

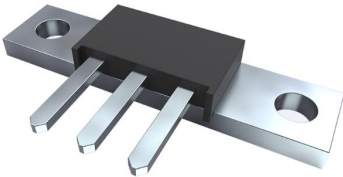
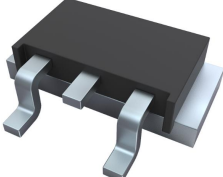
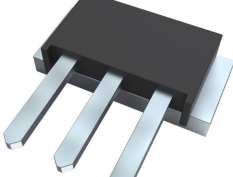
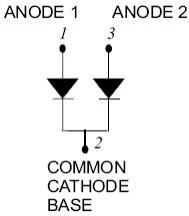
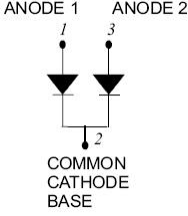
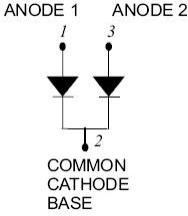
## 87CNQ020 SCHOTTKY RECTIFIER

### Applications

- Switching power supply
- Converters
- Free-Wheeling diodes
- Reverse battery protection

### Features

- 150°C T<sub>J</sub> operation
- Center tap module
- Very Low forward voltage drop
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability
- Low profile, high current package
- This is a Pb – Free Device
- All SMC parts are traceable to the wafer lot
- Additional electrical and life testing can be performed upon request

87CNQ020	87CNQ020SL	87CNQ020SM
		
		
<b>PRM2</b>	<b>PRM2-SL</b>	<b>PRM2-SM</b>

### 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>	-	20	V
Average Rectified Forward Current	I <sub>F (AV)</sub>	50% duty cycle @T <sub>C</sub> =135°C, rectangular wave form	40(Per Leg) 80(Per Device)	A
Peak One Cycle Non-Repetitive Surge Current (per leg)	I <sub>FSM</sub>	8.3 ms, half Sine pulse	1320	A
Non-Repetitive Avalanche Energy(peg leg)	E <sub>AS</sub>	T <sub>J</sub> =25°C, I <sub>AS</sub> =8A, L=1.12mH	36	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	8	A

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

**Electrical Characteristics:**

Characteristics	Symbol	Condition	Typ.	Max.	Units
Forward Voltage Drop (Per leg) *	V <sub>F1</sub>	@ 40A, Pulse, T <sub>J</sub> = 25 °C	0.40	0.45	V
		@ 80A, Pulse, T <sub>J</sub> = 25 °C	0.45	0.51	
	V <sub>F2</sub>	@ 40A, Pulse, T <sub>J</sub> = 125 °C	0.31	0.32	V
		@ 80A, Pulse, T <sub>J</sub> = 125 °C	0.38	0.39	
Reverse Current (Per leg) *	I <sub>R1</sub>	@V <sub>R</sub> = rated VR T <sub>J</sub> = 25 °C	0.7	5.5	mA
	I <sub>R2</sub>	@V <sub>R</sub> = rated VR T <sub>J</sub> = 125 °C	500	550	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	3300	6500	pF
Voltage Rate of Change	dv/dt	-	-	10,000	V/μs

