**Technical Data** *Green Products*

**Data Sheet N1062, Rev. -**

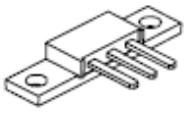
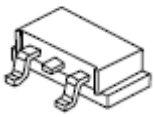
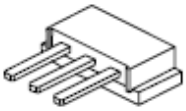
# 83CNQ080/83CNQ100 SCHOTTKY RECTIFIER

## Applications:

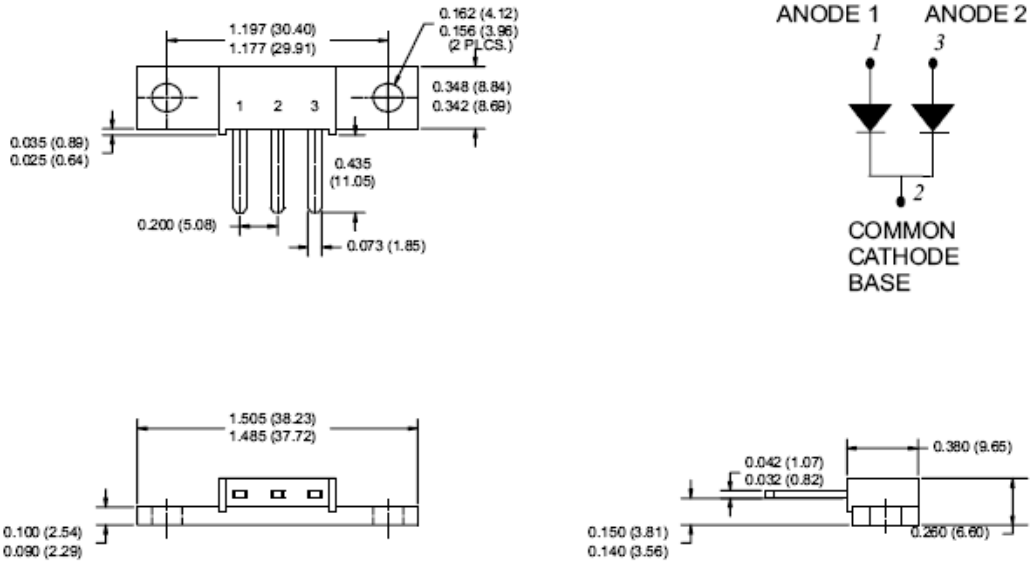
- **Switching power supply**
- **Converters**
- **Free-Wheeling diodes**
- **Reverse battery protection**

## Features:

- **175℃ $T_J$ 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 testing can be offered upon request**

| Case Styles | | |
|---|---|---|
| **83CNQ…** | **83CNQ…SL** | **83CNQ…SM** |
|  |  |  |
| **PRM2** | **PRM2-SL** | **PRM2-SM** |

