

Types MCM and MIN SMT Clad RF Capacitors

Multilayer High Power, High Temperature Mica and PTFE Capacitors



Types MCM and MIN SMT clad PTFE and mica capacitors are top performers for high power applications requiring low inductance at high frequencies and can operate at temperatures up to 200 °C and voltages to 1000 Vdc. Choosing from 16 different configurations offers easy mounting with options for surface mount as well as through-hole and mechanical assembly. To assure high current capability in the smallest capacitors, low-capacitance ratings use polytetrafluorethylene (PTFE) that has ultra-low dielectric absorption - better than polypropylene, polystyrene and NPO ceramic.

Highlights

- 200 °C rated with no voltage derating
- Wave solderable
- No cracking or delaminating
- CTE \approx 18 ppm/°C compatible with FR4 PCBs
- Highly thermal conductive package
- Gull-wing terminal minimizes stress
- Typical 100 pF ESR, <11 m Ω @ 100 MHz
- Nonmagnetic for minimal RF loss
- Very low ESL for excellent by-pass action
- Ultra stable: no change with (t), (V) and (f)
- Exact capacitance with tolerances from ± 0.25 pF

RoHS Compliant

Specifications

- Capacitance Range:**
- Voltage Ratings:**
- Temperature Range:**
- Capacitance Tolerance:**
- Dielectric Strength:**
- Insulation Resistance:**
- Aging Rate:**
- Marking:**

| MCM | MIN |
|--|-------------|
| 1 to 1500 pF | 1 to 350 pF |
| 300 to 1000 Vdc | 300 Vdc |
| -55 °C to +200 °C with no voltage derating | |
| ± 0.25 pF, ± 0.5 pF, ± 1 pF, $\pm 0.5\%$, $\pm 1\%$, $\pm 2\%$, $\pm 5\%$ | |
| 200% of rated voltage for 5 seconds | |
| 1000 M Ω · μ F Need not exceed 100,000 M Ω at 25 °C | |
| None | |

MIN - Capacitance in pF and ID letters CD
MCM - Capacitance, ID letters CD and voltage if other than 500 when space permits
 RoHS Compliant - marked in green ink

Design Kits for Engineers

MIN300VKIT1 300 Vdc
 5 pieces each
 13 ratings 3.3 – 150 pF

MCM500VKIT2
 Nonmagnetic to 500 Vdc
 5 pieces each
 10 ratings 10 – 1000 pF

MCM1000VKIT3 1 kVdc
 5 pieces each
 7 ratings 100 – 750 pF



Applications

- RF Power Amplifiers
- Lasers
- Mobile Radio
- Plasma generators
- MRI Coils
- RF Medical Equipment
- Land Mobile antennas 27 to 900 MHz

