

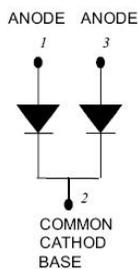
## 220CNQ030 SCHOTTKY RECTIFIER



### Features

- 150°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<br>Working Peak Reverse Voltage<br>DC Blocking Voltage | V <sub>RRM</sub><br>V <sub>RWM</sub><br>V <sub>R</sub> | -   | 30                              | V     |
| Average Rectified Forward Current  | I <sub>F(AV)</sub>                                     | 50% duty cycle @T <sub>C</sub> = 100°C,<br>rectangular wave form  | 110(Per Leg)<br>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> =22A, L=0.41mH  | 99                              | mJ    |
| Repetitive Avalanche Current(Peg Leg)  | I <sub>AR</sub>  | Current decaying linearly to zero<br>in 1 μsec Frequency limited by<br>T <sub>J</sub> max. V <sub>A</sub> =1.5×V <sub>R</sub> typical | 22                              | 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<br>@ 220A, Pulse, T <sub>J</sub> = 25 °C   | 0.46<br>- | 0.48<br>0.57 | V     |
|                                | V <sub>F2</sub> | @ 110A, Pulse, T <sub>J</sub> = 125 °C<br>@ 220A, Pulse, T <sub>J</sub> = 125 °C | 0.37<br>- | 0.40<br>0.52 | 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                 | 280       | 560          | mA    |
| Junction Capacitance(Per leg)  | C <sub>T</sub>  | @V <sub>R</sub> = 5V, T <sub>C</sub> = 25 °C<br>f <sub>sig</sub> = 1MHz          | 5700      | 7400         | pF    |
| Voltage Rate of Change         | dv/dt           | -  | -         | 10,000       | V/μs  |

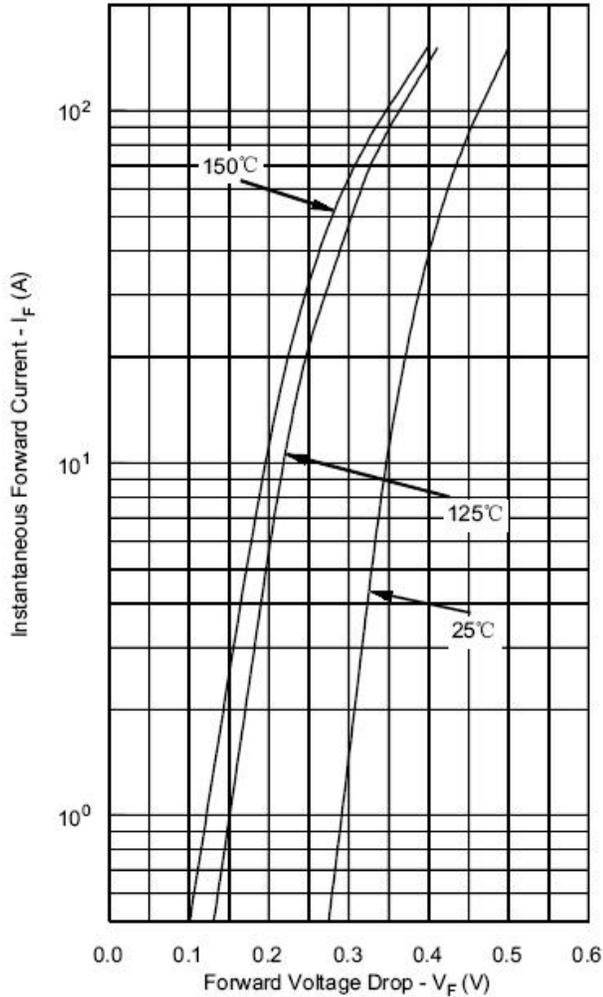
\* Pulse width < 300 μs, duty cycle < 2%

**Thermal-Mechanical Specifications:**

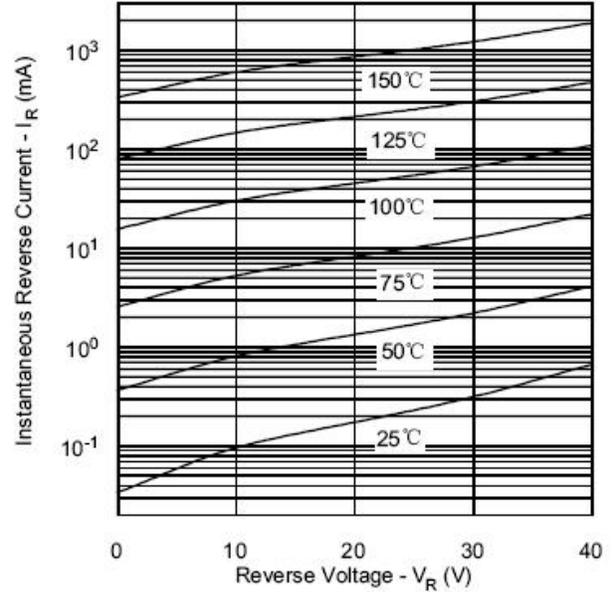
| Characteristics  | Symbol           | Condition                            | Specification   |                    | Units |
|--|------------------|--------------------------------------|-----------------|--------------------|-------|
| Junction Temperature                                     | T <sub>J</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                         | 0.50            |                    | °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)<br>35(max) | Kg-cm |
|  |                  |                                      | Terminal Torque | 35(min)<br>46(max) |       |
| Approximate Weight                                       | wt               | -                                    | 79              |                    | g     |

