

## 444CMQ035/444CMQ040/444CMQ045 SCHOTTKY RECTIFIER

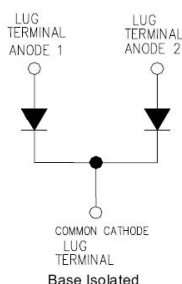


**PRM4 (Isolated)**

### Features

- 125°C T<sub>J</sub> operation
- Center tap module
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- Low forward voltage drop
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability
- Baseplate: Nickel plated; Terminals: Nickel plated
- This is a Pb – Free Device
- All SMC parts are traceable to the wafer lot
- Additional testing can be offered upon request

### Circuit Diagram



### Applications

- High current switching power supply
- Plating power supply
- Free-Wheeling diodes
- Reverse battery protection
- Converters
- UPS System
- Welding

### Maximum Ratings:

| Characteristics                                       | Symbol             | Condition                                                                                                                         | Max.                            |           | Units |
|-------------------------------------------------------|--------------------|-----------------------------------------------------------------------------------------------------------------------------------|---------------------------------|-----------|-------|
| Peak Repetitive Reverse Voltage                       | V <sub>RRM</sub>   | -                                                                                                                                 | 35                              | 444CMQ035 | V     |
| Working Peak Reverse Voltage                          | V <sub>RWM</sub>   | -                                                                                                                                 | 40                              | 444CMQ040 |       |
| DC Blocking Voltage                                   | V <sub>R</sub>     | -                                                                                                                                 | 45                              | 444CMQ045 |       |
| Average Rectified Forward Current                     | I <sub>F(AV)</sub> | 50% duty cycle @T <sub>C</sub> =81°C, rectangular wave form                                                                       | 220(Per Leg)<br>440(Per Device) |           | A     |
| Peak One Cycle Non-Repetitive Surge Current (Per Leg) | I <sub>FSM</sub>   | 8.3 ms, half Sine pulse                                                                                                           | 4560                            |           | A     |
| Non-Repetitive Avalanche Energy(Peg Leg)              | E <sub>AS</sub>    | T <sub>J</sub> =25°C, I <sub>AS</sub> =40A, L=0.34mH                                                                              | 270                             |           | mJ    |
| Repetitive Avalanche Current (Peg Leg)                | I <sub>AR</sub>    | Current decaying linearly to zero in 1 µsec Frequency limited by T <sub>J</sub> max. V <sub>A</sub> =1.5 × V <sub>R</sub> typical | 40                              |           | A     |

**Electrical Characteristics:**

| Characteristics                | Symbol          | Condition                                                                        | Typ.         | Max.         | Units |
|--------------------------------|-----------------|----------------------------------------------------------------------------------|--------------|--------------|-------|
| Forward Voltage Drop(Per Leg)* | V <sub>F1</sub> | @ 220A, Pulse, T <sub>J</sub> = 25 °C<br>@ 440A, Pulse, T <sub>J</sub> = 25 °C   | 0.48<br>0.59 | 0.53<br>0.69 | V     |
|                                | V <sub>F2</sub> | @ 220A, Pulse, T <sub>J</sub> = 125 °C<br>@ 440A, Pulse, T <sub>J</sub> = 125 °C | 0.43<br>0.55 | 0.51<br>0.68 | V     |
| Reverse Current(Per Leg)*      | I <sub>R1</sub> | @V <sub>R</sub> = rated V <sub>R</sub> , T <sub>J</sub> = 25 °C                  | 5            | 20           | mA    |
|                                | I <sub>R2</sub> | @V <sub>R</sub> = rated V <sub>R</sub> , T <sub>J</sub> = 125 °C                 | 3000         | 3500         | mA    |
| Junction Capacitance(Per leg)  | C <sub>T</sub>  | @V <sub>R</sub> = 5V, T <sub>C</sub> = 25 °C<br>f <sub>sig</sub> = 1MHz          | 8500         | 10300        | pF    |
| Voltage Rate of Change         | dv/dt           | -                                                                                | -            | 10,000       | V/μs  |

