

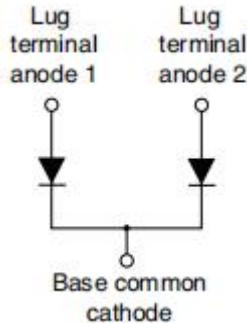
## 224CNQ035/224CNQ040/224CNQ045 SCHOTTKY RECTIFIER



### Features

- 125°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
- Base plate: Nickel plated; Terminals: Nickel plated
- The terminal hardware is supplied with the module.
- The mounting hardware is not supplied. Recommended is the use of ¼-20 or M6 screws with spring washer.
- 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(limiting values, at 25 °C unless otherwise specified)

Characteristics	Symbol	Condition	Max.	Units
Peak Repetitive Reverse Voltage	V <sub>RRM</sub>	-	35	V
Working Peak Reverse Voltage	V <sub>RWM</sub>		40	
DC Blocking Voltage	V <sub>R</sub>		45	
Average Rectified Forward Current	I <sub>F(AV)</sub>	50% duty cycle @T <sub>C</sub> =81°C, rectangular wave form	110(Per Leg) 220(Per Device)	A
Peak One Cycle Non-Repetitive Surge Current (Per Leg)	I <sub>FSM</sub>	8.3 ms, half Sine pulse	2880	A
Non-Repetitive Avalanche Energy(Peg Leg)	E <sub>AS</sub>	T <sub>J</sub> =25°C, I <sub>AS</sub> =20A, L=0.67mH	135	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	20	A

**Electrical Characteristics:**

Characteristics	Symbol	Condition	Typ.	Max.	Units
Forward Voltage Drop(Per Leg)*	V <sub>F1</sub>	@ 110A, Pulse, T <sub>J</sub> = 25 °C @ 220A, Pulse, T <sub>J</sub> = 25 °C	0.48 0.55	0.52 0.68	V
	V <sub>F2</sub>	@ 110A, Pulse, T <sub>J</sub> = 125 °C @ 220A, Pulse, T <sub>J</sub> = 125 °C	0.41 0.48	0.50 0.68	V
Reverse Current(Per Leg)*	I <sub>R1</sub>	@V <sub>R</sub> = rated V <sub>R</sub> , T <sub>J</sub> = 25 °C	1.7	10	mA
	I <sub>R2</sub>	@V <sub>R</sub> = rated V <sub>R</sub> , T <sub>J</sub> = 125 °C	122	2000	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	4290	5200	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 +125	°C	
Storage Temperature	T <sub>stg</sub>	-	-55 to +125	°C	
Typical Thermal Resistance Junction to Case(Per leg)	R <sub>θJC</sub>	DC operation	0.30	°C/W	
Typical Thermal Resistance Junction to Case(Per package)	R <sub>θJC</sub>	DC operation	0.15	°C/W	
Typical Thermal Resistance, case to Heat Sink	R <sub>θcs</sub>	Mounting surface, smooth and greased	0.05	°C/W	
Mounting Torque	T <sub>M</sub>	-	Mounting Torque	3.84(min) 4.80(max)	Nm
			Terminal Torque	2.35(min) 3.43(max)	
Approximate Weight	wt	-	110	g	
Case Style	PRM4 Non-Isolated				