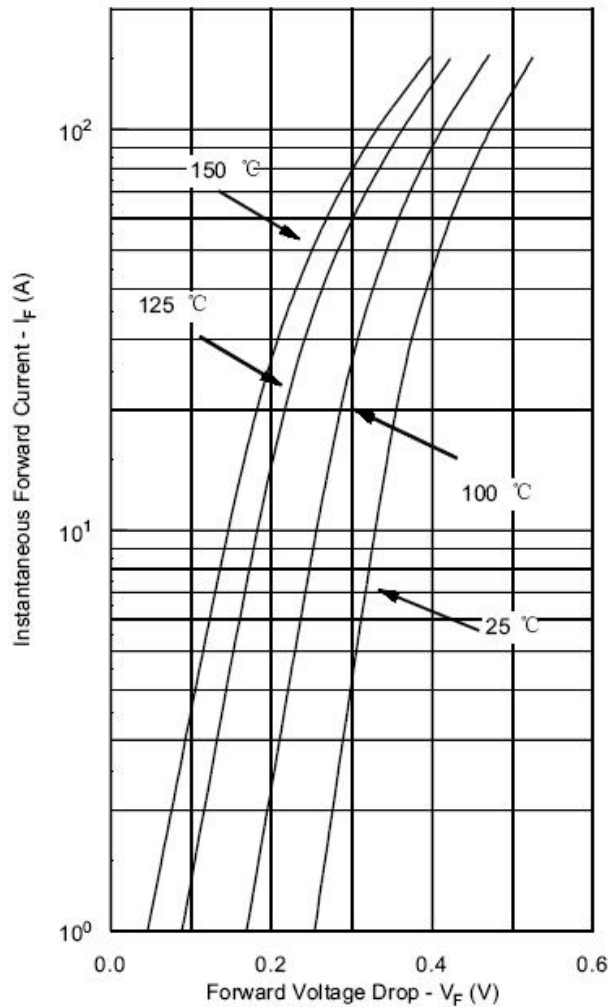
\* Pulse width < 300 μs, duty cycle < 2%

**Thermal-Mechanical Specifications:**

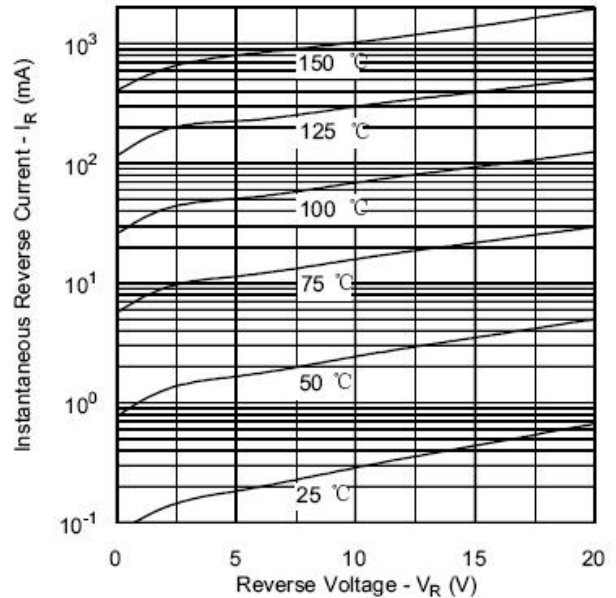
Characteristics	Symbol	Condition	Specification	Units
Junction Temperature	T <sub>J</sub>	-	-55 to +150	°C
Storage Temperature	T <sub>stg</sub>	-	-55 to +150	°C
Typical Thermal Resistance Junction to Case (per leg)	R <sub>θJC</sub>	DC operation	0.85	°C/W
Typical Thermal Resistance Junction to Case (per package)	R <sub>θJC</sub>	DC operation	0.42	°C/W
Typical Thermal Resistance, case to Heat Sink	R <sub>θcs</sub>	Mounting surface, smooth and greased	0.30	°C/W
Mounting Torque	TM	-	40(min)	Kg-cm
			58(max)	
Approximate Weight	wt	-	7.8	g
Case Style	PRM2 PRM2-SL PRM2-SM			

