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[Vishay Semiconductor/Diodes Division](#)
[208CMQ060](#)

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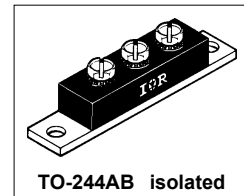
sales@integrated-circuit.com

International **IR** Rectifier

208CMQ060

SCHOTTKY RECTIFIER

200 Amp



Major Ratings and Characteristics

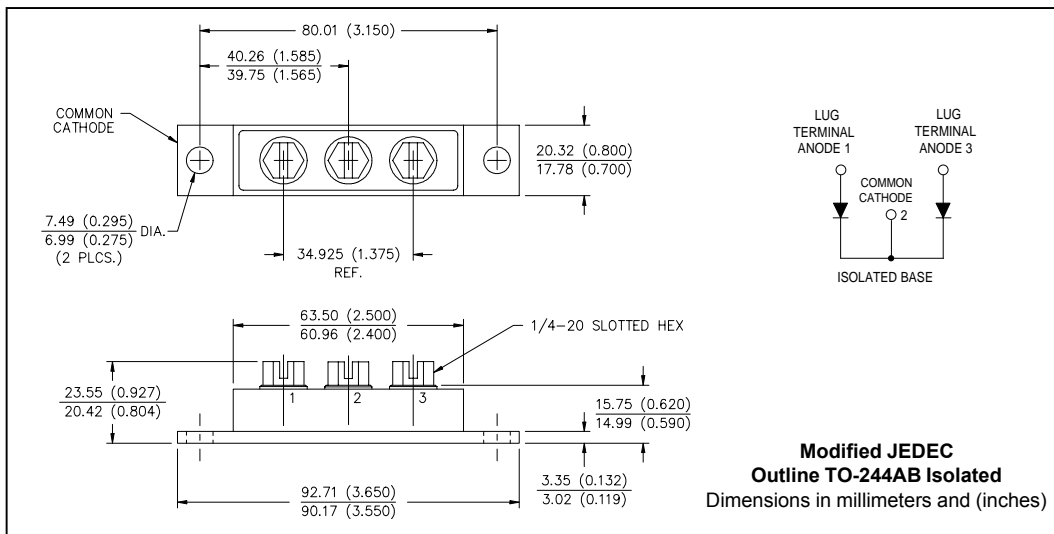
| Characteristics | 208CMQ... | Units |
|--|------------|------------------|
| $I_{F(AV)}$ Rectangular waveform | 200 | A |
| V_{RRM} | 60 | V |
| I_{FSM} @tp = 5 μ s sine | 16,000 | A |
| V_F @100Apk, $T_J = 125^\circ\text{C}$ (per leg) | 0.59 | V |
| T_J range | -55 to 150 | $^\circ\text{C}$ |

Description/Features

The 208CMQ high current Schottky rectifier module series has been optimized for low reverse leakage at high temperature.

The proprietary barrier technology allows for reliable operation up to 150 $^\circ\text{C}$ junction temperature. Typical applications are in high current switching power supplies, plating power supplies, UPS systems, converters, free-wheeling diodes, welding, and reverse battery protection.

- 150 $^\circ\text{C}$ T_J operation
- Center tap module - Isolated Base
- 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



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Voltage Ratings

| Part number | 208CMQ060 |
|---|-----------|
| V_R Max. DC Reverse Voltage (V) | 60 |
| V_{RWM} Max. Working Peak Reverse Voltage (V) | |

