

Technical Data
Data Sheet 3834, Rev. -

Green Products

301CMQ035-G/301CMQ040-G/301CMQ045-G/301CMQ050-G
SCHOTTKY RECTIFIER

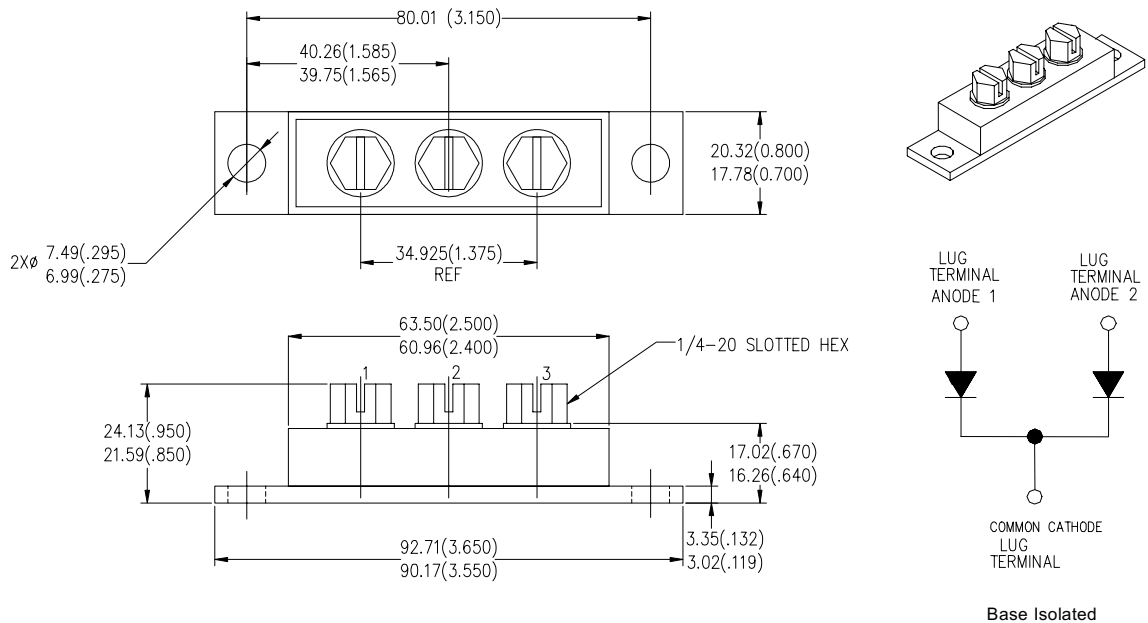
Applications:

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

Features:

- 175 °C T_J 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
- Green Products in Compliance with the RoHS Directive

Mechanical Dimensions: In Inches / mm



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

PRM4 (Isolated)

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Maximum Ratings:

Green Products

| Characteristics | Symbol | Condition | Max. | Units | |
|--|-------------|---|--|-----------------------|----|
| Peak Inverse Voltage | V_{RWM} | - | 35(301CMQ035-G) 40(301CMQ040-G) 45(301CMQ045-G) 50(301CMQ050-G) | V | |
| Max. Average Forward Current | $I_{F(AV)}$ | 50% duty cycle @ $T_C = 81^\circ\text{C}$, rectangular wave form | 150 300 | per leg per device | A |
| Max. Peak One Cycle Non-Repetitive Surge Current (per leg) | I_{FSM} | 8.3 ms, half Sine pulse | 3840 | | A |
| Non-Repetitive Avalanche Energy (per leg) | E_{AS} | $T_J = 25^\circ\text{C}$, $I_{AS} = 40\text{ A}$, $L = 0.34\text{ mH}$ | 202 | | mJ |
| Repetitive Avalanche Current (per leg) | I_{AR} | Current decaying linearly to zero in 1 μsec Frequency limited by T_J max. $V_A = 1.5 \times V_R$ typical | 30 | | A |

Electrical Characteristics:

