

Technical Data
Data Sheet 3163, Rev. A

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

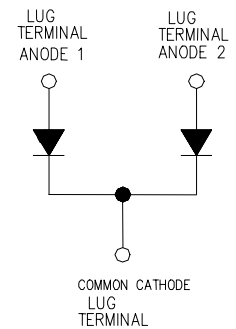
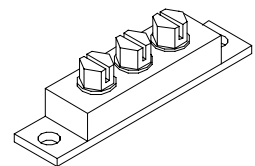
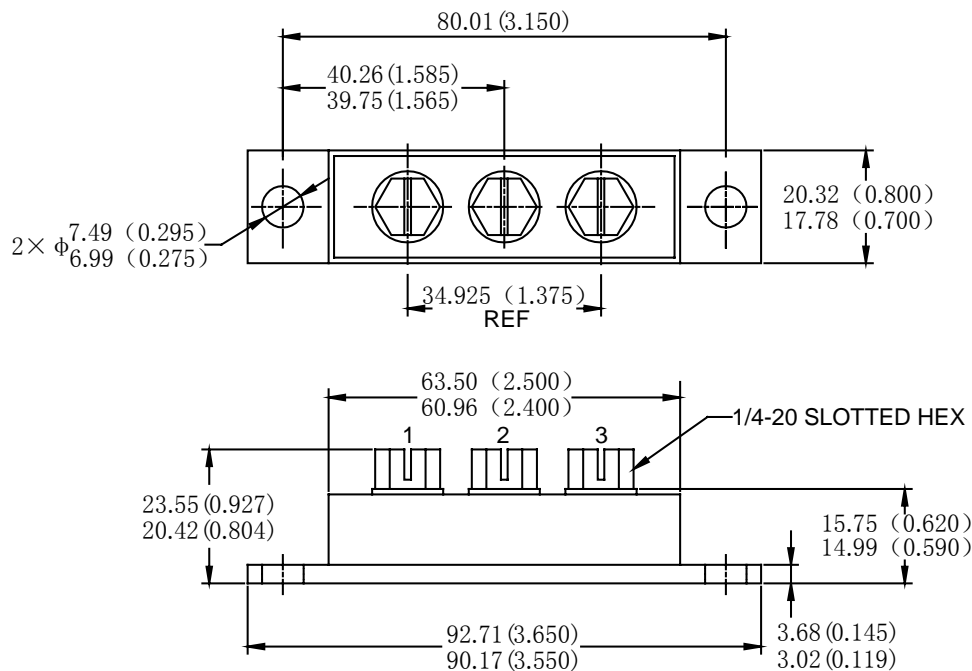
Applications:

- 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

Mechanical Dimensions: In Inches / mm



Base Isolated

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:

Characteristics	Symbol	Condition	Max.	Units
Peak Inverse Voltage	V_{RWM}	-	35(301CMQ035) 40(301CMQ040) 45(301CMQ045) 50(301CMQ050)	V
Max. Average Forward Current	$I_{F(AV)}$	50% duty cycle @ $T_C = 81^\circ\text{C}$, rectangular wave form	150	per leg
			300	per device
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, $T_J = 25^\circ\text{C}$	0.69	V
		@ 300 A, Pulse, $T_J = 25^\circ\text{C}$	0.90	
	V_{F2}	@ 150 A, Pulse, $T_J = 125^\circ\text{C}$	0.59	V
		@ 300 A, Pulse, $T_J = 125^\circ\text{C}$	0.76	
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
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