**Ratings and Characteristics Curves**

Figure 1  
Typical Forward Characteristics

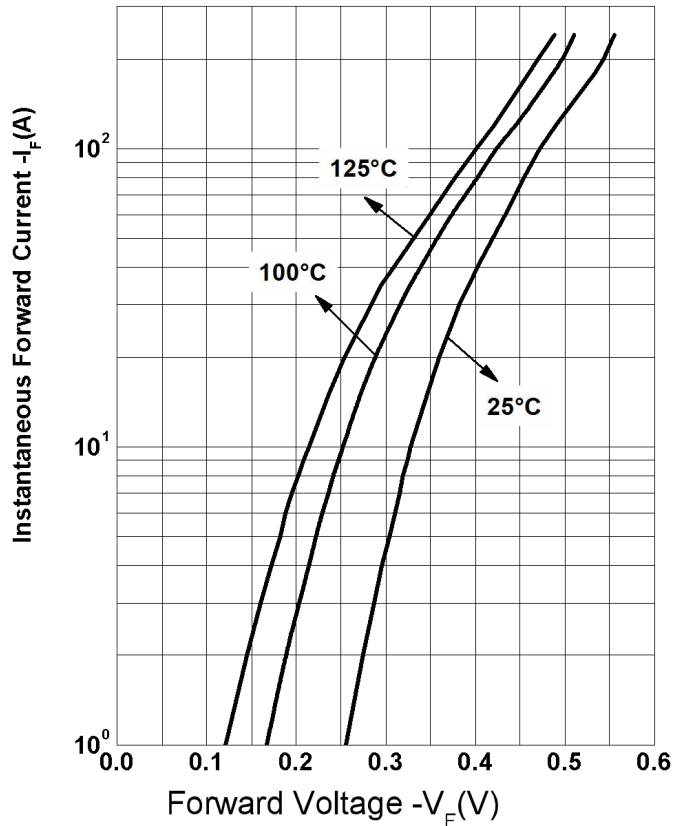


Figure 2  
Typical Reverse Characteristics

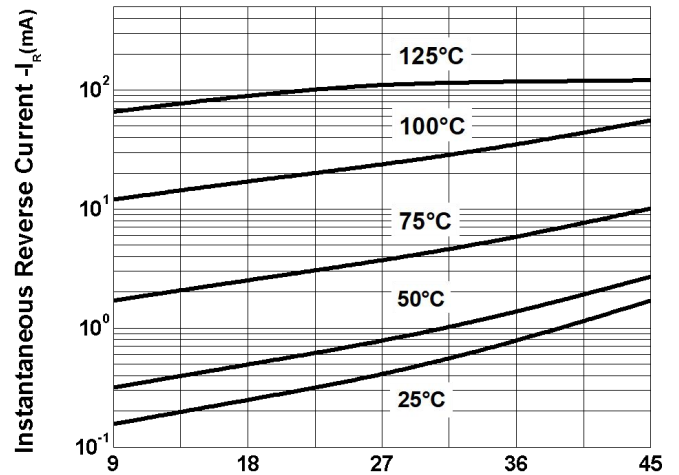
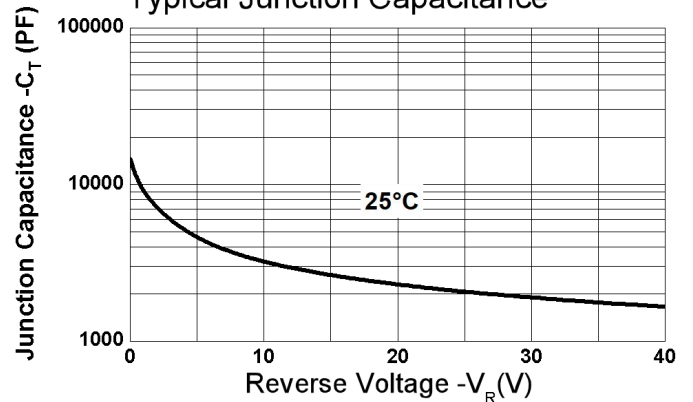
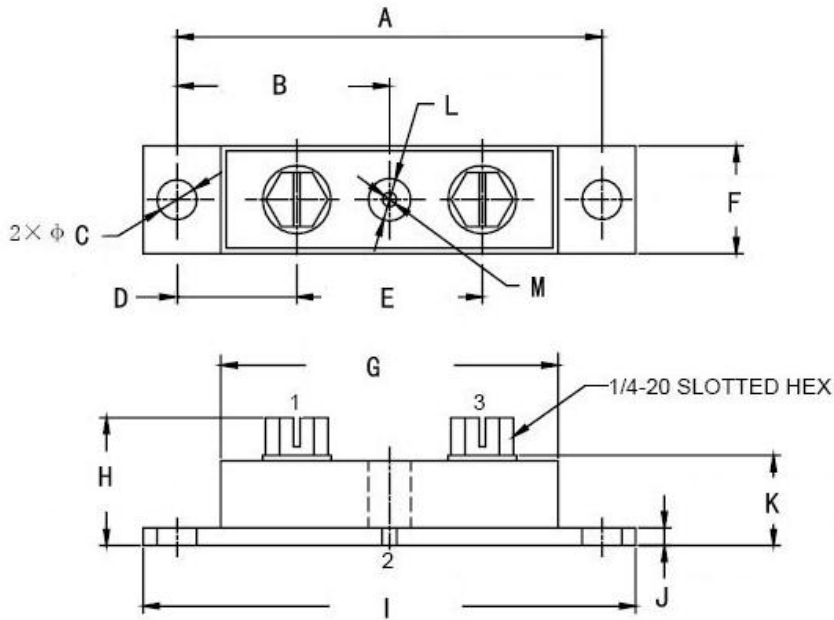


