

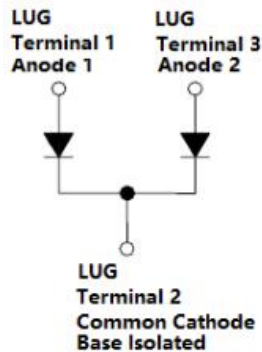
## 301CMQ035/301CMQ040/301CMQ045/301CMQ050 SCHOTTKY RECTIFIER



### 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
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V <sub>RRM</sub> V <sub>RWM</sub> V <sub>R</sub>	-	35	301CMQ035	V
			40	300CMQ040	
			45	300CMQ045	
			50	300CMQ050	
Average Rectified Forward Current	I <sub>F(AV)</sub>	50% duty cycle @T <sub>C</sub> =81 °C, rectangular wave form	150(Per Leg)		A
			300(Per Device)		
Peak One Cycle Non-Repetitive Surge Current (Per Leg)	I <sub>FSM</sub>	8.3 ms, half Sine pulse	3840		A
Non-Repetitive Avalanche Energy(Peg Leg)	E <sub>AS</sub>	T <sub>J</sub> =25°C, I <sub>AS</sub> =40A, L=0.34mH	202		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	30		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 @ 300A, Pulse, T <sub>J</sub> = 25 °C	0.56 0.67	0.69 0.90	V
	V <sub>F2</sub>	@ 150A, Pulse, T <sub>J</sub> = 125 °C @ 300A, Pulse, T <sub>J</sub> = 125 °C	0.49 0.60	0.59 0.76	V
Reverse Current(Per Leg)*	I <sub>R1</sub>	@V <sub>R</sub> = rated V <sub>R</sub> , T <sub>J</sub> = 25 °C	0.2	10	mA
	I <sub>R2</sub>	@V <sub>R</sub> = rated V <sub>R</sub> , T <sub>J</sub> = 125 °C	100	135	mA
Junction Capacitance(Per leg)	C <sub>T</sub>	@V <sub>R</sub> = 5V, T <sub>C</sub> = 25 °C f <sub>sig</sub> = 1MHz	6500	7800	pF
Voltage Rate of Change	dv/dt	-	-	10,000	V/μs

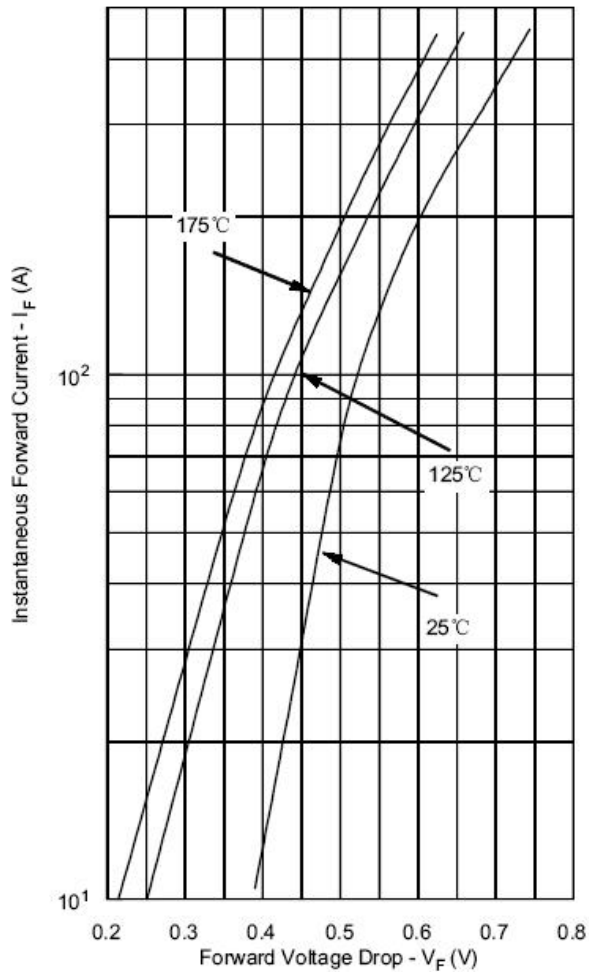
\* Pulse width < 300 μs, duty cycle < 2%

