

# MBRP20035L

## 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: MBRP20035L

#### MAXIMUM RATINGS

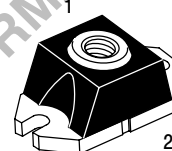
| Rating                                                                                                             | Symbol                          | Value       | Unit             |
|--------------------------------------------------------------------------------------------------------------------|---------------------------------|-------------|------------------|
| Peak Repetitive Reverse Voltage<br>Working Peak Reverse Voltage<br>DC Blocking Voltage                             | $V_{RRM}$<br>$V_{RWM}$<br>$V_R$ | 35          | V                |
| Average Rectified Forward Current<br>(At Rated $V_R$ , $T_C = 100^\circ\text{C}$ )                                 | $I_O$                           | 200         | A                |
| Peak Repetitive Forward Current<br>(At Rated $V_R$ , Square Wave,<br>20 kHz, $T_C = 100^\circ\text{C}$ )           | $I_{FRM}$                       | 400         | A                |
| Non-Repetitive Peak Surge Current<br>(Surge applied at rated load<br>conditions, halfwave, single phase,<br>60 Hz) | $I_{FSM}$                       | 2000        | A                |
| Peak Repetitive Reverse Surge<br>Current (2.0 $\mu\text{s}$ , 1.0 kHz)                                             | $I_{RRM}$                       | 2.0         | A                |
| Storage/Operating Case<br>Temperature Range                                                                        | $T_{stg}, T_C$                  | -55 to +150 | $^\circ\text{C}$ |
| Operating Junction Temperature                                                                                     | $T_J$                           | -55 to +150 | $^\circ\text{C}$ |
| Voltage Rate of Change<br>(Rated $V_R$ , $T_J = 25^\circ\text{C}$ )                                                | dv/dt                           | 10,000      | V/ $\mu\text{s}$ |



ON Semiconductor™

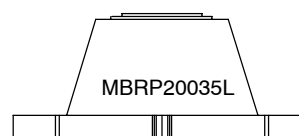
<http://onsemi.com>

### SCHOTTKY BARRIER RECTIFIER 200 AMPERES 35 VOLTS



POWERTAP III  
CASE 357D  
PLASTIC

#### MARKING DIAGRAM



MBRP20035L = Device Code

#### ORDERING INFORMATION

| Device     | Package      | Shipping      |
|------------|--------------|---------------|
| MBRP20035L | POWERTAP III | 50 Units/Foam |

# MBRP20035L

## THERMAL CHARACTERISTICS

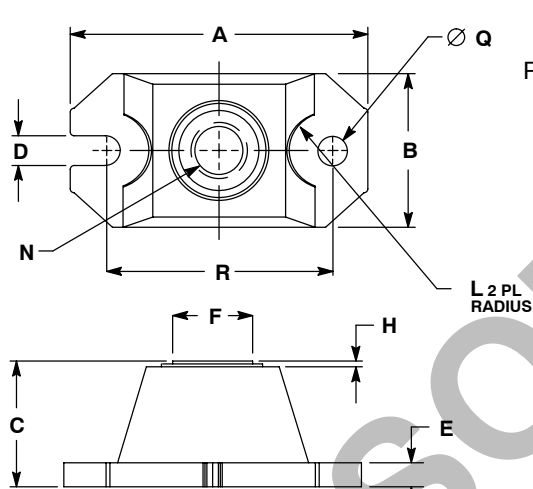
| Characteristic                        | Symbol          | Value | Unit                 |
|---------------------------------------|-----------------|-------|----------------------|
| Thermal Resistance — Junction-to-Case | $R_{\theta JC}$ | 0.45  | $^{\circ}\text{C/W}$ |

## ELECTRICAL CHARACTERISTICS

|                                                                             |       |                            |                             |       |
|-----------------------------------------------------------------------------|-------|----------------------------|-----------------------------|-------|
| Maximum Instantaneous Forward Voltage (Note 1.)<br>( $I_F = 200\text{ A}$ ) | $V_F$ | $T_J = 25^{\circ}\text{C}$ | $T_J = 100^{\circ}\text{C}$ | Volts |
|                                                                             |       | 0.57                       | 0.5                         |       |
| Maximum Instantaneous Reverse Current<br>( $V_R = 35\text{ V}$ )            | $I_R$ | $T_J = 25^{\circ}\text{C}$ | $T_J = 100^{\circ}\text{C}$ | mA    |
|                                                                             |       | 10                         | 250                         |       |

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

## 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 |

POWERTAP and SWITCHMODE are trademarks of Semiconductor Components Industries, LLC.

ON Semiconductor and  are registered trademarks of Semiconductor Components Industries, LLC (SCILLC). SCILLC reserves the right to make changes without further notice to any products herein. SCILLC makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does SCILLC assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. "Typical" parameters which may be provided in SCILLC data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. SCILLC does not convey any license under its patent rights nor the rights of others. SCILLC products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the SCILLC product could create a situation where personal injury or death may occur. Should Buyer purchase or use SCILLC products for any such unintended or unauthorized application, Buyer shall indemnify and hold SCILLC and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that SCILLC was negligent regarding the design or manufacture of the part. SCILLC is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

## PUBLICATION ORDERING INFORMATION

**LITERATURE FULFILLMENT:**  
Literature Distribution Center for ON Semiconductor  
P.O. Box 5163, Denver, Colorado 80217 USA  
**Phone:** 303-675-2175 or 800-344-3860 Toll Free USA/Canada  
**Fax:** 303-675-2176 or 800-344-3867 Toll Free USA/Canada  
**Email:** [orderlit@onsemi.com](mailto:orderlit@onsemi.com)

**N. American Technical Support:** 800-282-9855 Toll Free  
USA/Canada  
**Europe, Middle East and Africa Technical Support:**  
Phone: 421 33 790 2910  
**Japan Customer Focus Center**  
Phone: 81-3-5773-3850

**ON Semiconductor Website:** [www.onsemi.com](http://www.onsemi.com)  
**Order Literature:** <http://www.onsemi.com/orderlit>  
For additional information, please contact your local Sales Representative