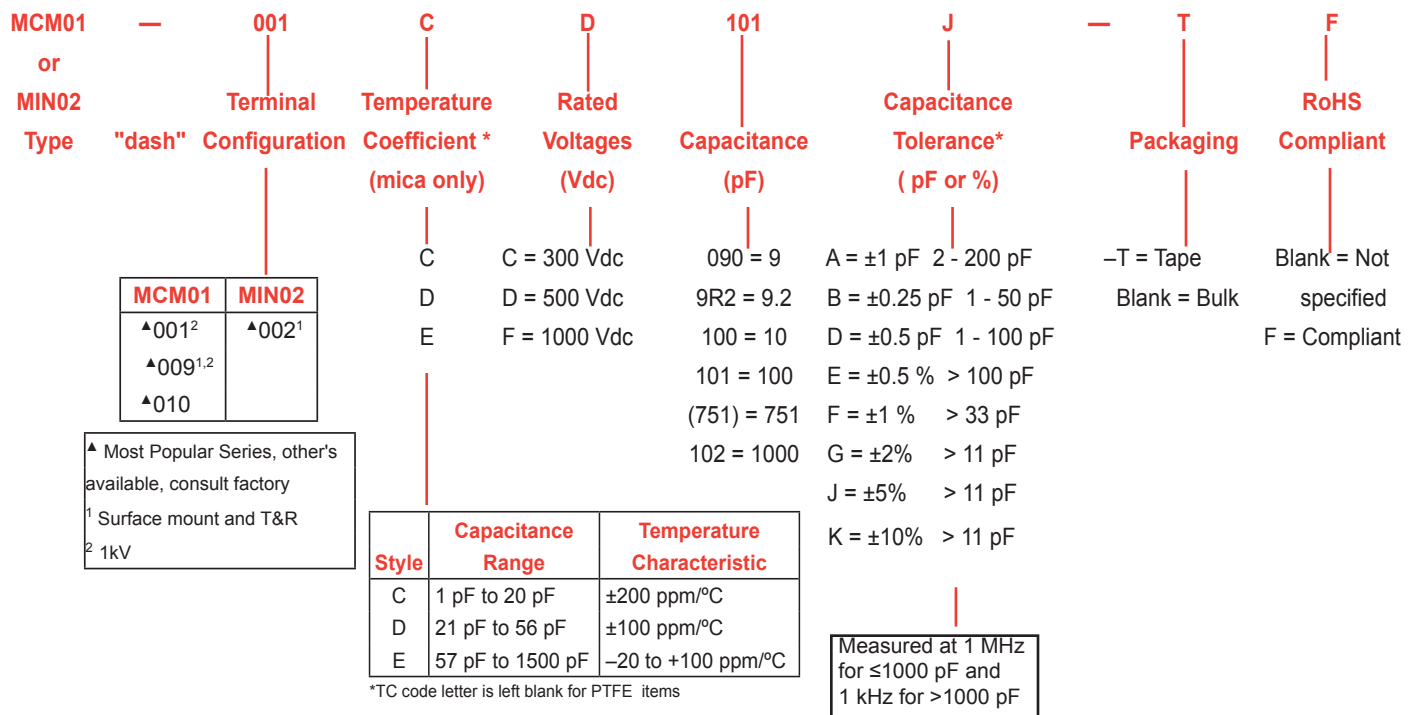
Types MCM and MIN SMT Clad RF Capacitors

Ratings Available

| Capacitance (pF) | Voltage Ratings (Vdc) | | | Dielectric |
|------------------|-----------------------|-----|-------|--------------|
| | 300 | 500 | *1000 | |
| MIN02 | | | | |
| 1 - 2.9 | X | | | PTFE |
| 3 - 9.9 | X | | | PTFE or Mica |
| 10 - 60 | X | | | Mica |
| 61 - 120 | X | | | Mica |
| 121 - 180 | X | | | Mica |
| 181 - 240 | X | | | Mica |
| 241 - 300 | X | | | Mica |
| 301 - 350 | X | | | Mica |
| MCM01 | | | | |
| 1 - 7 | | X | X | PTFE |
| 8 - 32 | | X | X | PTFE or Mica |
| 33 - 250 | | X | X | Mica |
| 251 - 500 | | X | X | Mica |
| 501 - 750 | | X | X | Mica |
| 751 - 1000 | | X | | Mica |
| 1001 - 1280 | | X | | Mica |
| 1281 - 1500 | X | | | Mica |