**Ratings and Characteristics Curves**

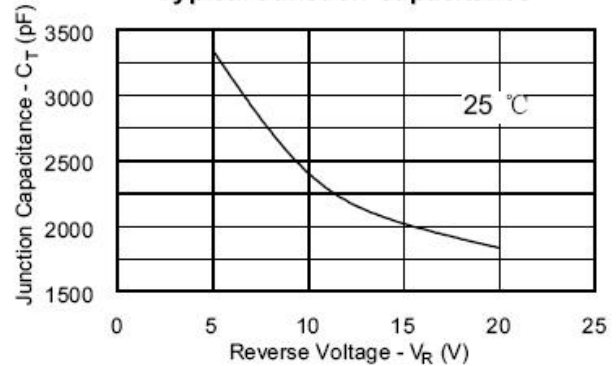
**Typical Forward Characteristics**



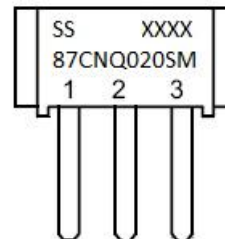
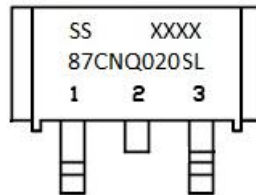
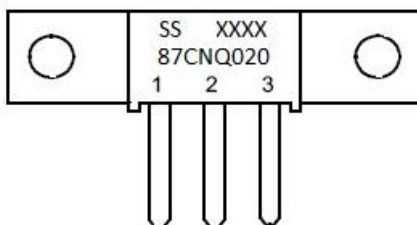
**Typical Reverse Characteristics**



**Typical Junction Capacitance**



**Marking Diagram**



Where XXXX is YYWW

1st row SS YYWWL  
2nd row 87CNQ020/SL/SM  
3rd row 1 2 3 (pin)  
SS = SS  
YY = Year  
WW = Week

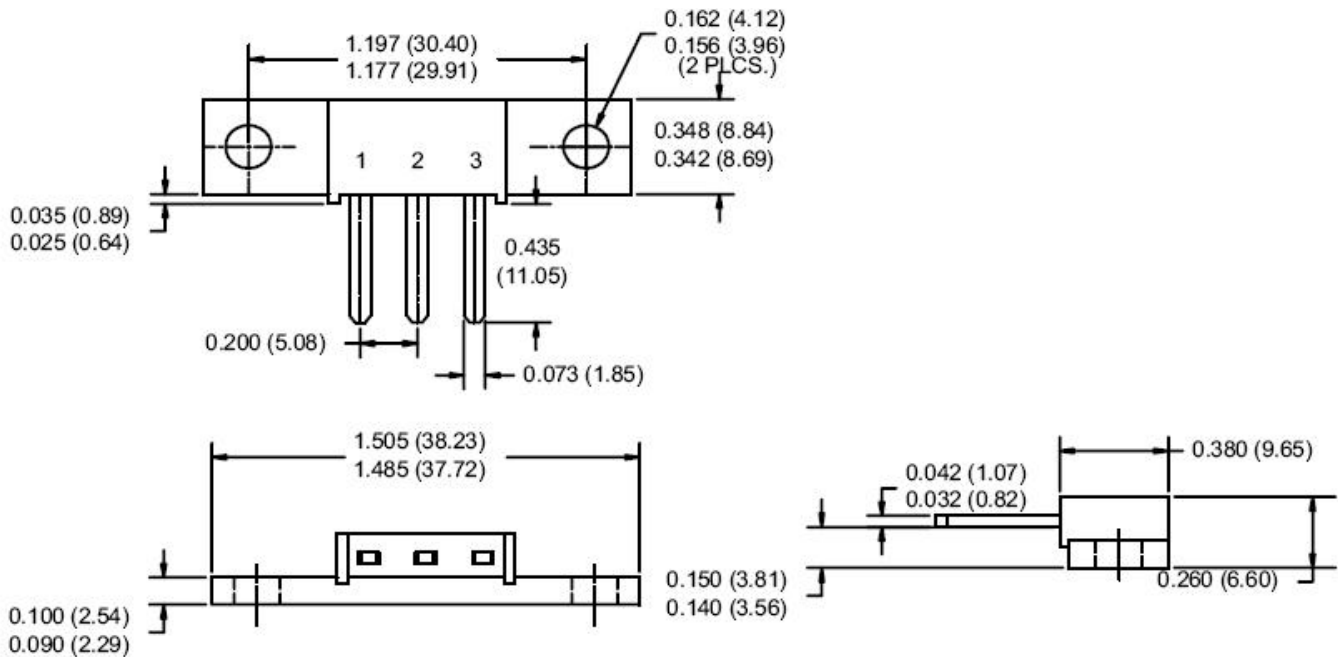
**Cautions:** Molding resin  
Epoxy resin UL:94V-0

