

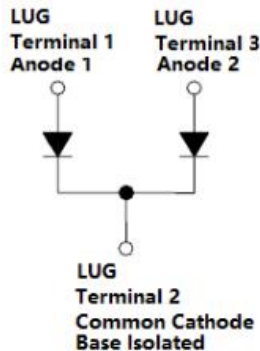
## 303CMQ080/303CMQ100 SCHOTTKY RECTIFIER



### Features

- 175°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 |
|---|--------------------|---|---------------------------------|-----------|-------|
|   |                    |   | 303CMQ080                       | 303CMQ100 |       |
| Peak Repetitive Reverse Voltage                       | V <sub>RRM</sub>   | -   | 80                              | 303CMQ080 | V     |
| Working Peak Reverse Voltage                          | V <sub>RWM</sub>   |   | 100                             | 303CMQ100 |       |
| DC Blocking Voltage                                   | V <sub>R</sub>     |   |                                 |           |       |
| Average Rectified Forward Current                     | I <sub>F(AV)</sub> | 50% duty cycle @T <sub>C</sub> =126°C, rectangular wave form  | 150(Per Leg)<br>300(Per Device) |           | A     |
| Peak One Cycle Non-Repetitive Surge Current (Per Leg) | I <sub>FSM</sub>   | 8.3 ms, half Sine pulse   | 3000                            |           | A     |
| Non-Repetitive Avalanche Energy(Peg Leg)              | E <sub>AS</sub>    | T <sub>J</sub> =25°C, I <sub>AS</sub> =1A, L=30mH   | 15                              |           | 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 | 1                               |           | A     |

**Electrical Characteristics:**

| Characteristics                | Symbol          | Condition  | Typ.         | Max.         | Units |
|--------------------------------|-----------------|--|--------------|--------------|-------|
| Forward Voltage Drop(Per Leg)* | V <sub>F1</sub> | @ 150A, Pulse, T <sub>J</sub> = 25 °C<br>@ 300A, Pulse, T <sub>J</sub> = 25 °C   | 0.74<br>0.84 | 0.91<br>1.09 | V     |
|                                | V <sub>F2</sub> | @ 150A, Pulse, T <sub>J</sub> = 125 °C<br>@ 300A, Pulse, T <sub>J</sub> = 125 °C | 0.59<br>0.70 | 0.72<br>0.85 | V     |
| Reverse Current(Per Leg)*      | I <sub>R1</sub> | @V <sub>R</sub> = rated V <sub>R</sub> , T <sub>J</sub> = 25 °C                  | 0.002        | 4.5          | mA    |
|                                | I <sub>R2</sub> | @V <sub>R</sub> = rated V <sub>R</sub> , T <sub>J</sub> = 125 °C                 | 1            | 60           | 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          | 3600         | 4150         | pF    |
| Voltage Rate of Change         | dv/dt           | -  | -            | 10,000       | V/μs  |

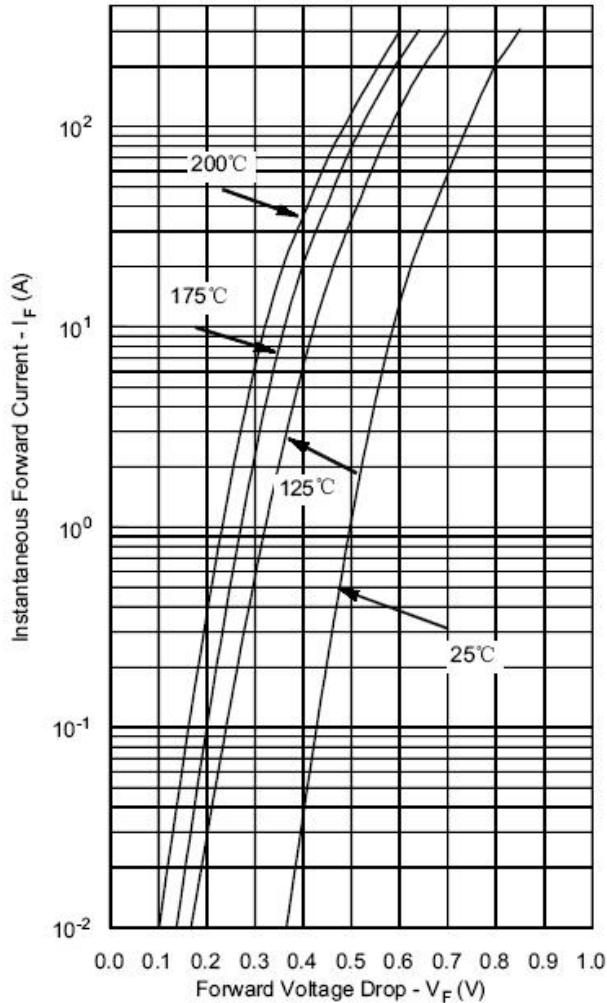
\* Pulse width < 300 μs, duty cycle < 2%

