**Technical Data** ***Green Products***
**Data Sheet N1092, Rev. A**

# 163CMQ…SERIES SCHOTTKY RECTIFIER

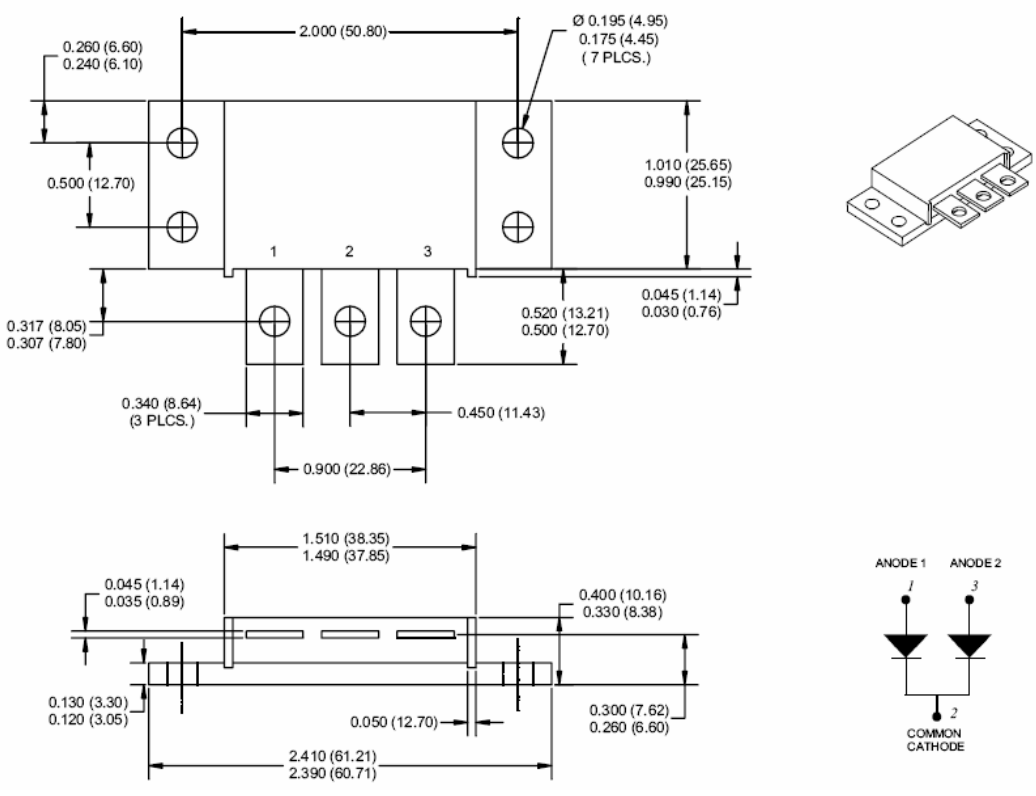
## Applications:

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

## Features:

- **175 °C $T_J$ operation**
- **Isolated heatsink**
- **Low profile, high current package**
- **Center tap module**
- **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**
- **This is a Pb − Free Device**
- **All SMC parts are traceable to the wafer lot**
- **Additional testing can be offered upon request**

## Mechanical Dimensions: In mm/Inches




**TO-249AA**

**MARKING, MOLDING RESIN**
Marking for 163CMQ080/100, 1st row SS YYWWL, 2nd row 163CMQ080/100, 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

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## Maximum Ratings:

| Characteristics | Symbol | Condition | Max. | | Units |
|---|---|---|---|---|---|
| Peak Inverse Voltage | $V_{RWM}$ | - | 80 | 163CMQ080 | V |
| | | | 100 | 163CMQ100 | |
| Max. Average Forward* | $I_{F(AV)}$ | 50% duty cycle @$T_C$ = 87°C, rectangular wave form | 160 | | A |
| Max. Peak One Cycle Non-Repetitive Surge Current (peg leg) | $I_{FSM}$ | 8.3 ms, half Sine pulse | 960 | | 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 | 1 | | A |

## Electrical Characteristics:

| Characteristics | Symbol | Condition | Max. | Units |
|---|---|---|---|---|
| Max. Forward Voltage Drop (per leg) * | $V_{F1}$ | @ 80A, Pulse, $T_J$ = 25 °C<br>@ 160A, Pulse, $T_J$ = 25 °C | 0.98<br>1.17 | V |
| | $V_{F2}$ | @ 80A, Pulse, $T_J$ = 125 °C<br>@ 160A, Pulse, $T_J$ = 125 °C | 0.80<br>0.96 | V |
| Max. Reverse Current (per leg) * | $I_{R1}$ | @$V_R$ = rated $V_R$ ,$T_J$ = 25 °C | 1.5 | mA |
| | $I_{R2}$ | @$V_R$ = rated $V_R$ ,$T_J$ = 125 °C | 20 | mA |
| Max. Junction Capacitance (per leg) | $C_T$ | @$V_R$ = 5V, $T_C$ = 25 °C<br>$f_{SIG}$ = 1MHz | 1400 | pF |
| Typical Series Inductance (per leg) | $L_S$ | Measured lead to lead 5 mm from package body | 8.0 | nH |
| Max. Voltage Rate of Change | dv/dt | - | 10,000 | V/µs |