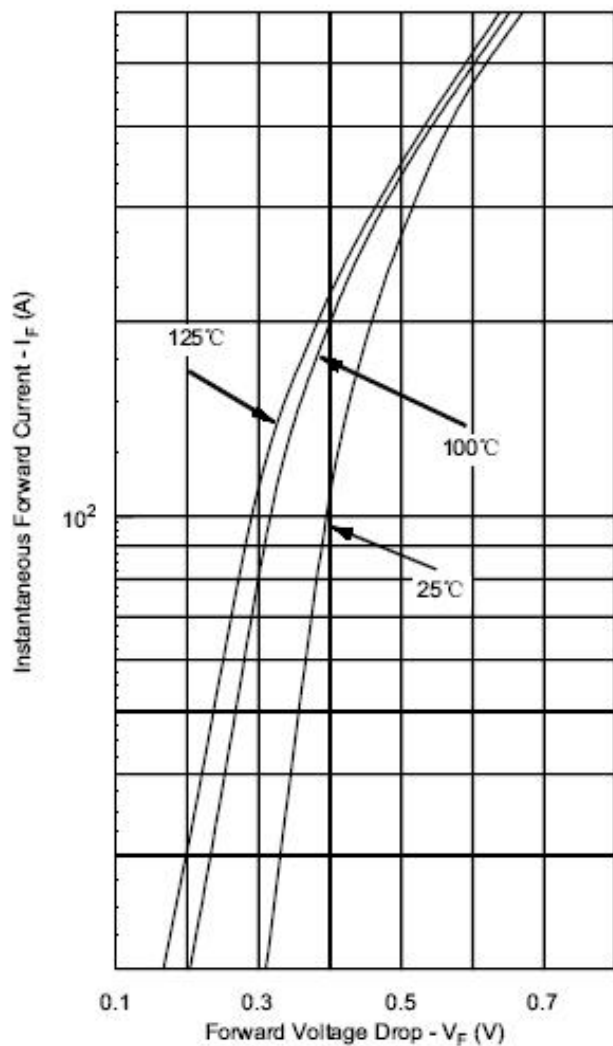
\* Pulse width < 300 μs, duty cycle < 2%

**Thermal-Mechanical Specifications:**

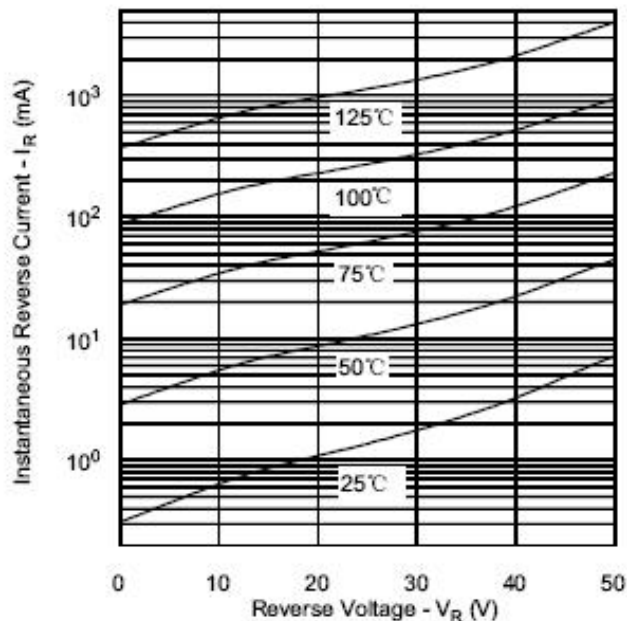
| Characteristics                                          | Symbol           | Condition                            | Specification   |                    | Units |
|----------------------------------------------------------|------------------|--------------------------------------|-----------------|--------------------|-------|
| Junction Temperature                                     | T <sub>J</sub>   | -                                    | -55 to +125     |                    | °C    |
| Storage Temperature                                      | T <sub>stg</sub> | -                                    | -55 to +125     |                    | °C    |
| Typical Thermal Resistance Junction to Case(Per leg)     | R <sub>θJC</sub> | DC operation                         | 0.40            |                    | °C/W  |
| Typical Thermal Resistance Junction to Case(Per package) | R <sub>θJC</sub> | DC operation                         | 0.20            |                    | °C/W  |
| Typical Thermal Resistance, case to Heat Sink            | R <sub>θcs</sub> | Mounting surface, smooth and greased | 0.10            |                    | °C/W  |
| Mounting Torque                                          | T <sub>M</sub>   | -                                    | Mounting Torque | 24(min)<br>35(max) | Kg-cm |
|                                                          |                  |                                      | Terminal Torque | 35(min)<br>46(max) |       |
| Approximate Weight                                       | wt               | -                                    | 79              |                    | g     |
| Case Style                                               | PRM4 Isolated    |                                      |                 |                    |       |