**Thermal-Mechanical Specifications:**

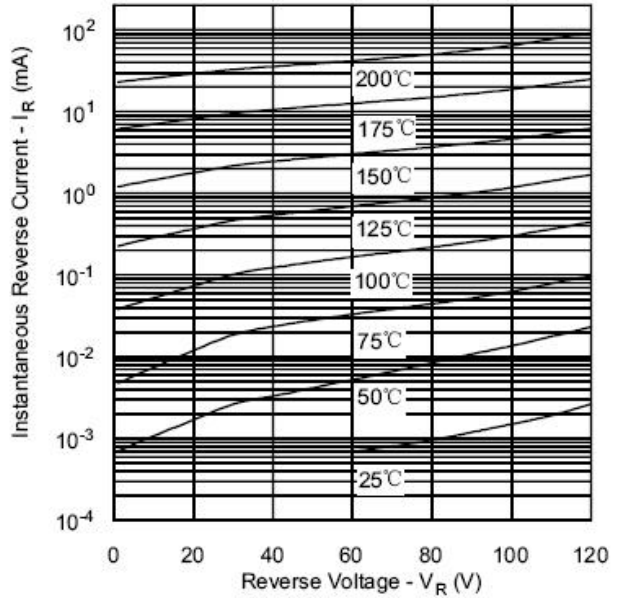
| Characteristics  | Symbol           | Condition                            | Specification   | Units              |       |
|--|------------------|--------------------------------------|-----------------|--------------------|-------|
| Junction Temperature                                     | T <sub>J</sub>   | -                                    | -55 to +175     | °C                 |       |
| Storage Temperature                                      | T <sub>stg</sub> | -                                    | -55 to +175     | °C                 |       |
| Typical Thermal Resistance Junction to Case(Per leg)     | R <sub>θJC</sub> | DC operation                         | 0.50            | °C/W               |       |
| Typical Thermal Resistance Junction to Case(Per package) | R <sub>θJC</sub> | DC operation                         | 0.25            | °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**

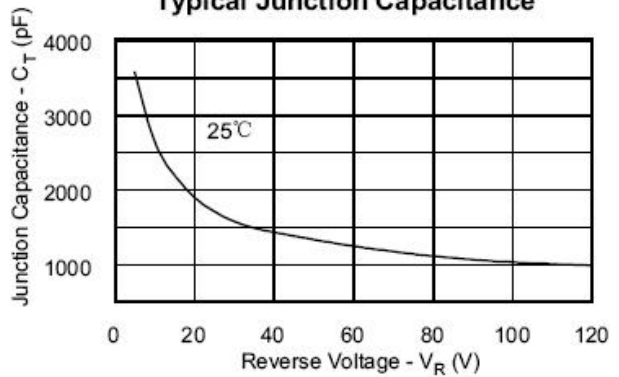
**Typical Forward Characteristics**



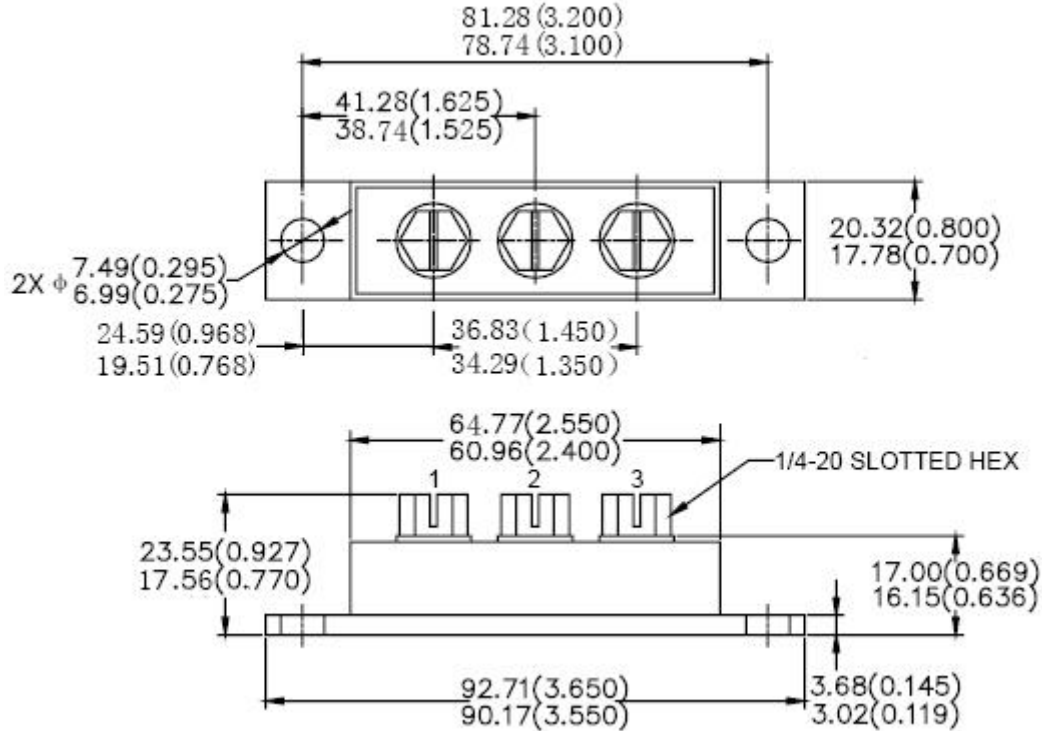
**Typical Reverse Characteristics**



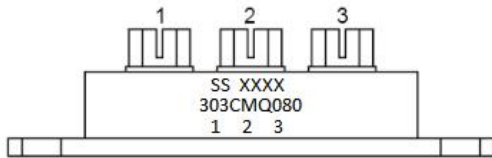
**Typical Junction Capacitance**



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



**Marking Diagram**



Where XXXX is YYWW

303CMQ080 = Part name  
SS = SS  
YY = Year  
WW = Week

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

**Ordering Information**

| Device        | Package                 | Shipping  |
|---------------|-------------------------|-----------|
| 303CMQ SERIES | PRM4 Isolated (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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