

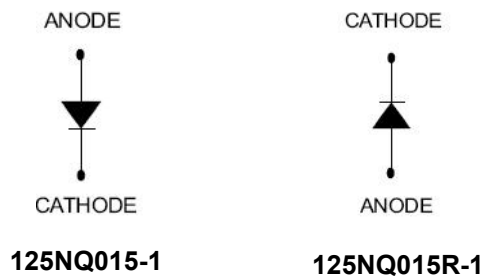
125NQ015/R-1 SCHOTTKY RECTIFIER



Features

- 125°C T_J operation
- Unique high power, Half-Pak module
- Replaces three parallel DO-5'S
- Easier to mount and lower profile than DO-5'S
- 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

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

The top side is terminal, the bottom side is base plate.

Maximum Ratings(limiting values, at 25 °C unless otherwise specified)

| Characteristics | Symbol | Condition | Max. | Units |
|--|--|---|-----------------------|-------|
| Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage | V _{RRM} V _{RWM} V _R | - | 15(DC) 25(Working) | V |
| Average Forward Current | I _{F(AV)} | 50% duty cycle @T _C =71°C, rectangular wave form | 120 | A |
| Peak One Cycle Non-Repetitive Surge Current | I _{FSM} | 8.3 ms, half Sine pulse | 2040 | A |
| Non-Repetitive Avalanche Energy | E _{AS} | T _J =25°C, I _{AS} =2A, L=4.5mH | 9 | mJ |
| Repetitive Avalanche Current | I _{AR} | Current decaying linearly to zero in 1 µsec Frequency limited by T _J max. V _A =1.5×V _R typical | 2 | A |

Electrical Characteristics:

| Characteristics | Symbol | Condition | Typ. | Max. | Units |
|------------------------|----------|--|------|--------|------------------|
| Forward Voltage Drop* | V_{F1} | @ 120A, Pulse, $T_J = 25\text{ }^\circ\text{C}$ | 0.40 | 0.41 | V |
| | | @ 240A, Pulse, $T_J = 25\text{ }^\circ\text{C}$ | 0.50 | 0.52 | |
| | V_{F2} | @ 120A, Pulse, $T_J = 125\text{ }^\circ\text{C}$ | 0.31 | 0.33 | V |
| | | @ 240A, Pulse, $T_J = 125\text{ }^\circ\text{C}$ | 0.38 | 0.45 | |
| Reverse Current* | I_{R1} | @ $V_R = \text{rated } V_R, T_J = 25\text{ }^\circ\text{C}$ | 11 | 40 | mA |
| | I_{R2} | @ $V_R = \text{rated } V_R, T_J = 100\text{ }^\circ\text{C}$ | 330 | 2000 | mA |
| | I_{R3} | @ $V_R = 12\text{V}, T_J = 100\text{ }^\circ\text{C}$ | 295 | 1780 | mA |
| | I_{R4} | @ $V_R = 5\text{V}, T_J = 100\text{ }^\circ\text{C}$ | 220 | 1080 | mA |
| Junction Capacitance | C_T | @ $V_R = 5\text{V}, T_C = 25\text{ }^\circ\text{C}$ $f_{SIG} = 1\text{MHz}$ | 6650 | 7700 | 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 +125 | $^\circ\text{C}$ | |
| Storage Temperature | T_{stg} | - | -55 to +150 | $^\circ\text{C}$ | |
| Typical Thermal Resistance Junction to Case | $R_{\theta JC}$ | DC operation | 0.25 | $^\circ\text{C/W}$ | |
| Typical Thermal Resistance, case to Heat Sink | $R_{\theta cs}$ | Mounting surface, smooth and greased | 0.07 | $^\circ\text{C/W}$ | |
| Mounting Torque | T_M | Non-lubricated threads | Mounting Torque | 23(min) 29(max) | Kg-cm |
| | | | Terminal Torque | 35(min) 46(max) | |
| Approximate Weight | wt | - | 36 | g | |
| Case Style | PRM1-1 | | | | |