*1000 V available in MCM01-001 and -009 style

Part Numbering System

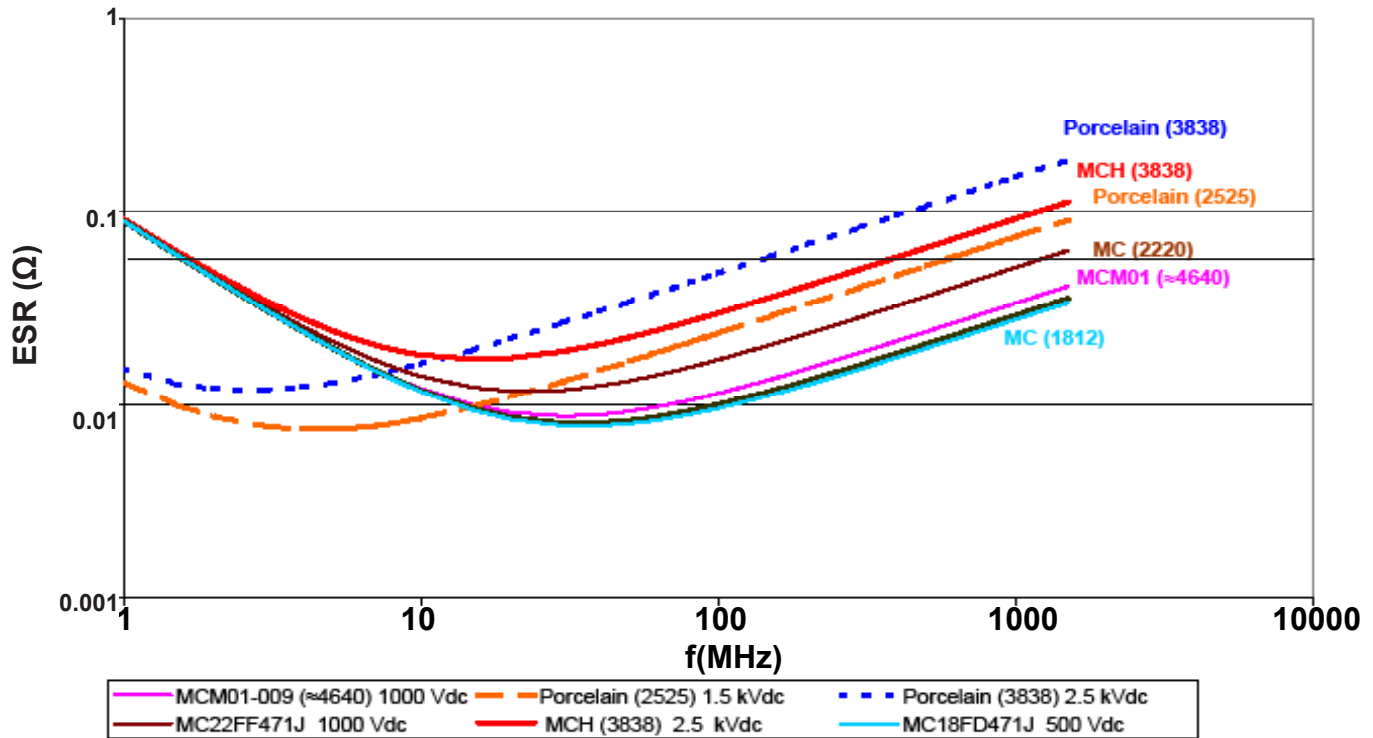


Types MCM and MIN SMT Clad RF Capacitors