**Ratings and Characteristics Curves**

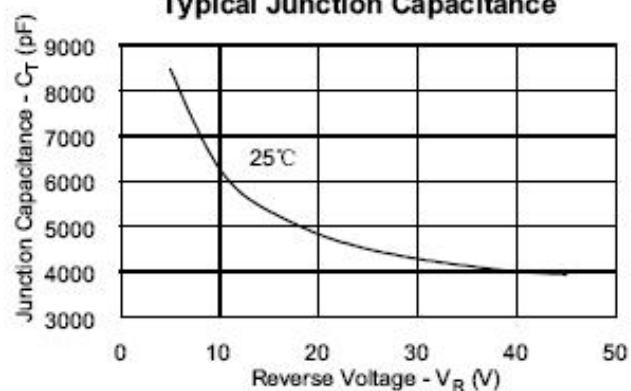
**Typical Forward Characteristics**



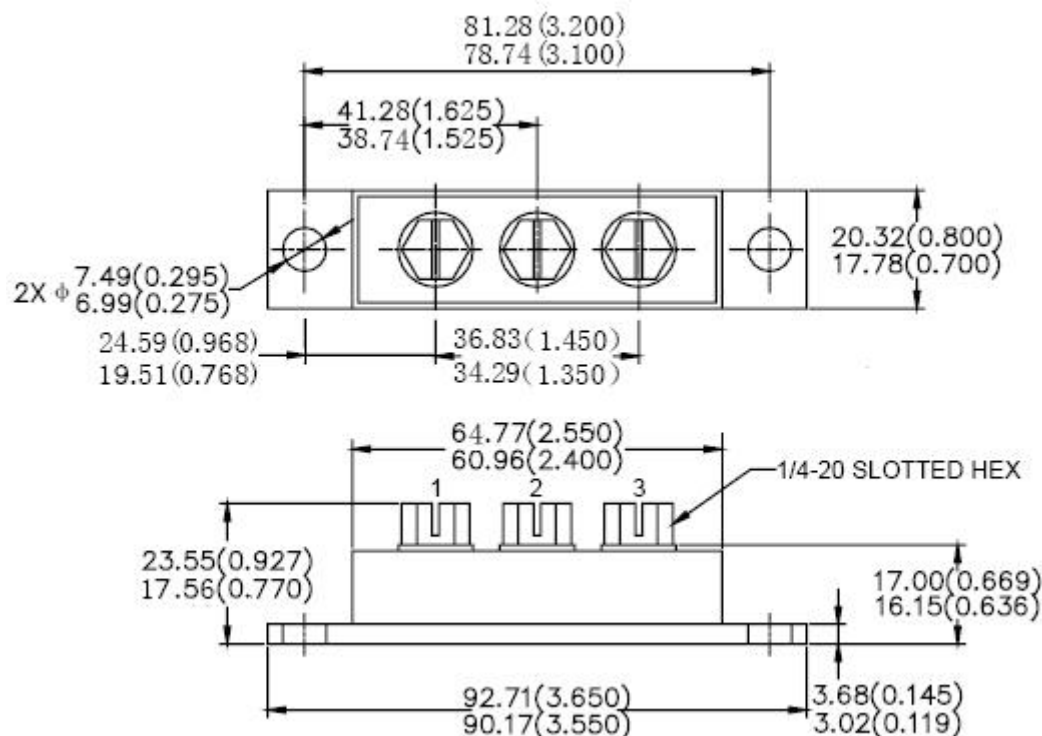
**Typical Reverse Characteristics**



**Typical Junction Capacitance**

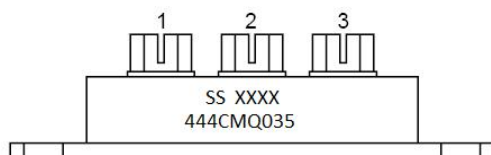


**Mechanical Dimensions PRM4 Isolated(Millimeters/Inches)**



Please Note: Suffix "R" Denotes For Reversed Polarity

**Marking Diagram**



Where XXXX is YYWW

444CMQ035 = Part name  
SS = SS  
YY = Year  
WW = Week

**Cautions:** Molding resin  
Epoxy resin UL:94V-0

**Ordering Information**

| Device        | Package                    | Shipping  |
|---------------|----------------------------|-----------|
| 444CMQ SERIES | PRM4 Isolated<br>(Pb-Free) | 9 pcs/box |

For information on tape and reel specifications, including part orientation and tape sizes, please refer to our tape and reel packaging specification.

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