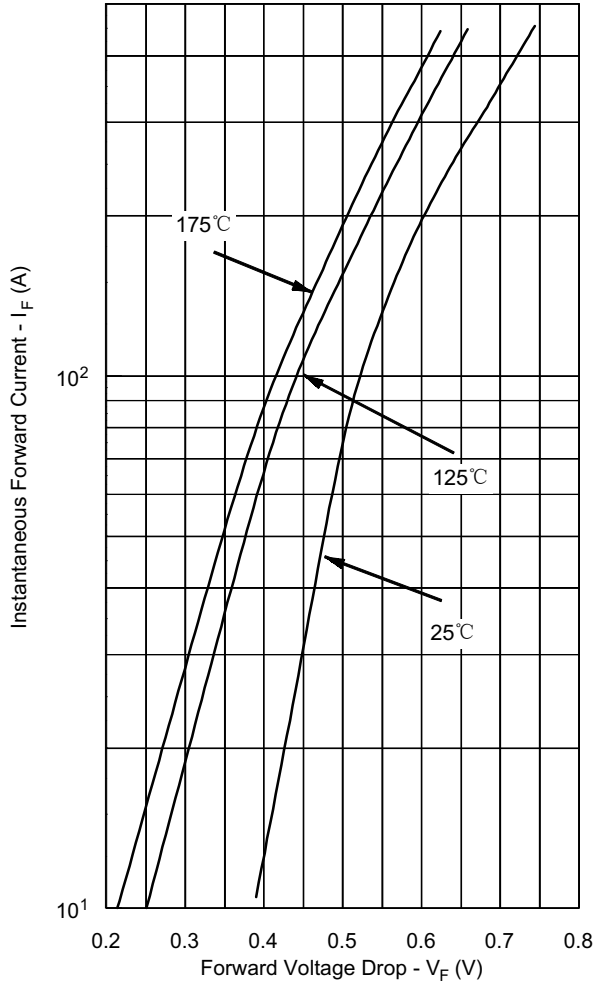
| Characteristics | Symbol | Condition | Max. | Units |
|---------------------------------------|-----------|--|--------------|------------------|
| Max. Forward Voltage Drop (per leg) * | V_{F1} | @ 150 A, Pulse, $T_J = 25^\circ\text{C}$ @ 300 A, Pulse, $T_J = 25^\circ\text{C}$ | 0.69 0.90 | V |
| | V_{F2} | @ 150 A, Pulse, $T_J = 125^\circ\text{C}$ @ 300 A, Pulse, $T_J = 125^\circ\text{C}$ | 0.59 0.76 | V |
| Max. Reverse Current (per leg) * | I_{R1} | @ $V_R = \text{rated } V_R$, $T_J = 25^\circ\text{C}$ | 10 | mA |
| | I_{R2} | @ $V_R = \text{rated } V_R$, $T_J = 125^\circ\text{C}$ | 90 | mA |
| Max. Junction Capacitance (per leg) | C_T | @ $V_R = 5\text{ V}$, $T_C = 25^\circ\text{C}$ $f_{SIG} = 1\text{ MHz}$ | 5200 | pF |
| Typical Series Inductance (per leg) | L_S | Measured lead to lead 5 mm from package body | 7.0 | nH |
| Max. Voltage Rate of Change | dv/dt | - | 10,000 | V/ μs |
| Insulation Voltage | V_{RMS} | | 1000 | V |

* Pulse Width < 300 μs , Duty Cycle <2%

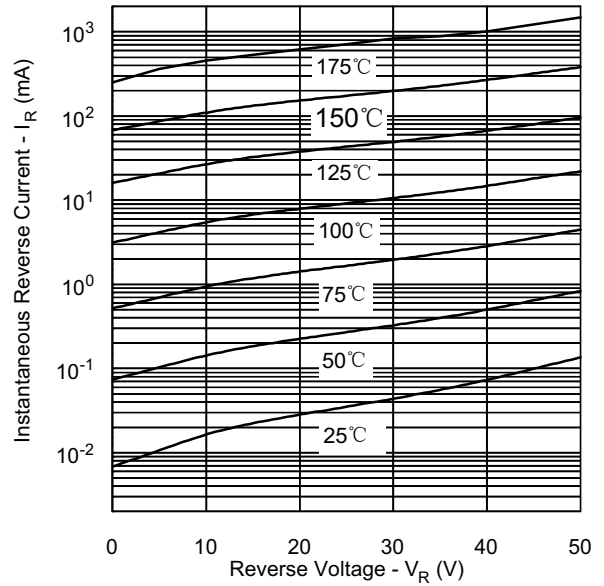
Thermal-Mechanical Specifications:

| Characteristics | Symbol | Condition | Specification | Units | |
|---|-----------------|---|---|--|-------|
| Max. Junction Temperature | T_J | - | -55 to +175 | $^\circ\text{C}$ | |
| Max. Storage Temperature | T_{stg} | - | -55 to +175 | $^\circ\text{C}$ | |
| Maximum Thermal Resistance Junction to Case (per leg) | $R_{\theta JC}$ | DC operation | 0.50 | $^\circ\text{C/W}$ | |
| Maximum Thermal Resistance Junction to Case (per package) | $R_{\theta JC}$ | DC operation | 0.25 | $^\circ\text{C/W}$ | |
| Maximum Thermal Resistance, Case to Heat Sink | $R_{\theta CS}$ | Mounting surface, smooth and greased | 0.10 | $^\circ\text{C/W}$ | |
| Approximate Weight | wt | - | 79 | g | |
| Mounting Torque | T_M | - | Mounting Torque Base Terminal Torque | 24 (min) 35 (max) 35 (min) 46 (max) | Kg-cm |
| Case Style | | | | PRM4 Isolated | |

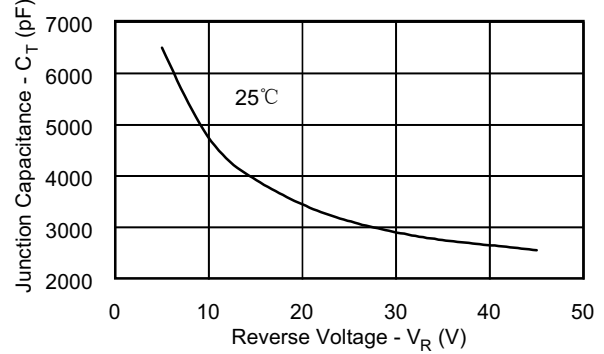
Typical Forward Characteristics



Typical Reverse Characteristics



Typical Junction Capacitance



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