

Control Devices

CERAMIC MELF PIN DIODES

- Magnetic/Non-Magnetic “Cer-Met” (MELF) Packages
- Very Low Inductance, Full Faced Bonding
- Hermetic, Low Loss and Low Distortion Applications
- High Volume Manufacturing Capability
- 100% TX Screening Available



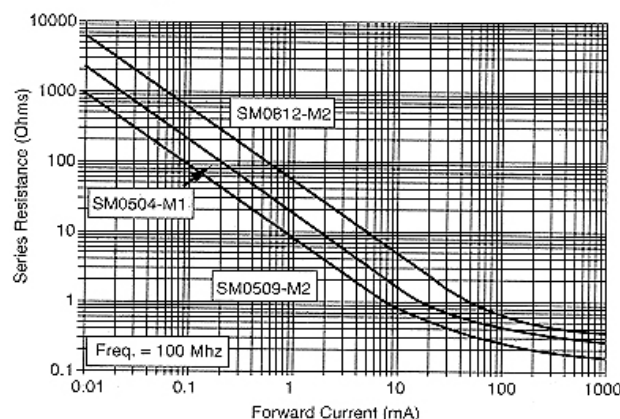
DESCRIPTION

This new line of ‘MELF’ high power PIN diodes are hermetically sealed surface mount packaged devices with full face bonded chips for low inductance construction. The MELF ceramic package has square end terminations which are ideal for surface mount and pick and place operations. The PIN diode chips are coated with a special hard glass passivation which is required for high power applications to enhance the reliability resulting in MTBF's of greater than one million hours.

APPLICATIONS

These MELF diodes are used as switching, attenuating and phase shifting elements from HF through 2 GHz and have breakdown voltage ratings up to 700 volts. Non-magnetic “Cer-Met” (MELF's) are also used as switching elements in MRI (magnetic resonance imaging) applications. Conventional magnetic MELF packages are used in cellular, beam steering applications, filter switch banks, and antenna tuning units..

Typical Series Rs VS Forward Bias



CERAMIC MELF

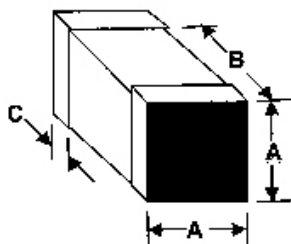
ELECTRICAL SPECIFICATION AT 25°C

| PART NO. | CASE STYLE SUGGESTED | VOLTAGE RATING IR < 10µa VR | TOTAL CAPACITANCE F = 1 MHz VR=50V pF (MAX) | SERIES RESISTANCE | SERIES RESISTANCE | CARRIER LIFETIME If=10mA µSEC (TYP) | TYPICAL THERMAL RESISTANCE °C/W |
|----------|----------------------|-----------------------------------|--|-----------------------------------|-----------------------------------|---|---------------------------------|
| | | | | If=100mA F=100MHz OHM (MAX) | If=200mA F=100MHz OHM (TYP) | | |
| SM0502 | M1 | 500 | 0.50 | 0.70 | 0.55 | 1.0 | 35 |
| SM0504 | M1 | 500 | 0.60 | 0.60 | 0.45 | 1.5 | 20 |
| SM0508 | M1 | 500 | 0.90 | 0.40 | 0.25 | 2.0 | 15 |
| SM0509 | M1 | 500 | 1.20 | 0.35 | 0.20 | 2.5 | 15 |
| SM0511 | M1 | 500 | 1.25 | 0.30 | 0.15 | 3.0 | 15 |
| SM0512 | M1 | 500 | 1.50 | 0.25 | 0.12 | 3.5 | 15 |
| SM0812 | M1 | 700 | 1.30 | 0.40 | 0.25 | 4.0 | 15 |
| SM1001 | M1 | 700 | 1.30 | 0.35 | 0.20 | 4.5 | 15 |
| SM1002 | M1 | 50 | 1.20 | .75 @ 50mA | 0.20 | 4.0 | 15 |
| SM1003 | M1 | 35 | 1.2 @ 20V | .50 @ 10mA | 0.10 | 0.6 | 25 |

ABSOLUTE MAXIMUM RATINGS AT 25°C

| | |
|--------------------------------|--|
| Peak Inverse Voltage (PIV): | Same as V_B |
| Forward Current (I_F): | 1 AMP (1µS Pulse) |
| Power Dissipation (PD): | $P_{MAX} = \frac{T_{J(MAX)}}{\theta_{JC}}$ |
| Junction Temp. (Operating): | -55°C to +150°C |
| Storage Temp. (Non-Operating): | -55°C to +150°C |
| : | : |

Case style M2 available as special option / some limitations apply / consult factory for details.



| DIM | M1 | | M2 | |
|-----|--------|-------|--------|-------|
| | INCHES | | INCHES | |
| | MIN | MAX | MIN | MAX |
| A | 0.080 | 0.095 | 0.100 | 0.120 |
| B | 0.115 | 0.135 | 0.188 | 0.205 |
| C | 0.008 | 0.030 | 0.008 | 0.030 |

Non-magnetic packages are available upon request.