**Ordering Information**

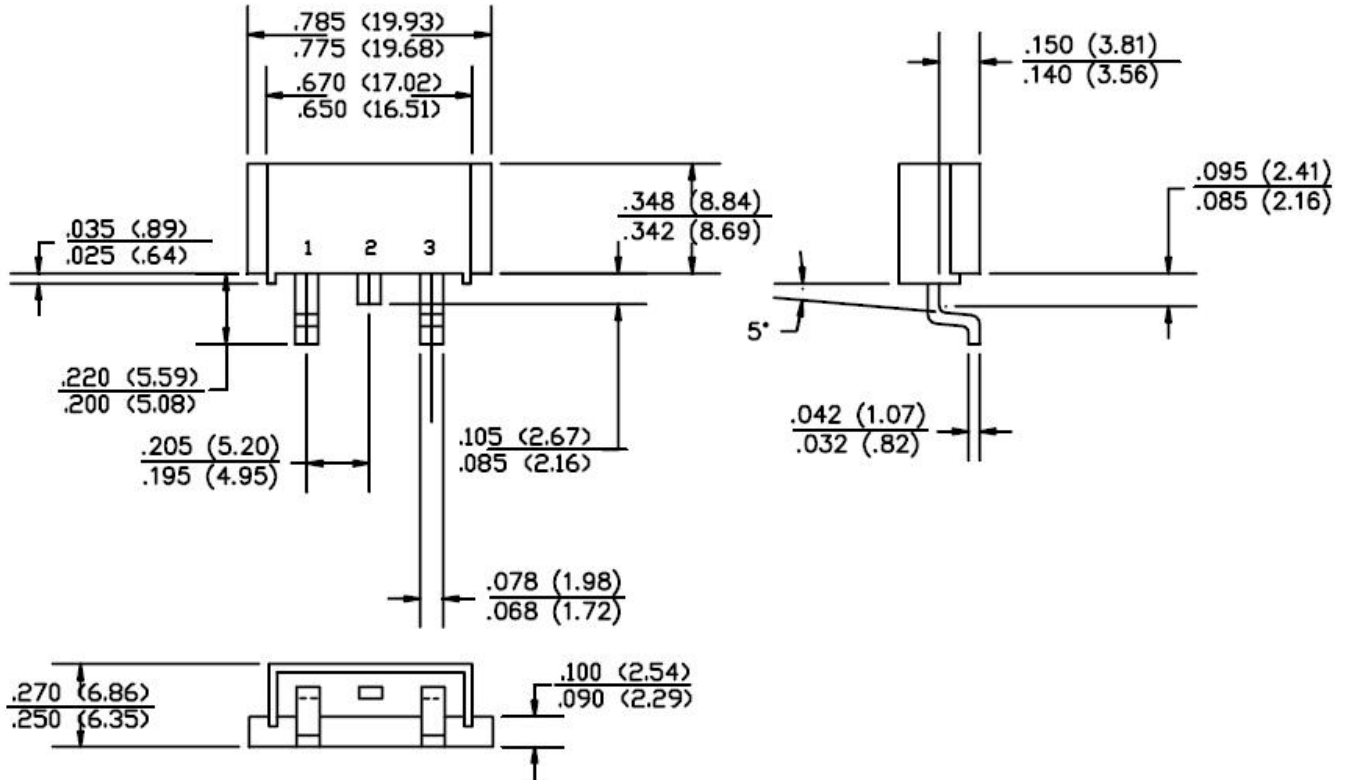
Device	Package	Terminals finish	Shipping
87CNQ020	PRM2	Nickel plated	48pcs / box
87CNQ020S	PRM2	Pure Sn dipped (dipped height 6-8 mm)	48pcs / box
87CNQ020SL	PRM2-SL	Pure Sn plated	100pcs / box
87CNQ020SM	PRM2-SM	Nickel plated	48pcs / box
87CNQ020SMS	PRM2-SM	Pure Sn dipped (dipped height 6-8 mm)	48pcs / box

