

Technical Data  
Data Sheet N0990, Rev. D

## 403CMQ080/100 SCHOTTKY RECTIFIER

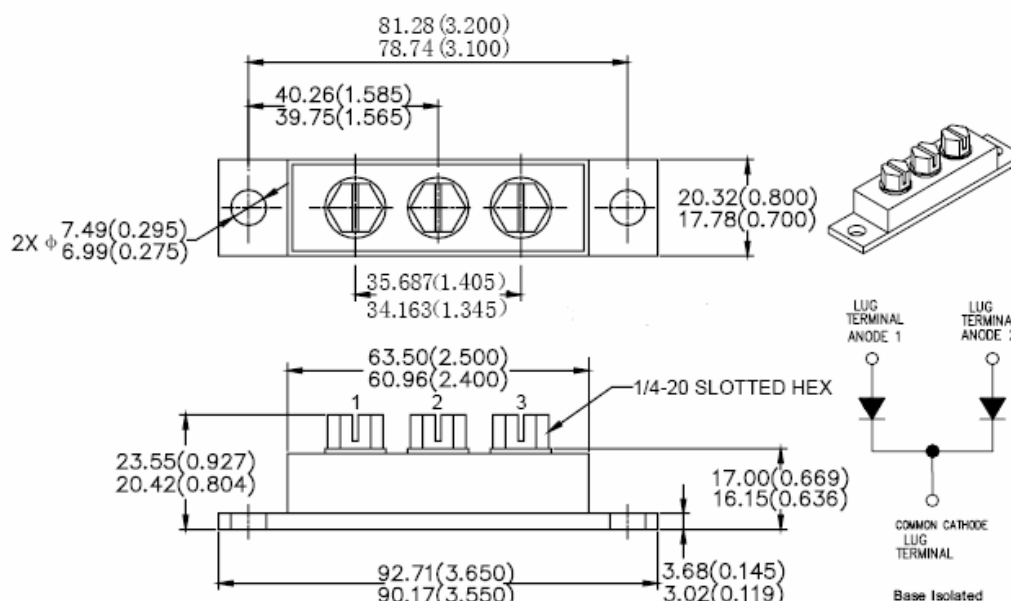
### Applications:

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

### 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
- Product contain Pb
- All SMC parts are traceable to the wafer lot
- Additional testing can be offered upon request

### Mechanical Dimensions: In mm/Inches



Please Note: Anode 1 = Terminal 1; Anode 2 = Terminal 3; Common Cathode = Terminal 2  
Suffix R Denotes for Reversed Polarity.

### PRM4 (Isolated)

#### MARKING, MOLDING RESIN

Marking for 403CMQ080/100, 1<sup>st</sup> row SS YYWWL, 2<sup>nd</sup> row 403CMQ080/100

Where YY is the manufacture year

WW is the manufacture week code

L is the wafer's Lot Number

Molding resin

Epoxy resin UL:94V-0

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**Maximum Ratings:**

| Characteristics                                       | Symbol      | Condition                                                                                                             | Max. |            | Units |
|-------------------------------------------------------|-------------|-----------------------------------------------------------------------------------------------------------------------|------|------------|-------|
| Peak Inverse Voltage                                  | $V_{RWM}$   | -                                                                                                                     | 80   | 403CMQ080  | V     |
|                                                       |             |                                                                                                                       | 100  | 403CMQ100  |       |
| Average Forward Current                               | $I_{F(AV)}$ | 50% duty cycle @ $T_C = 85^\circ\text{C}$ , rectangular wave form                                                     | 200  | per leg    | A     |
|                                                       |             |                                                                                                                       | 400  | per device |       |
| Peak One Cycle Non-Repetitive Surge Current (per leg) | $I_{FSM}$   | 8.3 ms, half Sine pulse                                                                                               | 3960 |            | A     |
| Non-Repetitive Avalanche Energy(per leg)              | $E_{AS}$    | $T_J = 25^\circ\text{C}$ , $I_{AS} = 1\text{A}$ , $L = 30\text{mH}$                                                   | 15   |            | mJ    |
| Repetitive Avalanche Current(per leg)                 | $I_{AR}$    | Current decaying linearly to zero in 1 $\mu\text{sec}$ Frequency limited by $T_J$ max. $V_A = 1.5 \times V_R$ typical | 1    |            | A     |

**Electrical Characteristics:**

| Characteristics                     | Symbol   | Condition                                                                 | Max.   | Units            |
|-------------------------------------|----------|---------------------------------------------------------------------------|--------|------------------|
| Forward Voltage Drop (per leg) *    | $V_{F1}$ | @ 200A, Pulse, $T_J = 25^\circ\text{C}$                                   | 0.83   | V                |
|                                     | $V_{F2}$ | @ 400A, Pulse, $T_J = 25^\circ\text{C}$                                   | 0.97   |                  |
|                                     |          | @ 200A, Pulse, $T_J = 125^\circ\text{C}$                                  | 0.69   | V                |
|                                     |          | @ 400A, Pulse, $T_J = 125^\circ\text{C}$                                  | 0.82   |                  |
| Reverse Current (per leg) *         | $I_{R1}$ | @ $V_R = \text{rated } V_R$ $T_J = 25^\circ\text{C}$                      | 6      | mA               |
|                                     | $I_{R2}$ | @ $V_R = \text{rated } V_R$ $T_J = 125^\circ\text{C}$                     | 140    | mA               |
| Junction Capacitance (per leg)      | $C_T$    | @ $V_R = 5\text{V}$ , $T_C = 25^\circ\text{C}$<br>$f_{SIG} = 1\text{MHz}$ | 5500   | pF               |
| Typical Series Inductance (per leg) | $L_S$    | Measured lead to lead 5 mm from package body                              | 5.0    | nH               |
| Max. Voltage Rate of Change         | $dv/dt$  | -                                                                         | 10,000 | V/ $\mu\text{s}$ |

