

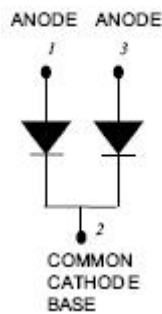
503CNQ080 503CNQ100 SCHOTTKY RECTIFIER



Features

- 175°C T_J 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
- 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 _{RRM} | - | 80 | 503CNQ080 | V |
| Working Peak Reverse Voltage | V _{RWM} | | 100 | 503CNQ100 | |
| DC Blocking Voltage | V _R | | | | |
| Average Rectified Forward Current | I _{F(AV)} | 50% duty cycle @T _c =122°C, rectangular wave form | 250(Per Leg) 500(Per Device) | | A |
| Peak One Cycle Non-Repetitive Surge Current (Per Leg) | I _{FSM} | 8.3 ms, half Sine pulse | 5000 | | A |

Electrical Characteristics:

| Characteristics | Symbol | Condition | Typ. | Max. | Units |
|--------------------------------|-----------------|---|-------|--------|-------|
| Forward Voltage Drop(Per Leg)* | V _{F1} | @ 250A, Pulse, T _J = 25 °C | 0.83 | 0.90 | V |
| | V _{F2} | @ 250A, Pulse, T _J = 125 °C | 0.72 | 0.75 | V |
| Reverse Current(Per Leg)* | I _{R1} | @V _R = rated V _R , T _J = 25 °C | 0.003 | 8 | mA |
| | I _{R2} | @V _R = rated V _R , T _J = 125 °C | 1.2 | 200 | mA |
| Junction Capacitance(Per leg) | C _T | @V _R = 5V, T _C = 25 °C f _{SIG} = 1MHz | 5350 | 7200 | 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 _J | - | -55 to +175 | | °C |
| Storage Temperature | T _{stg} | - | -55 to +175 | | °C |
| Typical Thermal Resistance Junction to Case(Per leg) | R _{θJC} | DC operation | 0.40 | | °C/W |
| Typical Thermal Resistance Junction to Case(Per package) | R _{θJC} | DC operation | 0.20 | | °C/W |
| Typical Thermal Resistance, case to Heat Sink | R _{θcs} | Mounting surface, smooth and greased | 0.08 | | °C/W |
| Mounting Torque | T _M | - | Mounting Torque | 24(min) 35(max) | Kg-cm |
| | | | Terminal Torque | 35(min) 46(max) | |
| Approximate Weight | wt | - | 91 | | g |
| Case Style | PRM4 Non-Isolated | | | | |

