

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

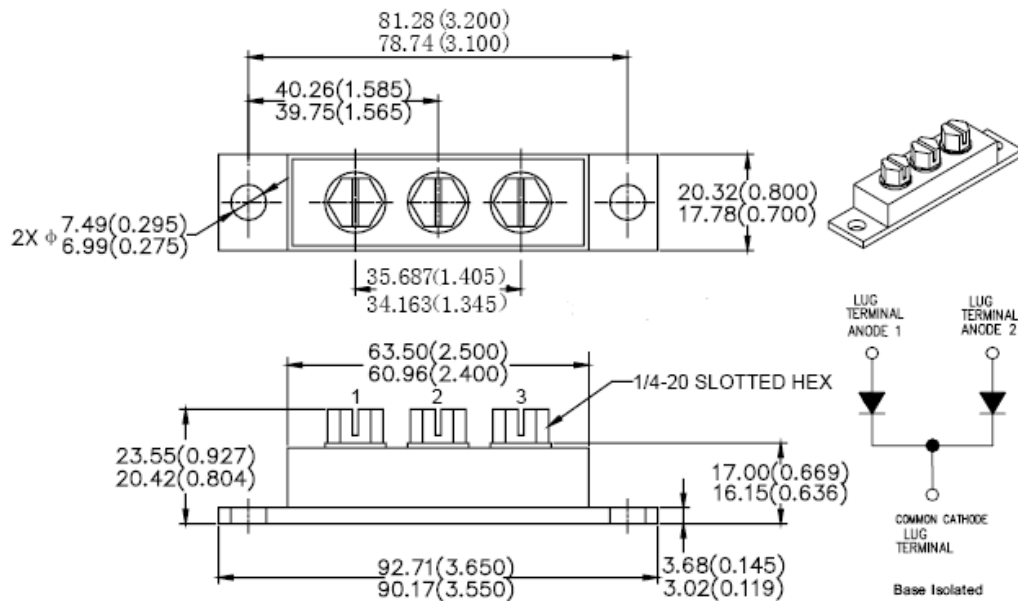
**Applications:**

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

**Features:**

- 175 °C T<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
- This is a Pb – Free Device
- 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 301CMQ035/040/045/050, 1<sup>st</sup> row SS YYWWL, 2<sup>nd</sup> row 301CMQ035/040/045/050

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

- China - Germany - Korea - Singapore - United States •
- <http://www.smc-diodes.com> - [sales@smc-diodes.com](mailto:sales@smc-diodes.com) •

**Technical Data**
**Green Products**
**Data Sheet N1211, Rev. B**
**Maximum Ratings:**

Characteristics	Symbol	Condition	Max.		Units
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	$V_{RRM}$ $V_{RWM}$ $V_R$	-	35	301CMQ035	V
			40	301CMQ040	
			45	301CMQ045	
			50	301CMQ050	
Average Forward Current	$I_{F(AV)}$	50% duty cycle @ $T_C=81^\circ\text{C}$ , rectangular wave form	150	per leg	A
			300	per device	
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 $\mu\text{sec}$ Frequency limited by $T_J$ max. $V_A=1.5 \times V_R$ typical	30		A

**Electrical Characteristics:**

Characteristics	Symbol	Condition	Max.	Units
Forward Voltage Drop (per leg) *	$V_{F1}$	@ 150A, Pulse, $T_J = 25^\circ\text{C}$	0.69	V
		@ 300A, Pulse, $T_J = 25^\circ\text{C}$	0.90	
Reverse Current (per leg) *	$I_{R1}$	@ $V_R = \text{rated } V_R, T_J = 25^\circ\text{C}$	10	mA
		@ $V_R = \text{rated } V_R, T_J = 125^\circ\text{C}$	90	
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
Voltage Rate of Change	$dv/dt$	-	10,000	V/ $\mu\text{s}$
Insulation Voltage	$V_{RMS}$	-	1000	V