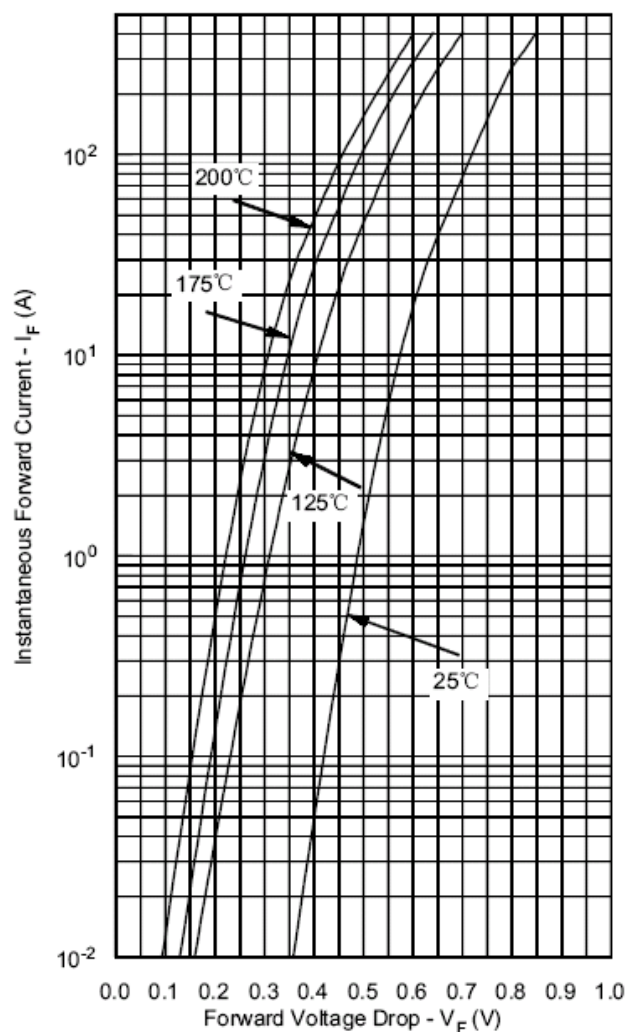
\* Pulse Width < 300 $\mu\text{s}$ , Duty Cycle < 2%

**Thermal-Mechanical Specifications:**

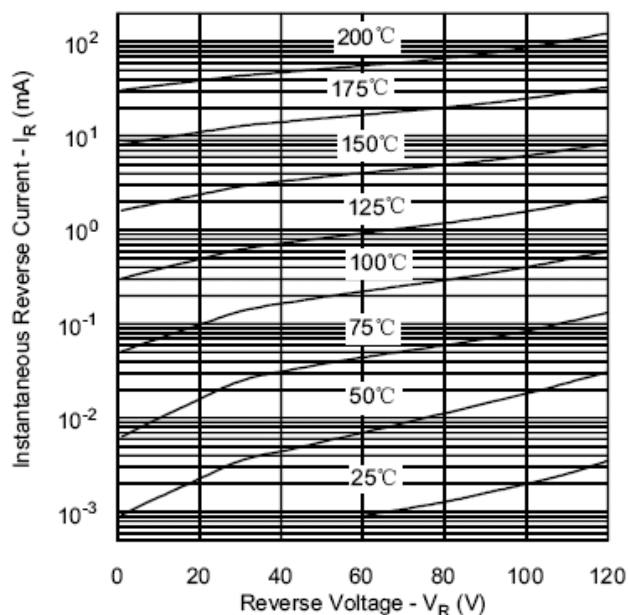
| Characteristics                                           | Symbol           | Condition                            | Specification   |                    | Units |
|-----------------------------------------------------------|------------------|--------------------------------------|-----------------|--------------------|-------|
| Junction Temperature                                      | T <sub>J</sub>   | -                                    | -55 to +175     |                    | °C    |
| Storage Temperature                                       | T <sub>stg</sub> | -                                    | -55 to +175     |                    | °C    |
| Maximum Thermal Resistance Junction to Case (per leg)     | R <sub>θJC</sub> | DC operation                         | 0.40            |                    | °C/W  |
| Maximum 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    |                                      |                 |                    |       |

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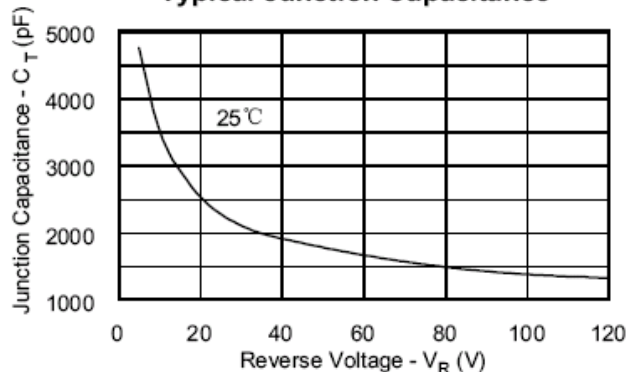
**Typical Forward Characteristics**



**Typical Reverse Characteristics**



**Typical Junction Capacitance**



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