Absolute Maximum Ratings

| Parameters | 208CMQ | Units | Conditions |
|---|--------|-------|--|
| $I_{F(AV)}$ Max. Average Forward Current (Per Leg) * See Fig. 5 (Per Device) | 100 | A | 50% duty cycle @ $T_C = 90^\circ\text{C}$, rectangular wave form |
| | 200 | | |
| I_{FSM} Max. Peak One Cycle Non-Repetitive Surge Current (Per Leg) * See Fig. 7 | 16,000 | A | 5 μ s Sine or 3 μ s Rect. pulse 10ms Sine or 6ms Rect. pulse Following any rated load condition and with rated V_{RWM} applied |
| | 2,100 | | |
| E_{AS} Non-Repetitive Avalanche Energy (Per Leg) | 15 | mJ | $T_J = 25^\circ\text{C}$, $I_{AS} = 1$ Amps, $L = 30$ mH |
| I_{AR} Repetitive Avalanche Current (Per Leg) | 1 | A | Current decaying linearly to zero in 1 μ sec Frequency limited by T_J max. $V_A = 1.5 \times V_R$ typical |

Electrical Specifications

| Parameters | 208CMQ | Units | Conditions |
|--|--------|------------|---|
| V_{FM} Max. Forward Voltage Drop (Per Leg) * See Fig. 1 (1) | 0.68 | V | @ 100A $T_J = 25^\circ\text{C}$ |
| | 0.83 | V | @ 200A |
| | 0.59 | V | @ 100A $T_J = 125^\circ\text{C}$ |
| | 0.75 | V | @ 200A |
| I_{RM} Max. Reverse Leakage Current (Per Leg) * See Fig. 2 (1) | 1.1 | mA | $T_J = 25^\circ\text{C}$ |
| | 300 | mA | $T_J = 125^\circ\text{C}$ $V_R = \text{rated } V_R$ |
| $V_{F(TO)}$ Threshold Voltage | 0.32 | V | $T_J = T_J \text{ max.}$ |
| r_t Forward Slope Resistance | 2.1 | m Ω | |
| C_T Max. Junction Capacitance (Per Leg) | 6000 | pF | $V_R = 5V_{DC}$, (test signal range 100Khz to 1Mhz) 25°C |
| L_S Typical Series Inductance (Per Leg) | 7.0 | nH | From top of terminal hole to mounting plane |
| dv/dt Max. Voltage Rate of Change | 10000 | V/ μ s | (Rated V_R) |
| V_{RMS} Insulation Voltage | 1000 | V | |

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

Thermal-Mechanical Specifications

| Parameters | 208CMQ | Units | Conditions |
|---|-------------------|--------------------|--------------------------------------|
| T_J Max. Junction Temperature Range | -55 to 150 | $^\circ\text{C}$ | |
| T_{stg} Max. Storage Temperature Range | -55 to 150 | $^\circ\text{C}$ | |
| R_{thJC} Max. Thermal Resistance Junction to Case (Per Leg) | 0.70 | $^\circ\text{C/W}$ | DC operation * See Fig. 4 |
| R_{thJC} Max. Thermal Resistance Junction to Case (Per Package) | 0.35 | $^\circ\text{C/W}$ | DC operation |
| R_{thCS} Typical Thermal Resistance, Case to Heatsink | 0.10 | $^\circ\text{C/W}$ | Mounting surface, smooth and greased |
| wt Approximate Weight | 79 (2.80) | g (oz.) | |
| T Mounting Torque | Min. | 24 (20) | Kg-cm (lbf-in) |
| | Max. | 35 (30) | |
| | Typ. | 13.5 (12) | |
| | Min. | 35 (30) | |
| | Max. | 46 (40) | |
| Case Style | TO-244AB Isolated | | Modified JEDEC |