Figure 3  
Typical Junction Capacitance

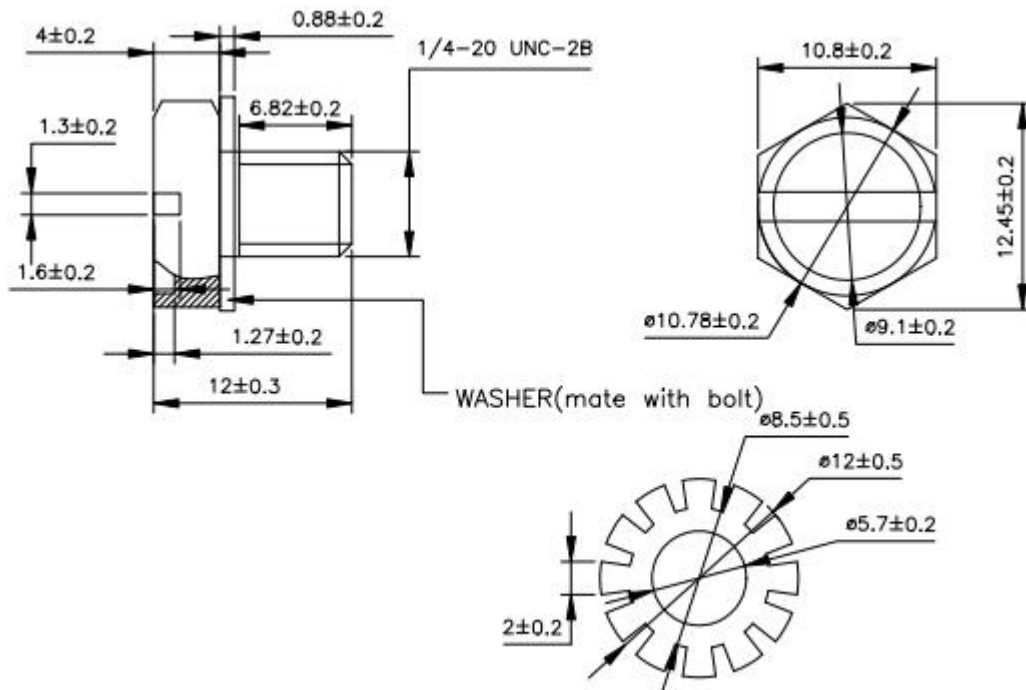


**Mechanical Dimensions PRM4 Non-Isolated(Millimeters/Inches)**

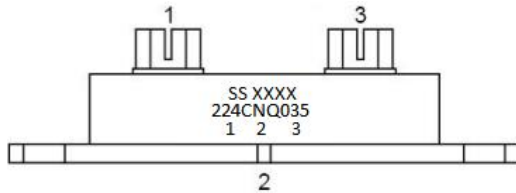


SYMBOL	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	78.74	81.28	3.100	3.200
B	37.47	42.55	1.475	1.675
C	6.89	7.69	0.271	0.303
D	19.51	24.59	0.768	0.968
E	33.02	38.10	1.300	1.500
F	17.78	20.32	0.700	0.800
G	60.96	64.77	2.400	2.550
H	17.26	23.25	0.680	0.915
I	90.17	92.71	3.550	3.650
J	3.02	3.68	0.119	0.145
K	14.30	16.15	0.563	0.636
L	9.27	10.79	0.365	0.425
M	4.37	5.28	0.172	0.208

**1/4-20 screws (Millimeters)**



## Marking Diagram



Where XXXX is YYWW

224CNQ035 = Part name  
SS = SS  
YY = Year  
WW = Week

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

## Ordering Information

Device	Package	Shipping
224CNQ SERIES	PRM4(Non- Isolated) (Pb-Free)	9 pcs/box

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