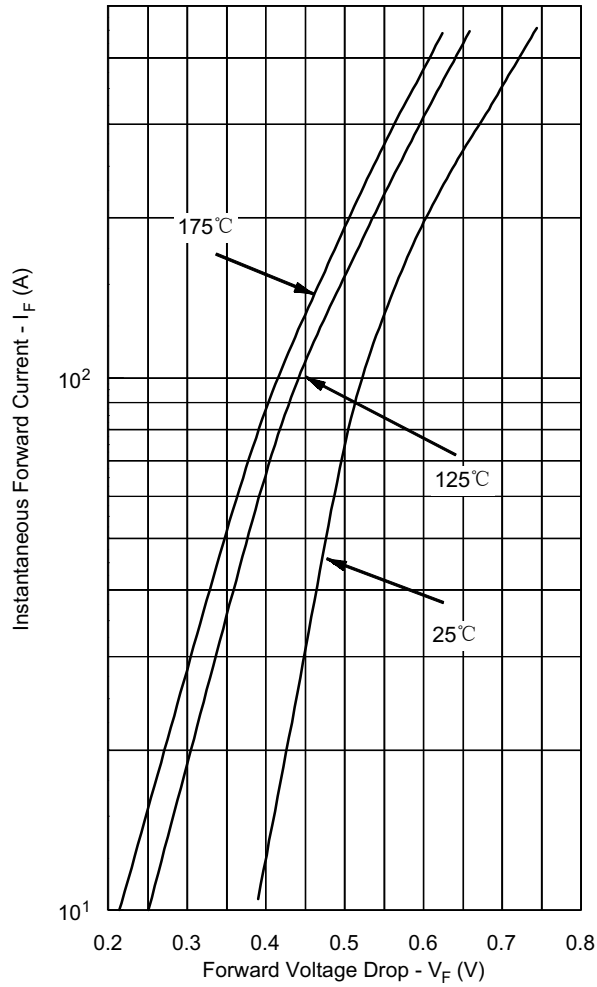
* Pulse Width < 300 μs , Duty Cycle <2%

Thermal-Mechanical Specifications:

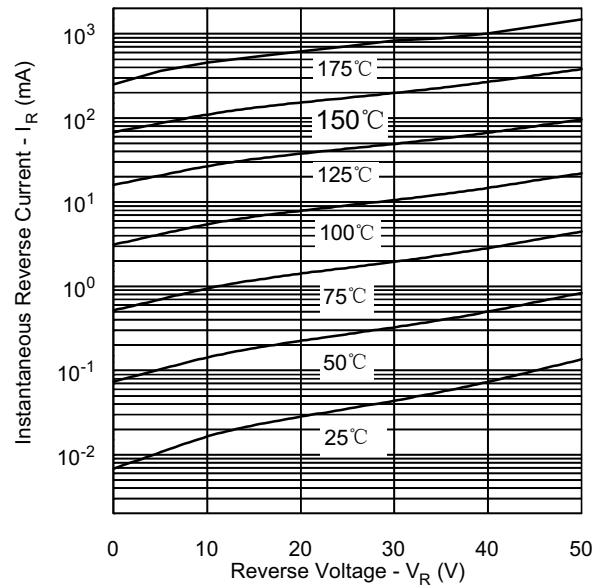
Characteristics	Symbol	Condition	Specification	Units
Max. Junction Temperature	T_J	-	-55 to +175	$^\circ\text{C}$
Max. Storage Temperature	T_{stg}	-	-55 to +175	$^\circ\text{C}$
Maximum Thermal Resistance Junction to Case (per leg)	$R_{\theta JC}$	DC operation	0.50	$^\circ\text{C/W}$
Maximum Thermal 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	24 (min) 35 (max)
			Terminal Torque	35 (min) 46 (max)
Case Style	PRM4 Isolated			

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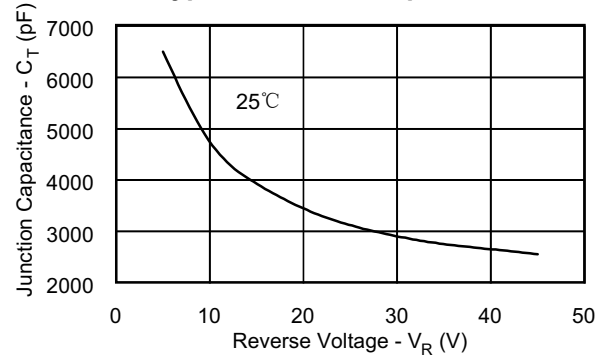
Typical Forward Characteristics



Typical Reverse Characteristics



Typical Junction Capacitance



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