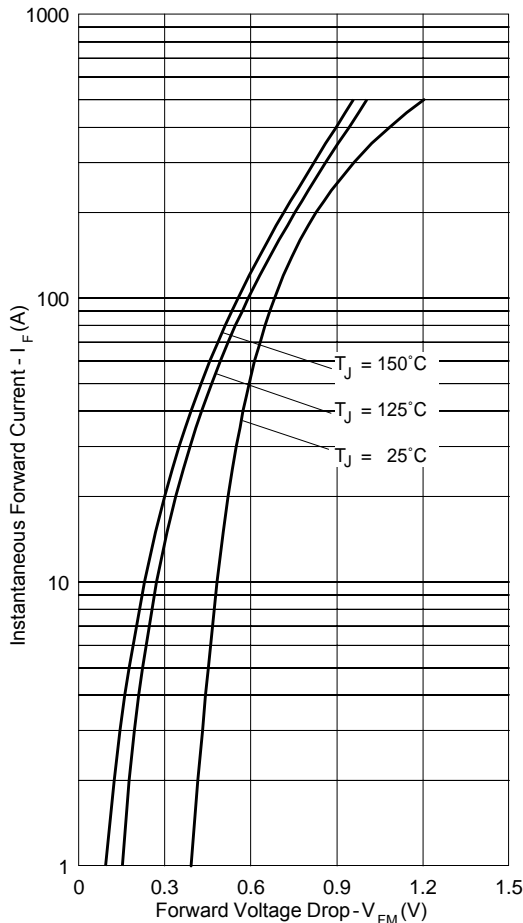


Fig. 1 - Max. Forward Voltage Drop Characteristics

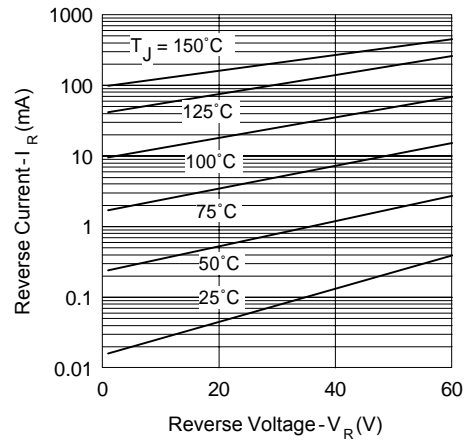


Fig. 2 - Typical Values Of Reverse Current Vs. Reverse Voltage

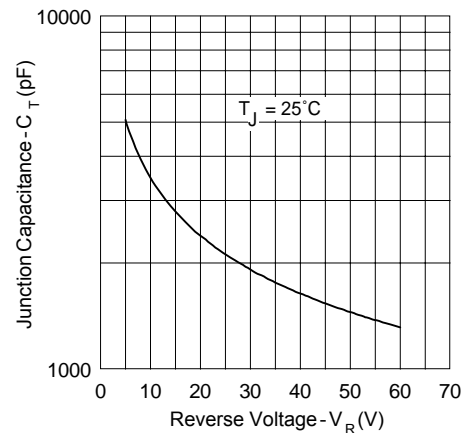


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage

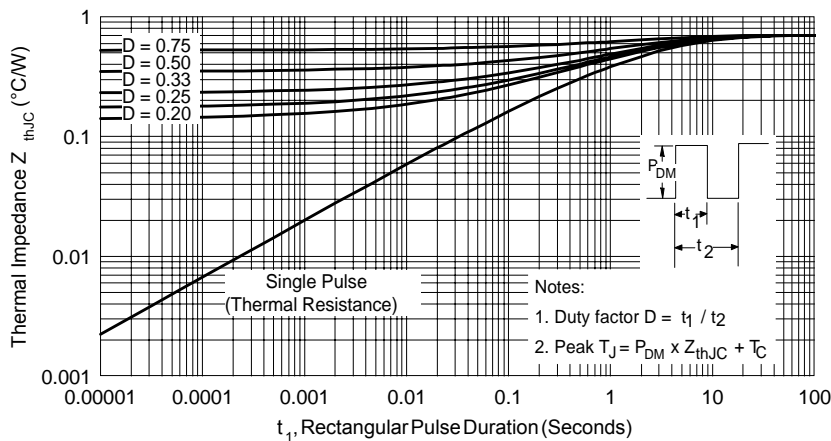


Fig. 4 - Max. Thermal Impedance Z_{thJC} Characteristics (Per Leg)

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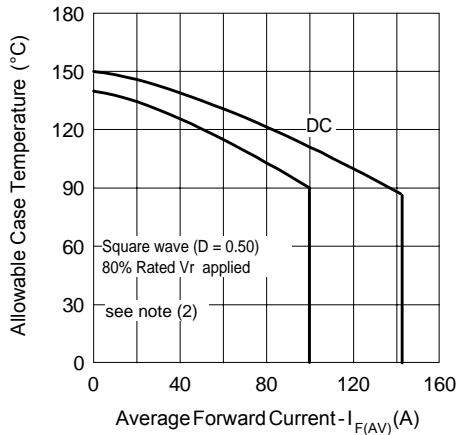


