



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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International IOR Rectifier

161CMQ... SERIES

SCHOTTKY RECTIFIER

160 Amp



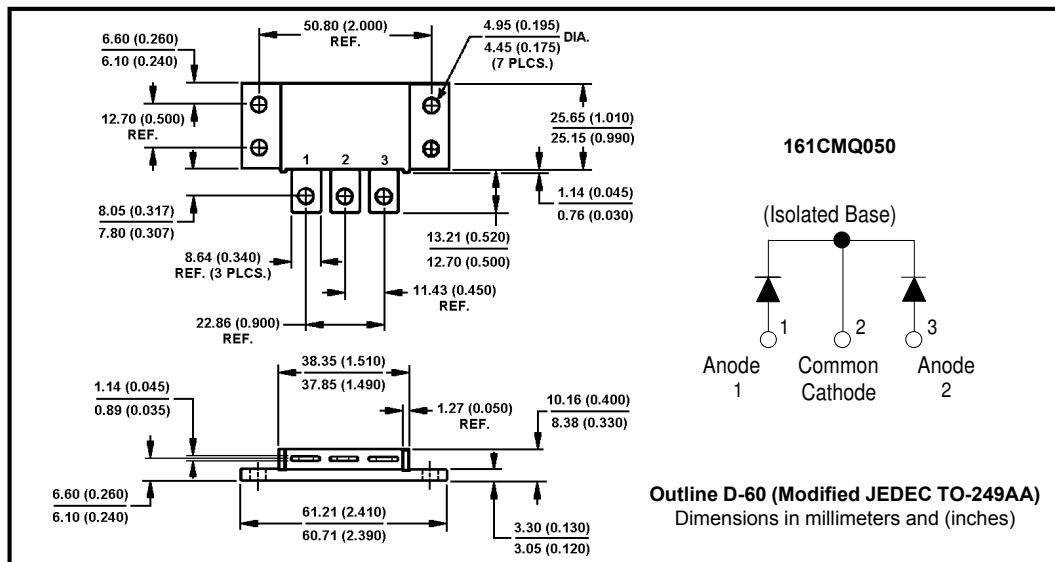
Major Ratings and Characteristics

| Characteristics | 161CMQ... | Units |
|--|------------|------------|
| $I_{F(AV)}$ Rectangular waveform | 160 | A |
| V_{RRM} range | 30 to 50 | V |
| I_{FSM} @ $t_p = 5 \mu s$ sine | 11,500 | A |
| V_F @80 Apk, $T_J = 125^\circ C$ (per leg) | 0.63 | V |
| T_J range | -55 to 175 | $^\circ C$ |

Description/ Features

The 161CMQ isolated center tap Schottky rectifier module series has been optimized for low reverse leakage at high temperature. The proprietary barrier technology allows for reliable operation up to $175^\circ C$ junction temperature. Typical applications are in switching power supplies, converters, free-wheeling diodes, and reverse battery protection.

- $175^\circ C$ T_J operation
- Isolated heatsink
- Center tap module
- Multiple leads per terminal for high frequency, high current PC board mounting
- 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
- Low profile, high current package



161CMQ... Series

Bulletin PD-2.174 rev. C 05/02

International
IR Rectifier

Voltage Ratings

| Part number | 161CMQ030 | 161CMQ035 | 161CMQ040 | 161CMQ045 | 161CMQ050 |
|---|-----------|-----------|-----------|-----------|-----------|
| V_R Max. DC Reverse Voltage (V) | 30 | 35 | 40 | 45 | 50 |
| V_{RWM} Max. Working Peak Reverse Voltage (V) | | | | | |

Absolute Maximum Ratings

| Parameters | 161CMQ | Units | Conditions |
|---|--------|-------|--|
| $I_{F(AV)}$ Max. Average Forward Current * See Fig. 5 | 160 | A | 50% duty cycle @ $T_C = 101^\circ\text{C}$, rectangular wave form |
| I_{FSM} Max. Peak One Cycle Non-Repetitive Surge Current (Per Leg) * See Fig. 7 | 11,500 | A | 5 μs Sine or 3 μs Rect. pulse |
| | 900 | | 10ms Sine or 6ms Rect. pulse |
| E_{AS} Non-Repetitive Avalanche Energy (Per Leg) | 108 | mJ | $T_J = 25^\circ\text{C}$, $I_{AS} = 16\text{ Amps}$, $L = 0.84\text{ mH}$ |
| I_{AR} Repetitive Avalanche Current (Per Leg) | 16 | A | Current decaying linearly to zero in 1 μsec Frequency limited by T_J max. $V_A = 1.5 \times V_R$ typical |