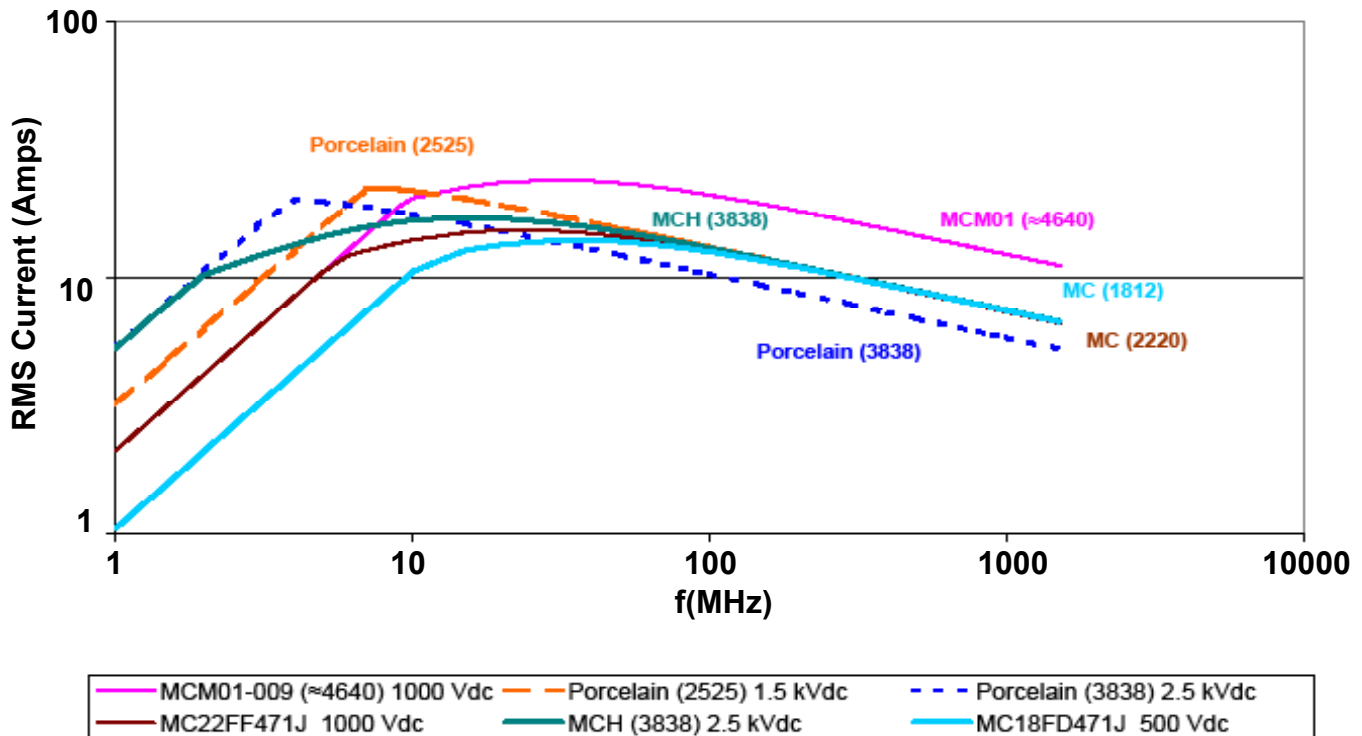
Typical Performance Data

[click here to see additional rating charts](#)