Fig. 5 - Max. Allowable Case Temperature Vs. Average Forward Current

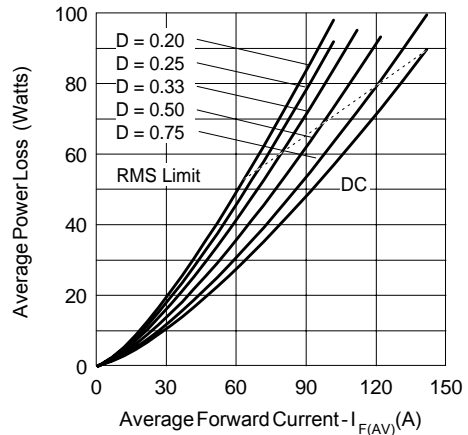


Fig. 6 - Forward Power Loss Characteristics

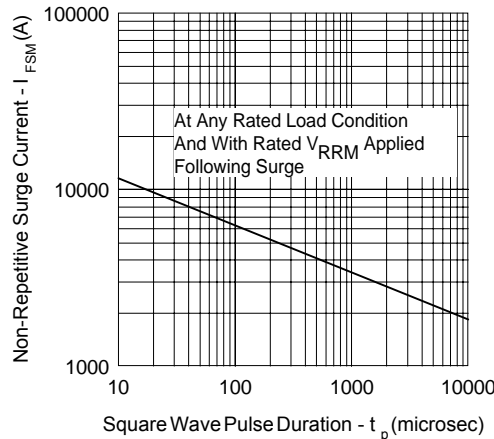


Fig. 7 - Max. Non-Repetitive Surge Current

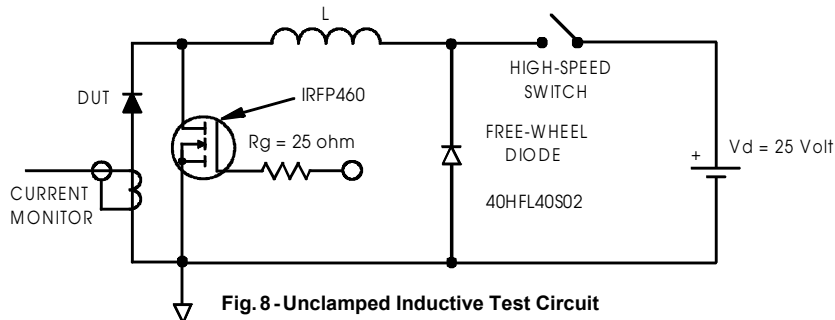


Fig. 8 - Unclamped Inductive Test Circuit

(2) Formula used: $T_C = T_J - (P_d + P_{d_{REV}}) \times R_{thJC}$
 $P_d = \text{Forward Power Loss} = I_{F(AV)} \times V_{FM} @ (I_{F(AV)} / D)$ (see Fig. 6);
 $P_{d_{REV}} = \text{Inverse Power Loss} = V_{R1} \times I_{R1} (1 - D)$; $I_{R1} @ V_{R1} = 80\% \text{ rated } V_R$

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Ordering Information Table

| Device Code | | | | |
|-------------|----------|----------------------|----------|------------|
| 208 | C | M | Q | 060 |
| ① | ② | ③ | ④ | ⑤ |
| 1 | - | Current Rating: 200A | | |
| 2 | - | Common Cathode | | |
| 3 | - | Module | | |
| 4 | - | Schottky Q Series | | |
| 5 | - | Voltage Rating: 60V | | |

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.

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IR WORLD HEADQUARTERS: 233 Kansas St., El Segundo, California 90245, USA Tel: (310) 252-7105
 TAC Fax: (310) 252-7309

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