Electrical Specifications

| Parameters | 161CMQ | Units | Conditions |
|--|--------|------------------|---|
| V_{FM} Max. Forward Voltage Drop (Per Leg) * See Fig. 1 (1) | 0.71 | V | @ 80A |
| | 0.88 | V | @ 160A |
| | 0.63 | V | @ 80A |
| | 0.79 | V | @ 160A |
| I_{RM} Max. Reverse Leakage Current (Per Leg) * See Fig. 2 (1) | 5 | mA | $T_J = 25^\circ\text{C}$ |
| | 45 | mA | $T_J = 125^\circ\text{C}$ |
| C_T Max. Junction Capacitance (Per Leg) | 2600 | pF | $V_R = 5V_{DC}$, (test signal range 100Khz to 1Mhz) 25°C |
| L_S Typical Series Inductance (Per Leg) | 8.0 | nH | Measured from terminal hole to terminal hole |
| dv/dt Max. Voltage Rate of Change (Rated V_R) | 10000 | V/ μs | |

(1) Pulse Width < 300 μs , Duty Cycle <2%

Thermal-Mechanical Specifications

| Parameters | 161CMQ | Units | Conditions |
|---|------------|--------------------|--------------------------------------|
| T_J Max. Junction Temperature Range | -55 to 175 | $^\circ\text{C}$ | |
| T_{stg} Max. Storage Temperature Range | -55 to 175 | $^\circ\text{C}$ | |
| R_{thJC} Max. Thermal Resistance Junction to Case (Per Leg) | 1.0 | $^\circ\text{C/W}$ | DC operation * See Fig. 4 |
| R_{thJC} Max. Thermal Resistance Junction to Case (Per Package) | 0.50 | $^\circ\text{C/W}$ | DC operation |
| R_{thCS} Typical Thermal Resistance, Case to Heatsink | 0.10 | $^\circ\text{C/W}$ | Mounting surface, smooth and greased |
| wt Approximate Weight | 58 (2.0) | g (oz.) | |
| T Mounting Torque | 40 (35) | Kg-cm (lbf-in) | |
| | 58 (50) | | |
| Case Style | TO-249AA | JEDEC | |

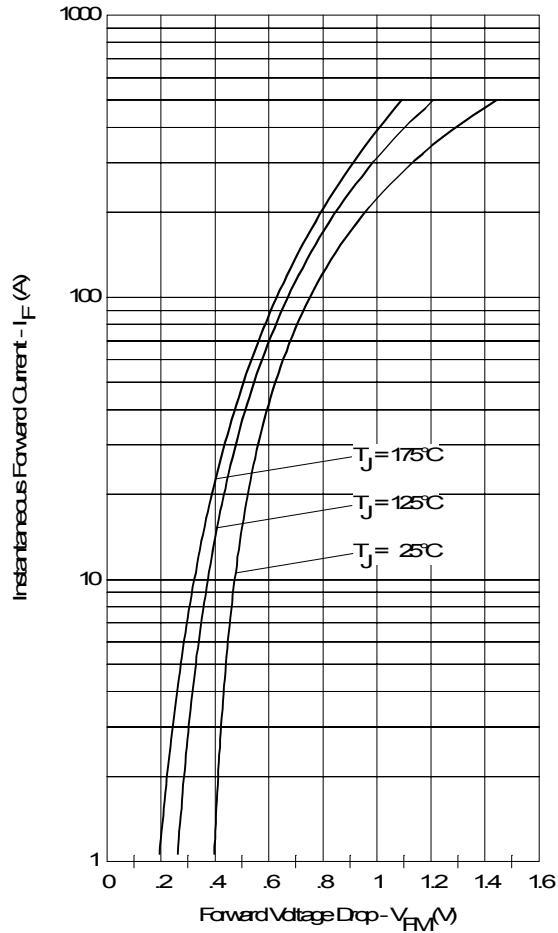


Fig. 1 - Max. Forward Voltage Drop Characteristics (Per Leg)

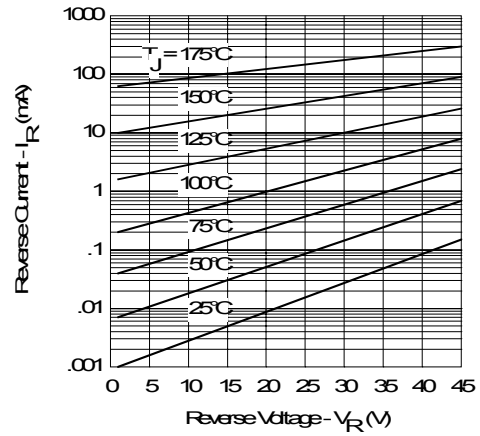


Fig. 2 - Typical Values Of Reverse Current Vs. Reverse Voltage (Per Leg)

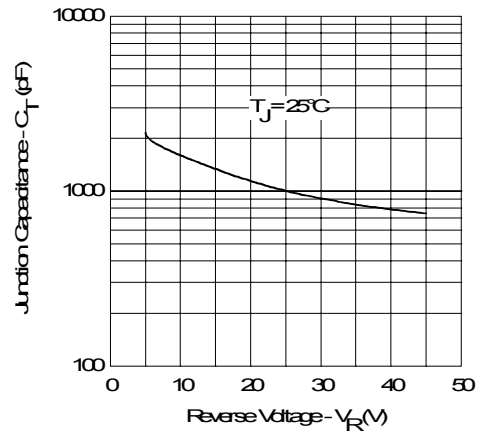


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage (Per Leg)