**Ratings and Characteristics Curves**

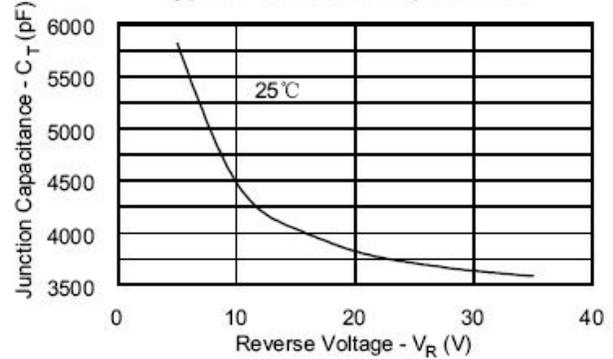
**Typical Forward Characteristics**



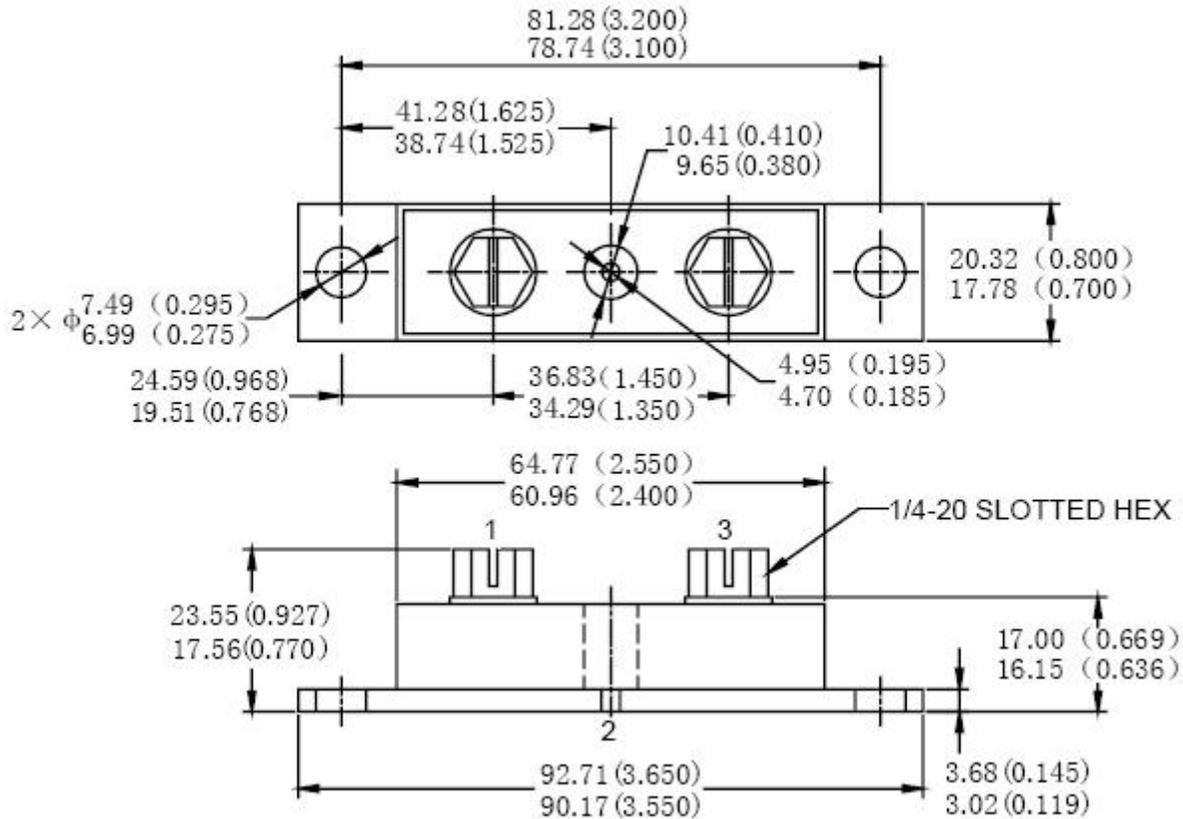
**Typical Reverse Characteristics**



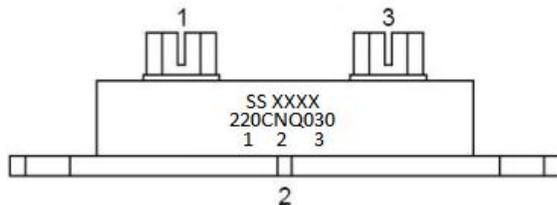
**Typical Junction Capacitance**



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



**Marking Diagram**



Where XXXX is YYWW

220CNQ030 = Part name  
SS = SS  
YY = Year  
WW = Week

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

**Ordering Information**

| Device    | Package                          | Shipping  |
|-----------|----------------------------------|-----------|
| 220CNQ030 | PRM4(Non- Isolated)<br>(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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