For information on tape and reel specifications, including part orientation and tape sizes, please refer to our tape and reel packaging specification.

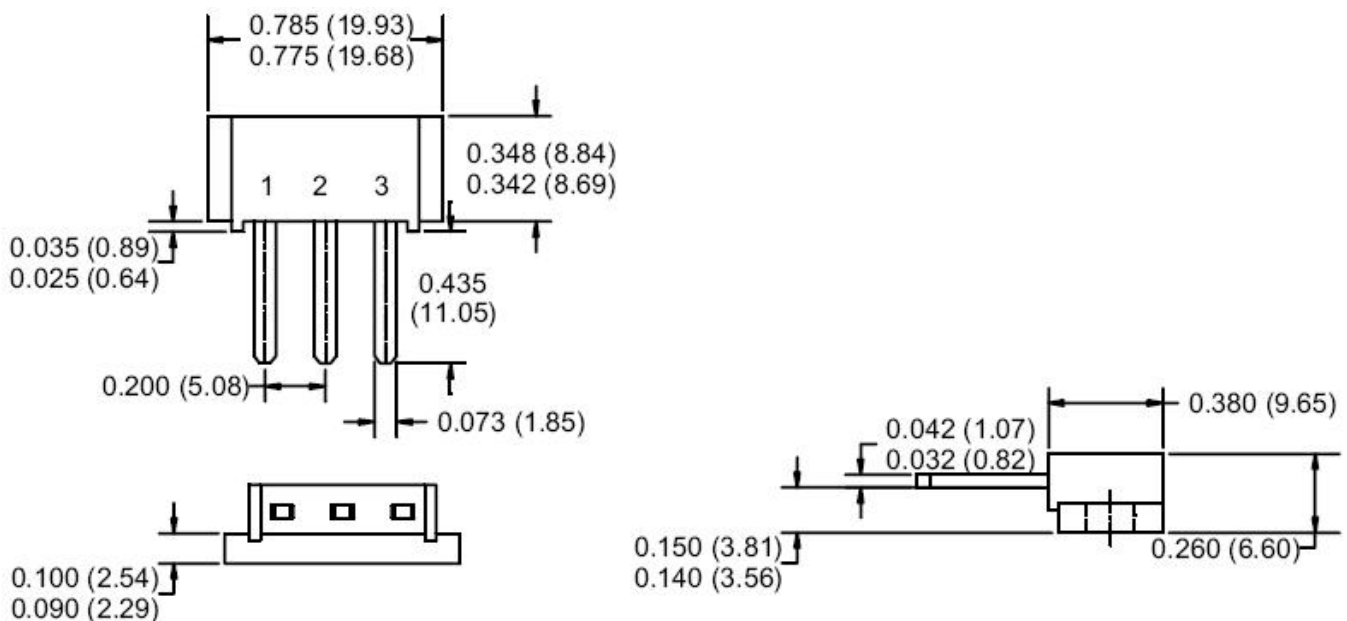
**Mechanical Dimensions PRM2 (Inches/Millimeters)**



**Mechanical Dimensions PRM2-SL (Inches/Millimeters)**



**Mechanical Dimensions PRM2-SM (Inches/Millimeters)**



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