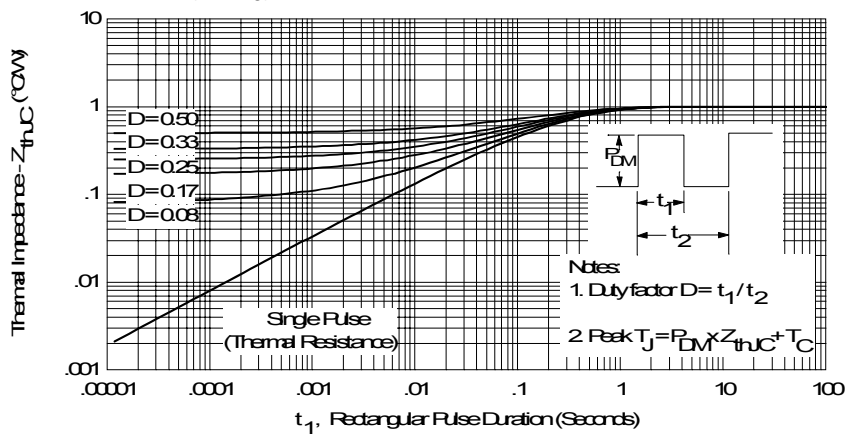


Fig. 4 - Max. Thermal Impedance Z_{thJC} Characteristics (Per Leg)

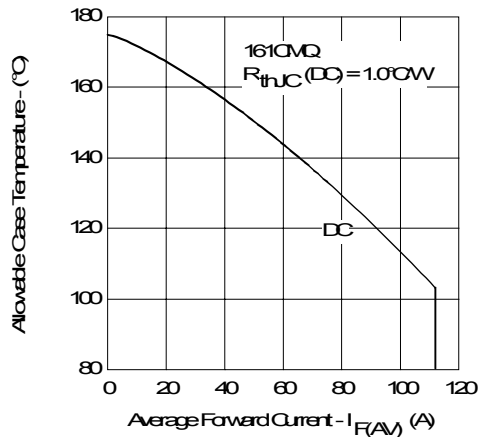


Fig. 5 - Max. Allowable Case Temperature Vs. Average Forward Current (Per Leg)

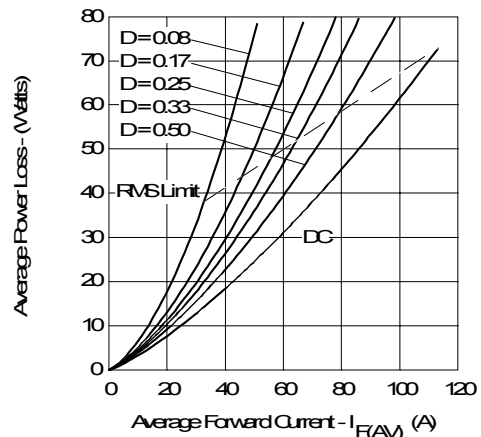


Fig. 6 - Forward Power Loss Characteristics (Per Leg)

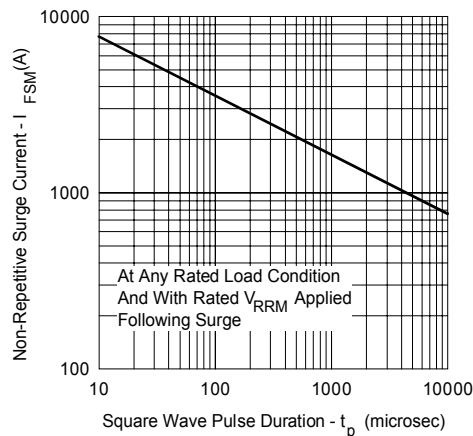


Fig. 7 - Max. Non-Repetitive Surge Current (Per Leg)

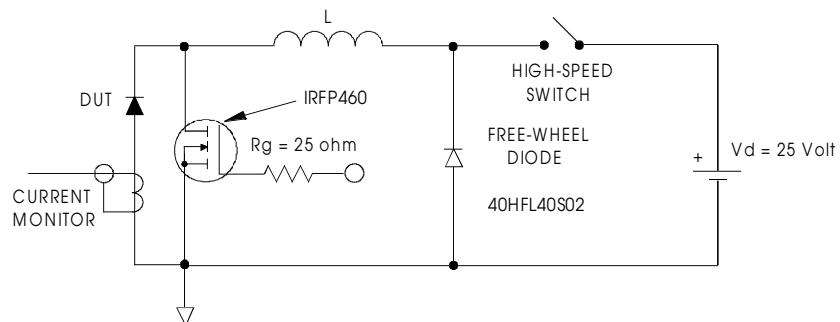


Fig. 8 - Unclamped Inductive Test Circuit

Data and specifications subject to change without notice.
This product has been designed and qualified for Industrial Level.
Qualification Standards can be found on IR's Web site.

International
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