Ratings and Characteristics Curves

Figure 1
Typical Forward Characteristics

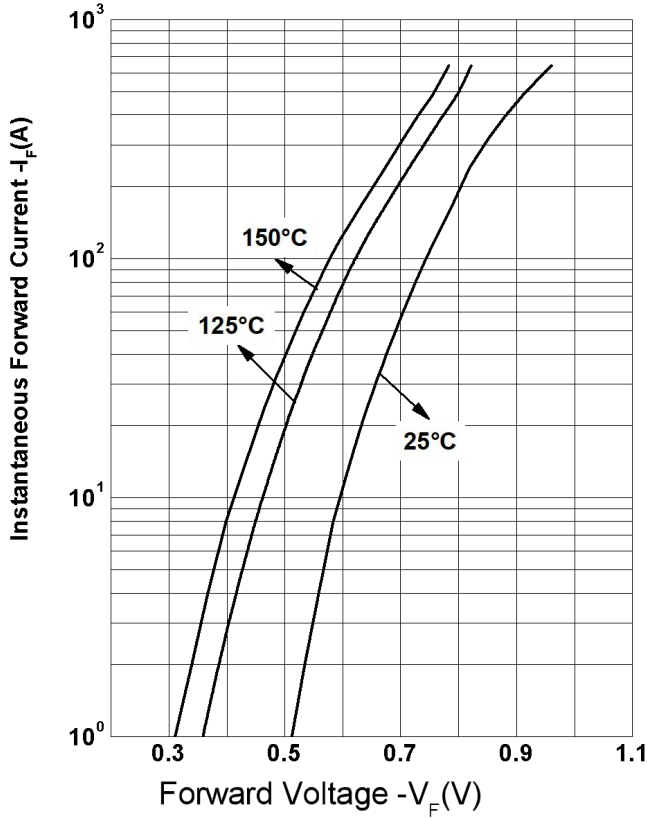


Figure 2
Typical Reverse Characteristics

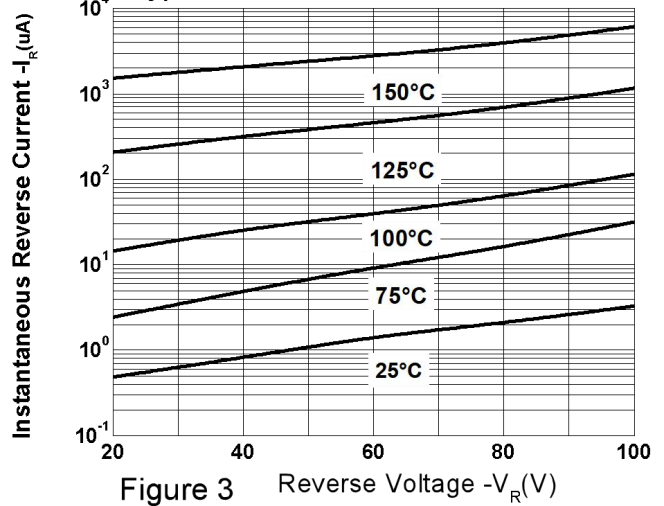
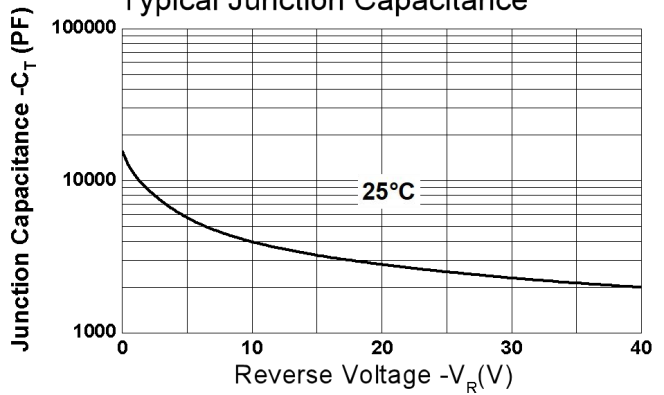
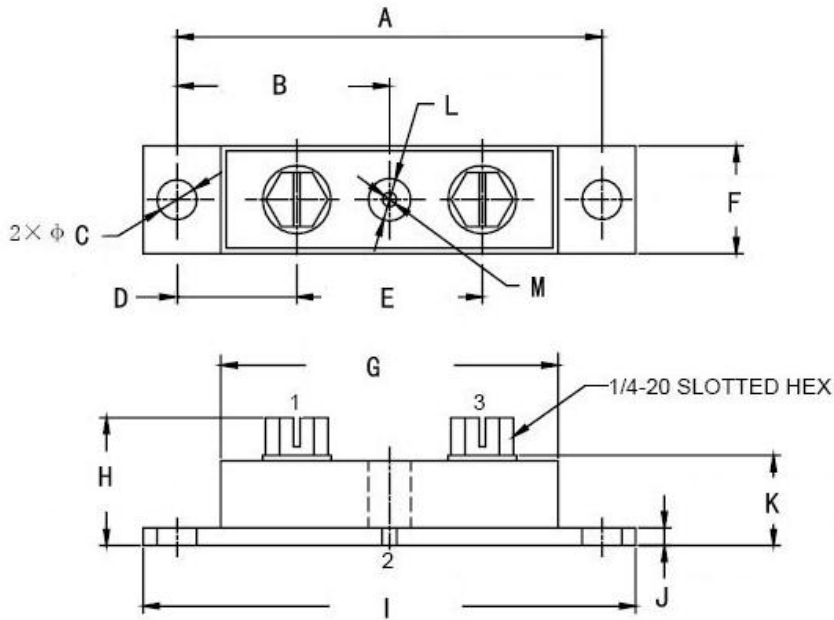


Figure 3
Typical Junction Capacitance



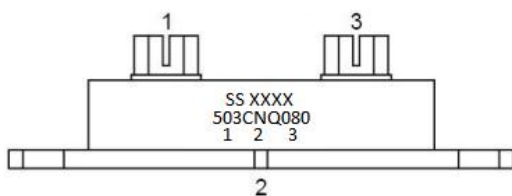
Mechanical Dimensions PRM4 Non-Isolated(Millimeters/Inches)



| 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 |

Please Note: Suffix "R" Denotes For Reversed Polarity

Marking Diagram



Where XXXX is YYWW

503CNQ080 = Part name
SS = SS
YY = Year
WW = Week

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

Ordering Information

| Device | Package | Shipping |
|---------------|----------------------------------|-----------|
| 503CNQ SERIES | PRM4(Non- Isolated) (Pb-Free) | 9 pcs/box |

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