm Width



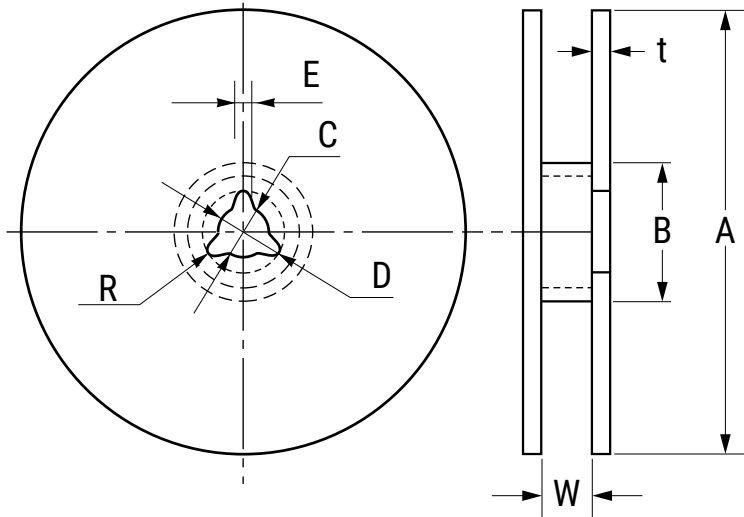
| EIA Case Size | Metric Case Size | Height | Reel Quantity | | Cavity | | Pitch | Thickness | |
|---------------|------------------|--------|---------------|-----------|-----------|-----------|-----------|-----------|---------|
| | | | | | A | B | P | T | K |
| 1206 | 3216 | 1.1 | 2,000 | Nominal | 1.9 | 3.5 | 4.0 | 0.3 | 1.5 |
| | | | | Tolerance | ± 0.2 | ± 0.2 | ± 0.2 | Maximum | Maximum |

1806 Embossed (Plastic) Tape 12 mm Width



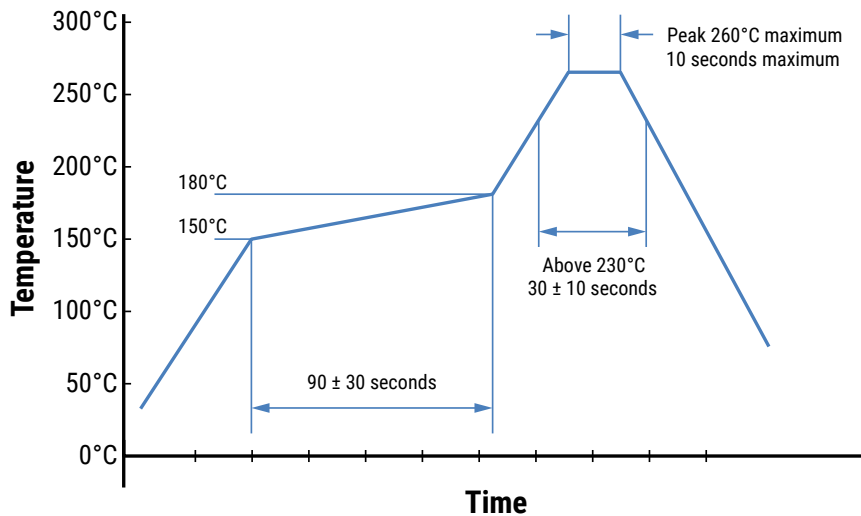
| EIA Case Size | Metric Case Size | Height | Reel Quantity | | Cavity | | Pitch | Thickness | |
|---------------|------------------|--------|---------------|-----------|-----------|-----------|-----------|-----------|---------|
| | | | | | A | B | P | T | K |
| 1806 | 4516 | 1.1 | 2,000 | Nominal | 1.9 | 4.9 | 4.0 | 0.3 | 1.5 |
| | | | | Tolerance | ± 0.2 | ± 0.2 | ± 0.2 | Maximum | Maximum |

Reel Specifications - Millimeters



| EIA Case Size | | Dimensions - Millimeters | | | | | | | |
|----------------------|-----------|--------------------------|--------|-------|-------|------|-----|---------|------|
| | | A | B | C | D | E | R | t | W |
| 0603 0805 1206 | Nominal | ∅180.0 | ∅60.0 | ∅13.0 | ∅21.0 | 2.0 | 1.0 | 2.5 | 10.0 |
| | Tolerance | +0, -3 | +1, -0 | ±0.5 | ±0.8 | ±0.5 | | Maximum | ±1.5 |
| 1806 | Nominal | ∅180.0 | ∅60.0 | ∅13.0 | ∅21.0 | 2.0 | 1.0 | 2.5 | 14.0 |
| | Tolerance | +0, -3 | +1, -0 | ±0.5 | ±0.8 | ±0.5 | | Maximum | ±1.5 |

Recommended Reflow Soldering Profile



Handling Precautions

Ferrite chip beads should be stored in normal working environments. While these beads themselves are quite robust in other environments, exposure to high temperatures, high humidity, corrosive atmospheres, and long-term storage degrades solderability.

KEMET recommends that maximum storage temperature not exceed 40°C and maximum storage humidity not exceed 70% relative humidity. Atmospheres should be free of chlorine-bearing and sulfur-bearing compounds. Temperature fluctuations should be minimized to avoid condensation on the parts.

For optimized solderability, ferrite chip beads stock should be used promptly, preferably within six months of receipt.

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