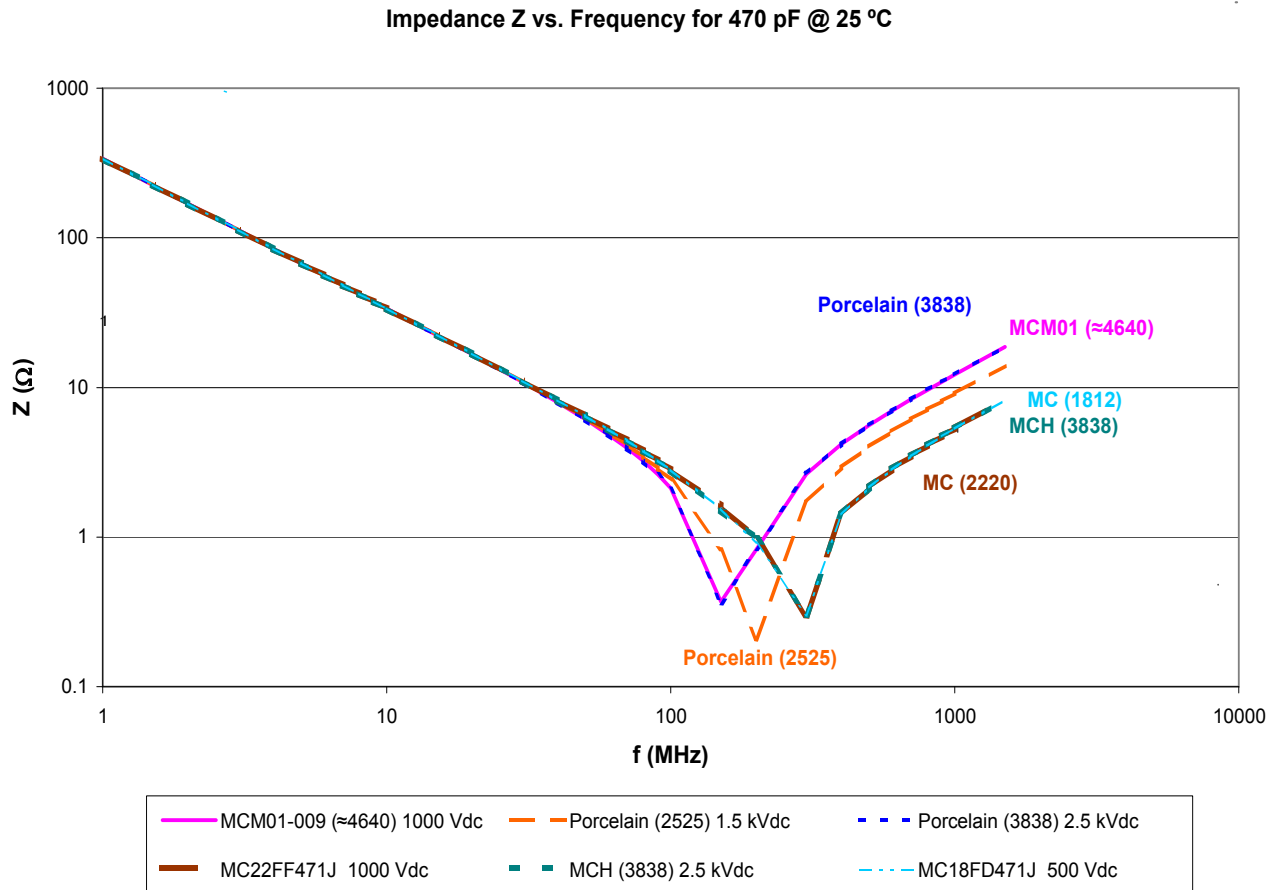
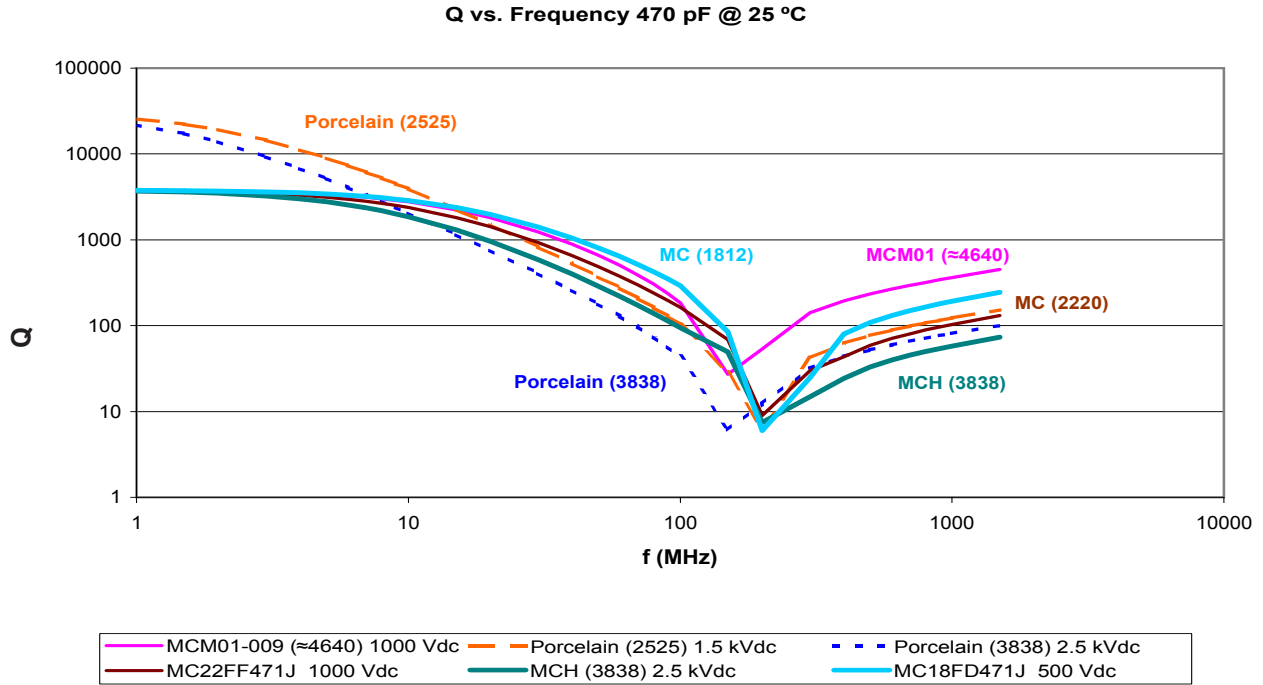
ESR vs. Frequency for 470 pF