Ratings and Characteristics Curves

Figure 1
Typical Forward Characteristics

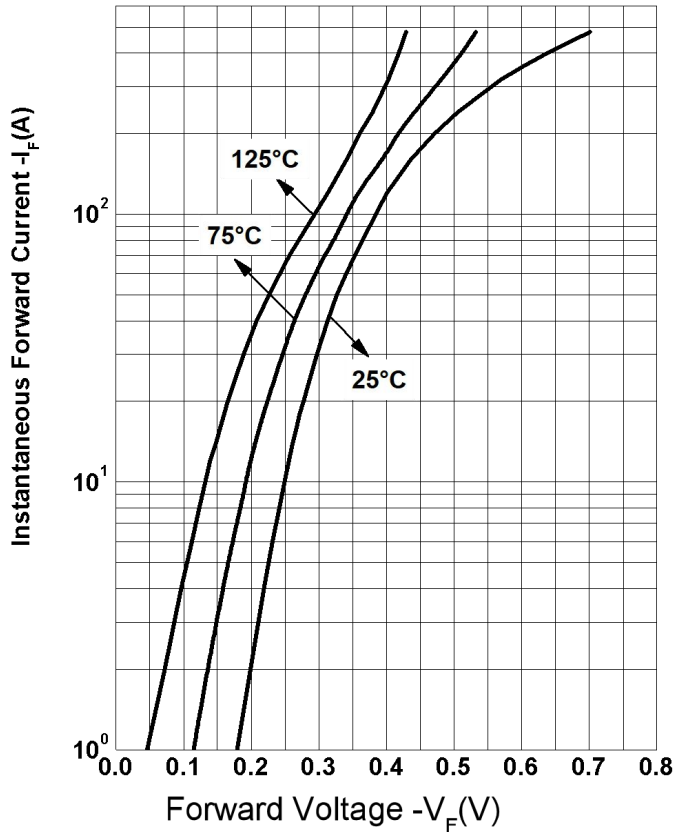


Figure 2
Typical Reverse Characteristics

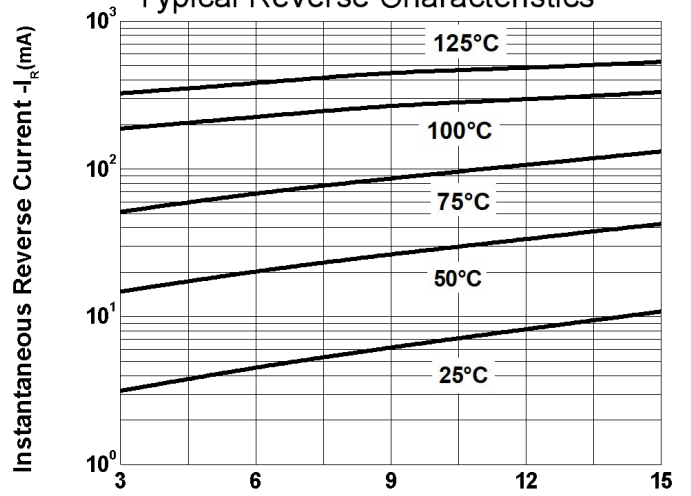
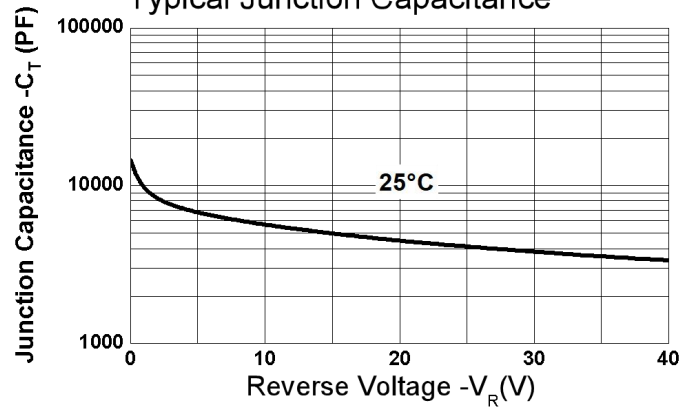


Figure 3
Reverse Voltage $-V_R$ (V)
Typical Junction Capacitance



Ordering Information

| Device | Package | Shipping |
|---------------|-----------------|------------|
| 125NQ015(R)-1 | PRM1-1(Pb-Free) | 27pcs/ box |

Marking Diagram

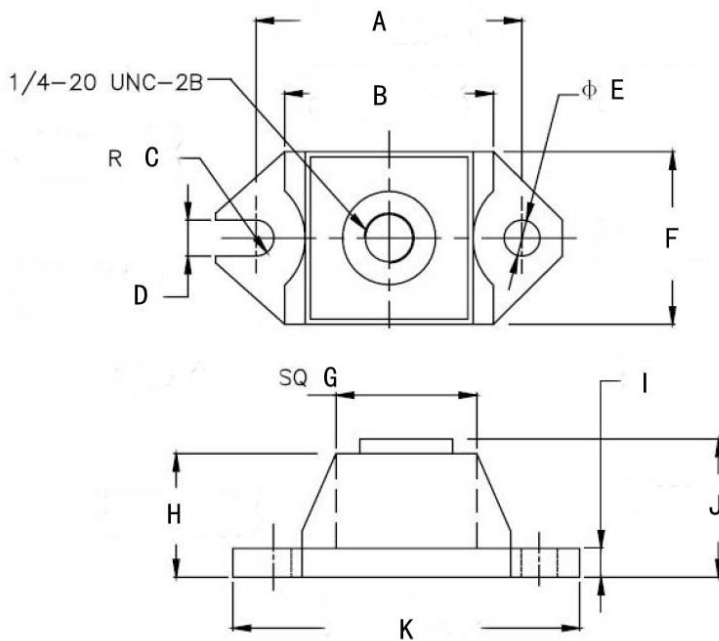


Where XXXX is YYWW

1st row SS YYWW
2nd row 125NQ015-1
SS = SS
YY = Year
WW = Week

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

Mechanical Dimensions PRM1-1 (Inches/Millimeters)



| SYMBOL | Millimeters | | Inches | |
|--------|-------------|-------|--------|-------|
| | Min. | Max. | Min. | Max. |
| A | 29.35 | 30.95 | 1.155 | 1.219 |
| B | 24.77 | 26.04 | 0.975 | 1.026 |
| C | 1.79 | 2.19 | 0.070 | 0.087 |
| D | 3.73 | 4.24 | 0.146 | 0.167 |
| E | 3.73 | 4.24 | 0.146 | 0.167 |
| F | 18.42 | 19.69 | 0.725 | 0.775 |
| G | 18.55 | 19.55 | 0.730 | 0.770 |
| H | 13.59 | 14.47 | 0.535 | 0.570 |
| I | 3.05 | 3.90 | 0.120 | 0.154 |
| J | 14.87 | 15.87 | 0.585 | 0.625 |
| K | 38.61 | 39.62 | 1.520 | 1.560 |

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