**Mechanical Dimensions: In Inches / mm**




**PRM2**

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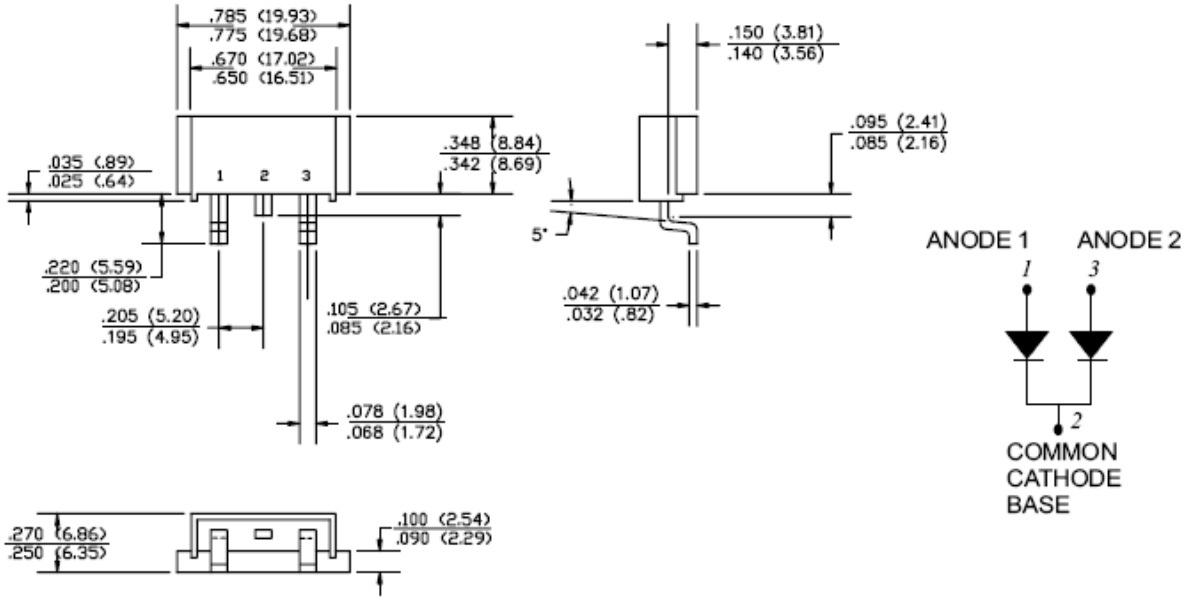
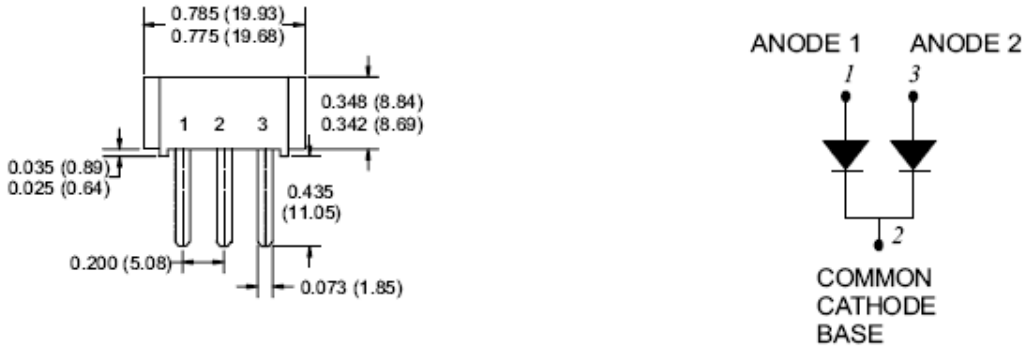
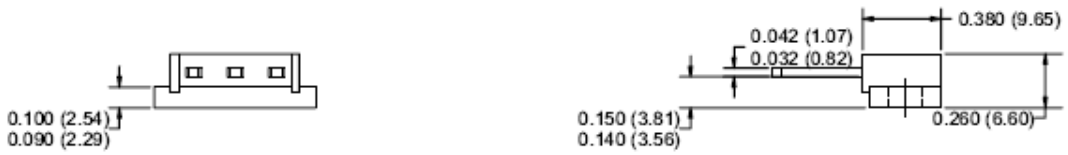



**PRM2-SL**




**PRM2-SM**

**MARKING, MOLDING RESIN**

Marking for 83CNQ080/SL/SM, 1st row SS YYWWL, 2nd row 83CNQ080/SL/SM, 3rd row 1 2 3 (pin)
Where YY is the manufacture year
WW is the manufacture week code
L is the wafer's Lot Number
Molding resin
Epoxy resin UL: 94V-0