Current Rating (IRMS) for 470 pF at 60 °C Rise



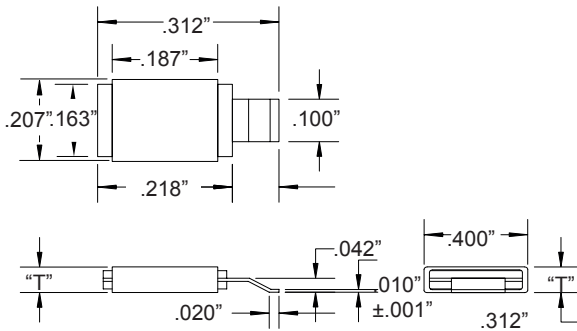
Types MCM and MIN SMT Clad RF Capacitors



Types MCM and MIN SMT Clad RF Capacitors

Outline Drawings for Popular Items

MIN02-002



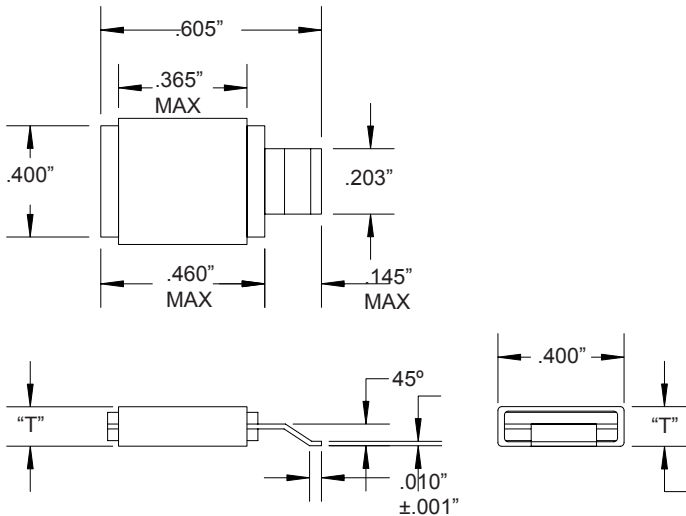
"T" (thickness) depending on capacitance value = .065 to .125±.015

MCM01-001



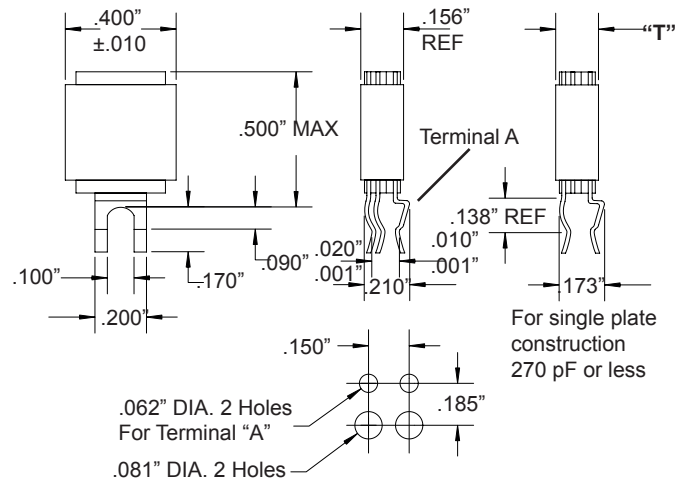
"T" (thickness) depending on capacitance value = .110 to .165±.015