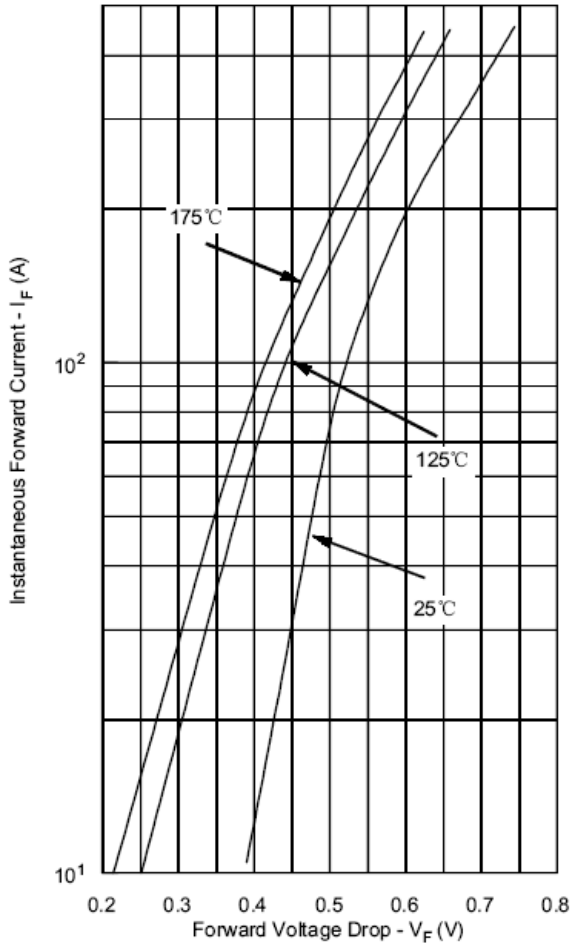
 \* Pulse Width < 300 $\mu\text{s}$ , Duty Cycle <2%

**Thermal-Mechanical Specifications:**

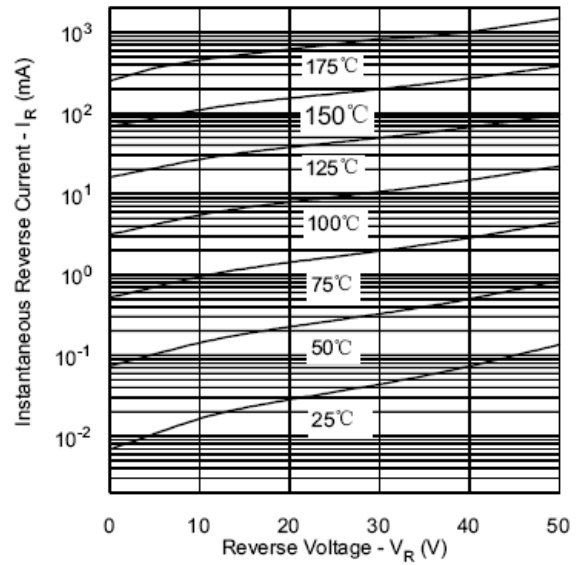
Characteristics	Symbol	Condition	Specification		Units
Junction Temperature	$T_J$	-	-55 to +175		$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-	-55 to +175		$^\circ\text{C}$
Typical Thermal Resistance Junction to Case(per leg)	$R_{\theta JC}$	DC operation	0.50		$^\circ\text{C/W}$
Typical Thermal Resistance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

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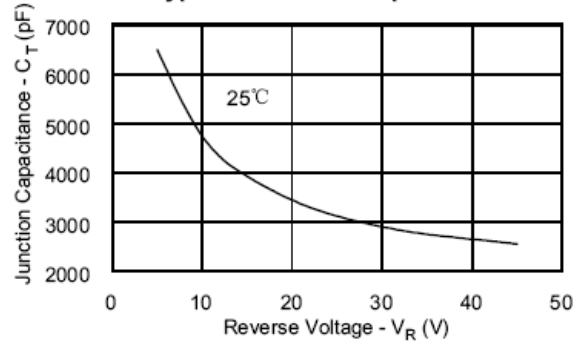
**Typical Forward Characteristics**



**Typical Reverse Characteristics**



**Typical Junction Capacitance**





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