**Thermal-Mechanical Specifications:**

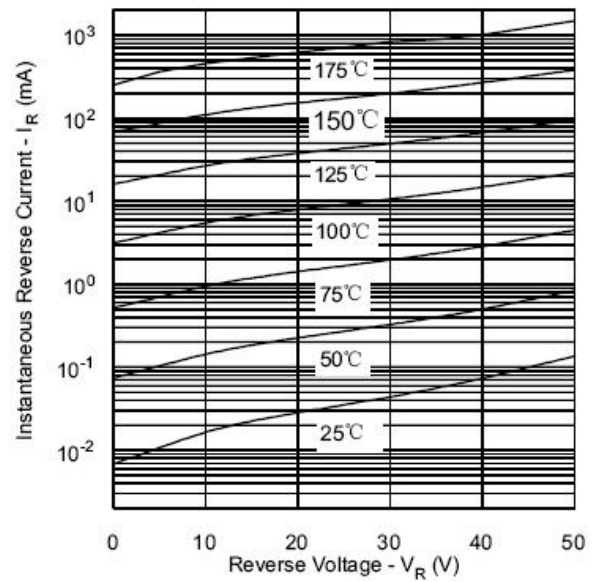
Characteristics	Symbol	Condition	Specification	Units	
Junction Temperature	T <sub>J</sub>	-	-55 to +175	°C	
Storage Temperature	T <sub>stg</sub>	-	-55 to +175	°C	
Typical Thermal Resistance Junction to Case(Per leg)	R <sub>θJC</sub>	DC operation	0.50	°C/W	
Typical Thermal Resistance Junction to Case(Per 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) 35(max)	Kg-cm
			Terminal Torque	35(min) 46(max)	
Approximate Weight	wt	-	79	g	
Case Style	PRM4 Isolated				

**Ratings and Characteristics Curves**

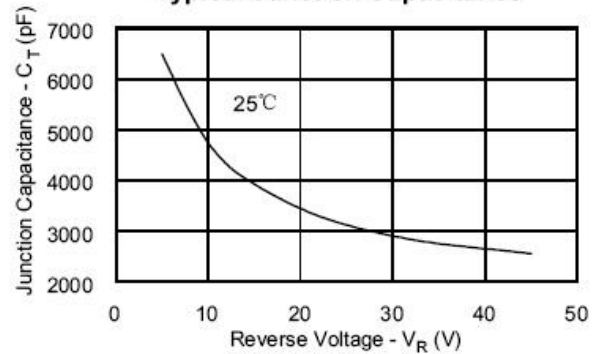
**Typical Forward Characteristics**



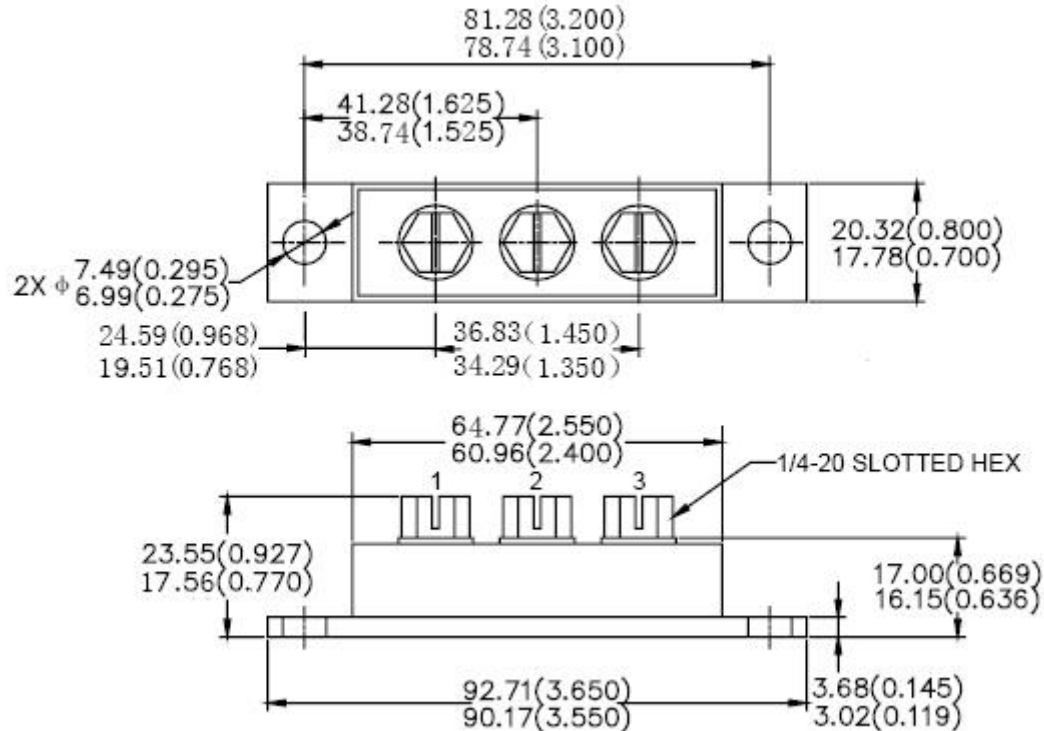
**Typical Reverse Characteristics**



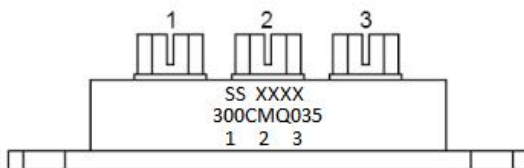
**Typical Junction Capacitance**



## Mechanical Dimensions PRM4 Isolated (Millimeters/Inches)



## Marking Diagram



Where XXXX is YYWW

300CMQ035 = Part name  
SS = SS  
YY = Year  
WW = Week

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

## Ordering Information

Device	Package	Shipping
300CMQ 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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