MCM01-009



"T" (thickness) depending on capacitance value = .110 to .165±.015

MCM01-010



"T" (thickness) depending on capacitance value = .110 to .165±.015

"T" varies with capacitance

Types MCM and MIN SMT Clad RF Capacitors

Standard Minimum Quantities

Bulk Pack: 100 pieces per bag

Reel Pack: 500 pieces per reel

Tape Specifications



| Tape Dimensions (mm) | | | | | | |
|-----------------------|----|------|------|----|-----|------|
| Case | W | A | B | P1 | F | t |
| MIN02-002 < 150 pF | 16 | 5.56 | 8.18 | 8 | 7.5 | 2.16 |
| MIN02-002 ≥ 150 pF | 16 | 5.66 | 8.10 | 8 | 7.5 | 3.20 |

Note: 24 mm tape for MCM01-009 and 32 mm tape for MCM01-004 are available upon request.

Solder Profile

Specifications:

Lead free finish

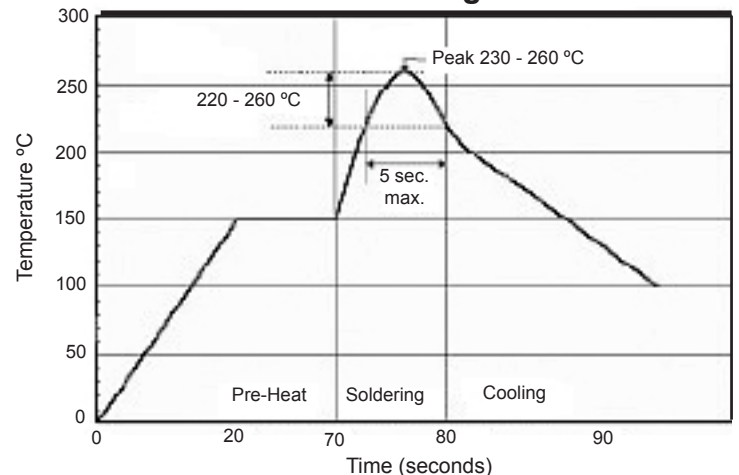
Case and Terminal Material:

Silver plated, copper flashed, brass

Reflow Soldering Method



Wave Soldering Method



Notice and Disclaimer: All product drawings, descriptions, specifications, statements, information and data (collectively, the "Information") in this datasheet or other publication are subject to change. The customer is responsible for checking, confirming and verifying the extent to which the Information contained in this datasheet or other publication is applicable to an order at the time the order is placed. All Information given herein is believed to be accurate and reliable, but it is presented without any guarantee, warranty, representation or responsibility of any kind, expressed or implied. Statements of suitability for certain applications are based on the knowledge that the Cornell Dubilier company providing such statements ("Cornell Dubilier") has of operating conditions that such Cornell Dubilier company regards as typical for such applications, but are not intended to constitute any guarantee, warranty or representation regarding any such matter – and Cornell Dubilier specifically and expressly disclaims any guarantee, warranty or representation concerning the suitability for a specific customer application, use, storage, transportation, or operating environment. The Information is intended for use only by customers who have the requisite experience and capability to determine the correct products for their application. Any technical advice inferred from this Information or otherwise provided by Cornell Dubilier with reference to the use of any Cornell Dubilier products is given gratis (unless otherwise specified by Cornell Dubilier), and Cornell Dubilier assumes no obligation or liability for the advice given or results obtained. Although Cornell Dubilier strives to apply the most stringent quality and safety standards regarding the design and manufacturing of its products, in light of the current state of the art, isolated component failures may still occur. Accordingly, customer applications which require a high degree of reliability or safety should employ suitable designs or other safeguards (such as installation of protective circuitry or redundancies or other appropriate protective measures) in order to ensure that the failure of an electrical component does not result in a risk of personal injury or property damage. Although all product-related warnings, cautions and notes must be observed, the customer should not assume that all safety measures are indicated in such warnings, cautions and notes, or that other safety measures may not be required.