

Product Preview

SWITCHMODE™
Schottky Power Rectifier

POWERTAP III Package

... employing the Schottky Barrier principle in a large area metal-to-silicon power diode. State of the art geometry features epitaxial construction with oxide passivation and metal overlay contact. Ideally suited for low voltage, high frequency switching power supplies, free wheeling diode and polarity protection diodes.

- Very Low Forward Voltage Drop
- Highly Stable Oxide Passivated Junction
- Guardring for Stress Protection
- High dv/dt Capability

Mechanical Characteristics:

- Dual Die Construction
- Case: Epoxy, Molded with Plated Copper Heatsink Base
- Weight: 40 grams (approximately)
- Finish: All External Surfaces Corrosion Resistant
- Base Plate Torques: See procedure given in the Package Outline Section
- Top Terminal Torque: 25–40 lb-in max.
- Shipped 50 units per foam
- Marking: MBRP30035L

MAXIMUM RATINGS

| Rating | Symbol | Value | Unit |
|--|---------------------------------|-------------|------------------|
| Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage | V_{RRM} V_{RWM} V_R | 35 | Volts |
| Average Rectified Forward Current (At Rated V_R , $T_C = 100^\circ\text{C}$) | I_O | 300 | Amps |
| Peak Repetitive Forward Current (At Rated V_R , Square Wave, 20 kHz, $T_C = 100^\circ\text{C}$) | I_{FRM} | 600 | Amps |
| Non-Repetitive Peak Surge Current (Surge applied at rated load conditions, halfwave, single phase, 60 Hz) | I_{FSM} | 3000 | Amps |
| Peak Repetitive Reverse Surge Current (2.0 μs , 1.0 kHz) | I_{RRM} | 2.0 | Amps |
| Storage / Operating Case Temperature | T_{stg} , T_C | -55 to +150 | $^\circ\text{C}$ |
| Operating Junction Temperature | T_J | -55 to +150 | $^\circ\text{C}$ |
| Voltage Rate of Change (Rated V_R , $T_J = 25^\circ\text{C}$) | dv/dt | 10,000 | V/ μs |

THERMAL CHARACTERISTICS

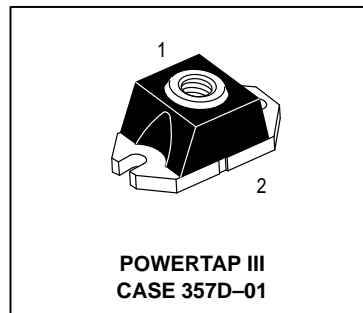
| | | | |
|---------------------------------------|-----------------|-----|---------------------------|
| Thermal Resistance — Junction-to-Case | $R_{\theta JC}$ | 0.4 | $^\circ\text{C}/\text{W}$ |
|---------------------------------------|-----------------|-----|---------------------------|

ELECTRICAL CHARACTERISTICS

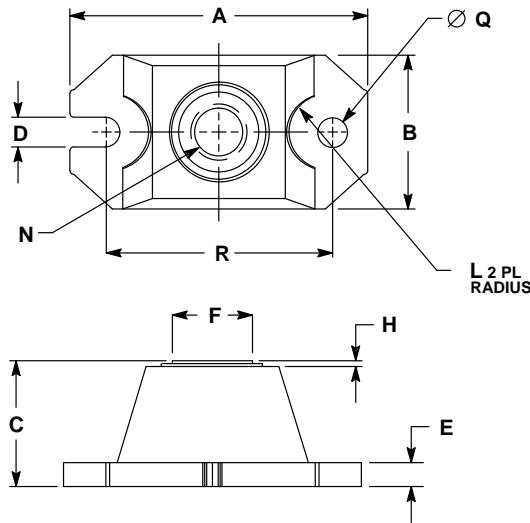
| | | | | |
|---|-------|--------------------------|---------------------------|-------|
| Maximum Instantaneous Forward Voltage (1) ($I_F = 300\text{ A}$) | V_F | $T_J = 25^\circ\text{C}$ | $T_J = 100^\circ\text{C}$ | Volts |
| | | 0.57 | 0.5 | |
| Maximum Instantaneous Reverse Current ($V_R = 35\text{ V}$) | I_R | $T_J = 25^\circ\text{C}$ | $T_J = 100^\circ\text{C}$ | mA |
| | | 10 | 250 | |

(1) Pulse Test: Pulse Width $\leq 380\ \mu\text{s}$, Duty Cycle $\leq 2\%$.

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PACKAGE DIMENSIONS



- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
 2. CONTROLLING DIMENSION: INCH.
 3. TERMINAL PENETRATION: 5.97 (0.235) MAXIMUM.

| DIM | INCHES | | MILLIMETERS | |
|-----|--------------|--------------|-------------|-------|
| | MIN | MAX | MIN | MAX |
| A | 1.520 | 1.560 | 38.61 | 39.62 |
| B | 0.783 | 0.813 | 19.89 | 20.65 |
| C | 0.615 | 0.635 | 15.62 | 16.13 |
| D | 0.152 | 0.162 | 3.86 | 4.11 |
| E | 0.120 | 0.130 | 3.05 | 3.30 |
| F | 0.435 | 0.445 | 11.05 | 11.30 |
| H | 0.007 | 0.030 | 0.18 | 0.76 |
| L | 0.210 | 0.230 | 5.33 | 5.84 |
| N | 1/4-20UNC-2B | 1/4-20UNC-2B | | |
| Q | 0.152 | 0.162 | 3.86 | 4.11 |
| R | 1.175 | 1.195 | 29.85 | 30.35 |

CASE 357D-01
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