* Pulse Width < 300µs, Duty Cycle <2%

## Thermal-Mechanical Specifications:

| Characteristics | Symbol | Condition | Specification | Units |
|---|---|---|---|---|
| Max. Junction Temperature | $T_J$ | - | -55 to +175 | °C |
| Max. Storage Temperature | $T_{stg}$ | - | -55 to +175 | °C |
| Maximum Thermal Resistance Junction to Case (per leg) | $R_{\theta JC}$ | DC operation | 1.0 | °C/W |
| Maximum Thermal Resistance Junction to Case (per package) | $R_{\theta JC}$ | DC operation | 0.50 | °C/W |
| Typical Thermal Resistance, case to Heat Sink | $R_{\theta cs}$ | Mounting surface, smooth and greased | 0.10 | °C/W |
| Mounting Torque | $T_M$ | - | 40(min)<br>58(max) | Kg-cm |
| Approximate Weight | wt | - | 58 | g |
| Case Style | TO-249AA | | | |

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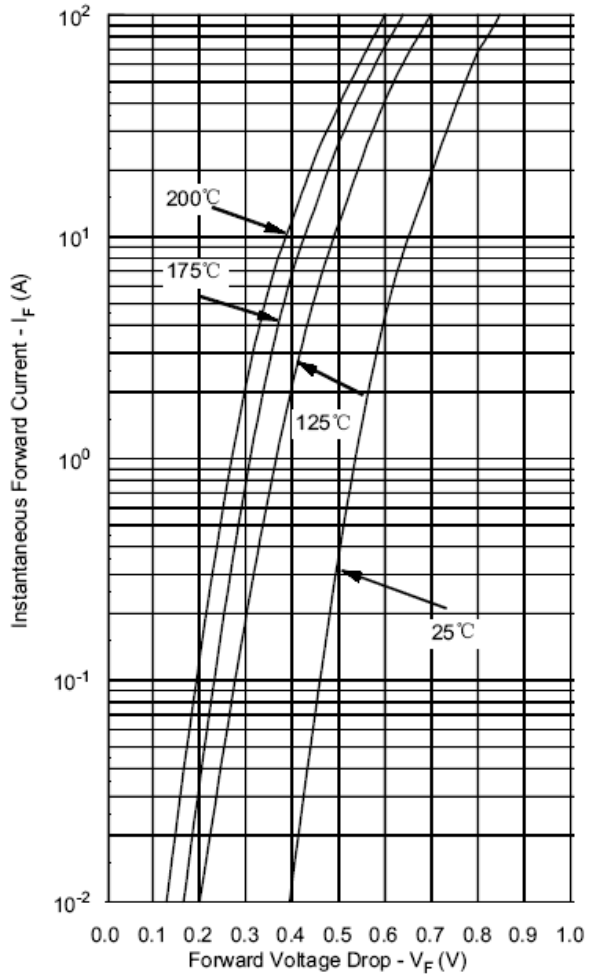
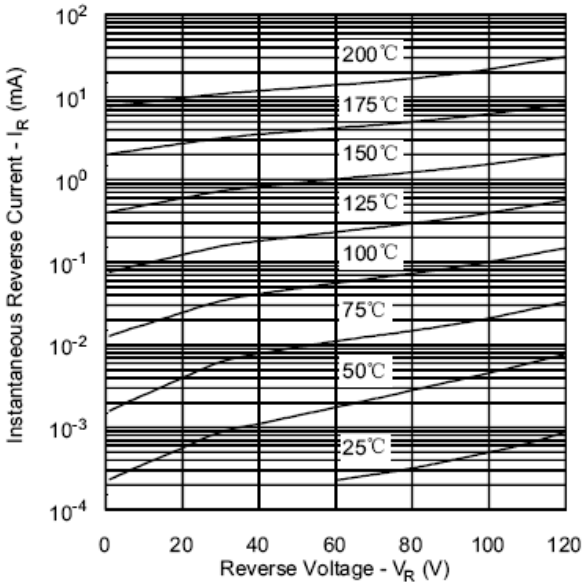
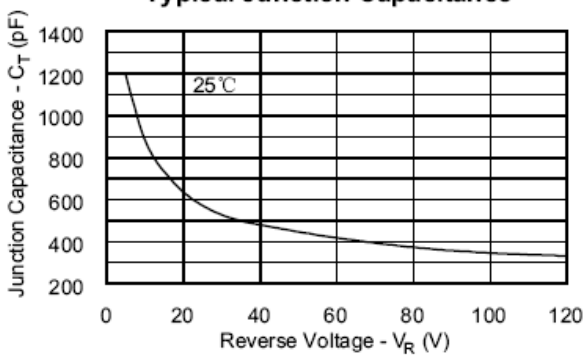
**Typical Forward Characteristics**




**Typical Reverse Characteristics**




**Typical Junction Capacitance**



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