# 83CNQ SERIES

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## Ordering Information:

| Device | Package | Terminals finish | Shipping |
|---|---|---|---|
| 83CNQ080 | PRM2 | Nickel plated | 48pcs / box |
| 83CNQ080S | PRM2 | Pure Sn dipped (dipped height 6-8 mm) | 48pcs / box |
| 83CNQ080SL | PRM2-SL | Pure Sn plated | 100pcs / box |
| 83CNQ080SM | PRM2-SM | Nickel plated | 48pcs / box |
| 83CNQ080SMS | PRM2-SM | Pure Sn dipped (dipped height 6-8 mm) | 48pcs / box |
| 83CNQ100 | PRM2 | Nickel plated | 48pcs / box |
| 83CNQ100S | PRM2 | Pure Sn dipped (dipped height 6-8 mm) | 48pcs / box |
| 83CNQ100SL | PRM2-SL | Pure Sn plated | 100pcs / box |
| 83CNQ100SM | PRM2-SM | Nickel plated | 48pcs / box |
| 83CNQ100SMS | 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.

## Maximum Ratings:

| Characteristics | Symbol | Condition | Max. | Units |
|---|---|---|---|---|
| Peak Repetitive Reverse Voltage<br>Working Peak Reverse Voltage<br>DC Blocking Voltage | $V_{RRM}$<br>$V_{RWM}$<br>$V_R$ | - | 80 (83CNQ080)<br>100(83CNQ100) | V |
| Average Rectified Forward Current | $I_{F(AV)}$ | 50% duty cycle @$T_C$ =132°C, rectangular wave form | 80 | A |
| Peak One Cycle Non-Repetitive Surge Current(per leg) | $I_{FSM}$ | 8.3 ms, half Sine pulse | 860 | A |
| Non-Repetitive Avalanche Energy(peg leg) | $E_{AS}$ | $T_J$=25℃,$I_{AS}$=1A,L=30mH | 15 | mJ |
| Repetitive Avalanche Current(peg leg) | $I_{AR}$ | Current decaying linearly to zero in 1 μsec Frequency limited by $T_J$ max. $V_A$=1.5× $V_R$ typical | 8 | A |

## Electrical Characteristics:

| Characteristics | Symbol | Condition | Typ. | Max. | Units |
|---|---|---|---|---|---|
| Forward Voltage Drop (per leg) * | $V_{F1}$ | @ 40A, Pulse, $T_J$ = 25 °C<br>@ 80A, Pulse, $T_J$ = 25 °C | 0.76<br>0.81 | 0.81<br>1.00 | V |
| | $V_{F2}$ | @ 40A, Pulse, $T_J$ = 125 °C<br>@ 80A, Pulse, $T_J$ = 125 °C | 0.60<br>0.69 | 0.67<br>0.82 | V |
| Reverse Current (per leg) * | $I_{R1}$ | @$V_R$ = rated $V_R$ $T_J$ = 25 °C | 0.0004 | 1.5 | mA |
| | $I_{R2}$ | @$V_R$ = rated $V_R$ $T_J$ = 125 °C | 1.8 | 35 | mA |
| Junction Capacitance (per leg) | $C_T$ | @$V_R$ = 5V, $T_C$ = 25 °C<br>$f_{SIG}$ = 1MHz | 1200 | 1400 | pF |
| Typical Series Inductance (per leg) | $L_S$ | Measured lead to lead 5 mm from package body | 5.5 | - | nH |
| Voltage Rate of Change | dv/dt | - | - | 10,000 | V/µs |

* Pulse Width < 300µs, 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) | $R_{\theta JC}$ | DC operation | 0.85 | °C/W |
| Typical Thermal Resistance Junction to Case (per package) | $R_{\theta JC}$ | DC operation | 0.42 | °C/W |
| Typical Thermal Resistance, case to Heat Sink | $R_{\theta cs}$ | Mounting surface, smooth and greased | 0.30 | °C/W |
| Mounting Torque | $T_M$ | - | 40(min)<br>58(max) | Kg-cm |
| Approximate Weight | wt | - | 7.8 | g |
| Case Style | PRM2 PRM2-SL PRM2-SM | | | |

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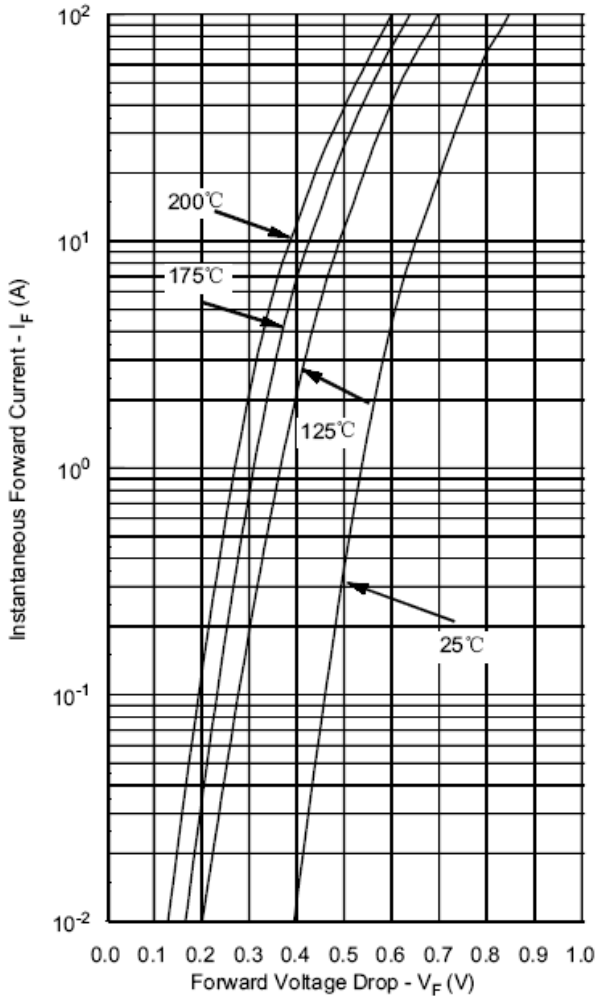
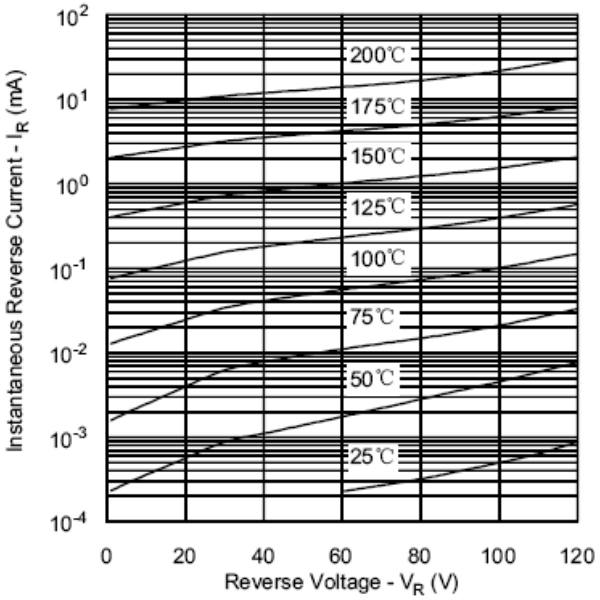
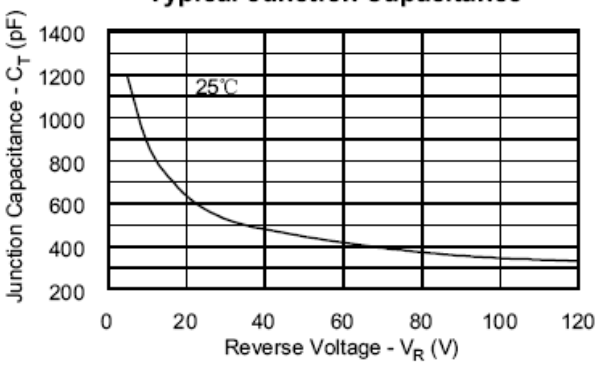
**Typical Forward Characteristics**




**Typical Reverse Characteristics**




**Typical Junction Capacitance**



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