

International
IOR Rectifier

MBRB3030CTL

SCHOTTKY RECTIFIER

30 Amp

$$I_{F(AV)} = 30\text{Amp}$$

$$V_R = 30\text{V}$$

Major Ratings and Characteristics

| Characteristics | Values | Units |
|---|------------|------------------|
| $I_{F(AV)}$ Rectangular waveform | 30 | A |
| V_{RRM} | 30 | V |
| I_{FSM} @ tp = 5 μ s sine | 1100 | A |
| V_F @ 15 Apk, $T_J = 125^\circ\text{C}$ (per leg) | 0.34 | V |
| T_J range | -55 to 150 | $^\circ\text{C}$ |

Description/Features

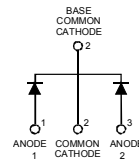
This center tap Schottky rectifier has been optimized for very low forward voltage drop, with moderate leakage. The proprietary barrier technology allows for reliable operation up to 150°C junction temperature. Typical applications are in switching power supplies, converters, free-wheeling diodes, and reverse battery protection.

- 150°C T_J operation
- Center tap configuration
- 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

Case Styles



D²PAK



Voltage Ratings

| Parameters | MBRB3030CTL |
|---|-------------|
| V_R Max. DC Reverse Voltage (V) | 30 |
| V_{RWM} Max. Working Peak Reverse Voltage (V) | |

Absolute Maximum Ratings

| Parameters | Values | Units | Conditions |
|---|--------|-------|--|
| $I_{F(AV)}$ Max. Average Forward Current (Per Leg) * See Fig. 5 (Per Device) | 15 | A | 50% duty cycle @ $T_C = 121^\circ\text{C}$, rectangular wave form |
| | 30 | | |
| I_{FSM} Max. Peak One Cycle Non-Repetitive Surge Current (Per Leg) * See Fig. 7 | 1100 | A | 5 μs Sine or 3 μs Rect. pulse |
| | 360 | | 10ms Sine or 6ms Rect. pulse |
| E_{AS} Non-Repetitive Avalanche Energy (Per Leg) | 13 | mJ | $T_J = 25^\circ\text{C}$, $I_{AS} = 3\text{Amps}$, $L = 2.9\text{mH}$ |
| I_{AR} Repetitive Avalanche Current (Per Leg) | 3 | 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 | Values | Units | Conditions |
|--|--------|------------------|---|
| V_{FM} Max. Forward Voltage Drop (Per Leg) * See Fig. 1 (1) | 0.44 | V | @ 15A |
| | 0.51 | V | @ 30A |
| | 0.34 | V | @ 15A |
| | 0.45 | V | @ 30A |
| I_{RM} Max. Reverse Leakage Current (Per Leg) * See Fig. 2 (1) | 2 | mA | $T_J = 25^\circ\text{C}$ |
| | 183 | mA | $T_J = 125^\circ\text{C}$ |
| $V_{F(TO)}$ Threshold Voltage | 0.22 | V | $T_J = T_J \text{ max.}$ |
| r_t Forward Slope Resistance | 6.76 | m Ω | |
| C_T Max. Junction Capacitance (Per Leg) | 2840 | pF | $V_R = 5V_{DC}$ (test signal range 100Khz to 1Mhz) 25°C |
| L_S Typical Series Inductance (Per Leg) | 8.0 | nH | Measured lead to lead 5mm from package body |
| 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 | Values | 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) | 2.0 | $^\circ\text{C/W}$ | DC operation |
| R_{thJC} Max. Thermal Resistance Junction to Case (Per Package) | 1.0 | $^\circ\text{C/W}$ | DC operation |
| R_{thCS} Typical Thermal Resistance, Case to Heatsink | 0.50 | $^\circ\text{C/W}$ | Mounting surface, smooth and greased (only for TO-220) |
| wt Approximate Weight | 2 (0.07) | g (oz.) | |
| T Mounting Torque | Min. | 6 (5) | Kg-cm (lbf-in) |
| | Max. | 12 (10) | |

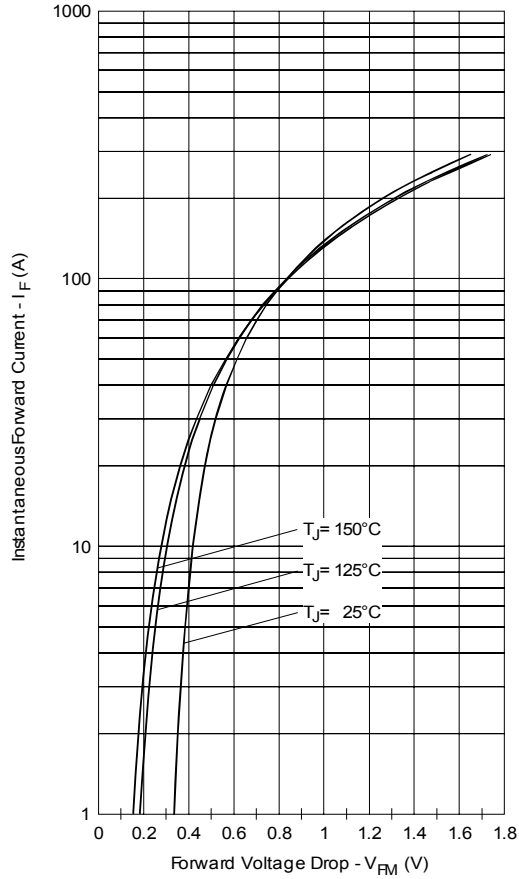


Fig. 1 - Max. Forward Voltage Drop Characteristics (Per Leg)

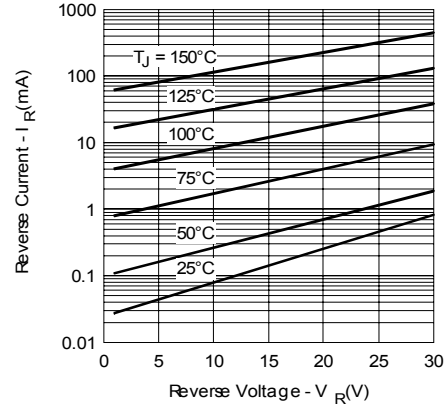


Fig. 2 - Typical Values Of Reverse Current Vs. Reverse Voltage (Per Leg)

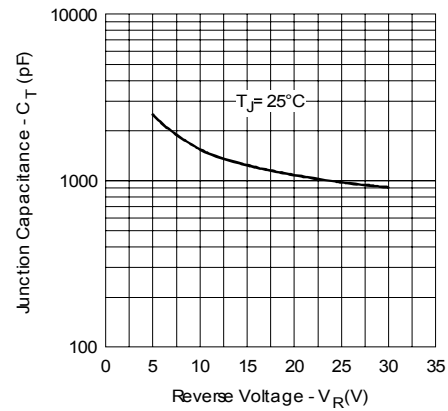


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage (Per Leg)

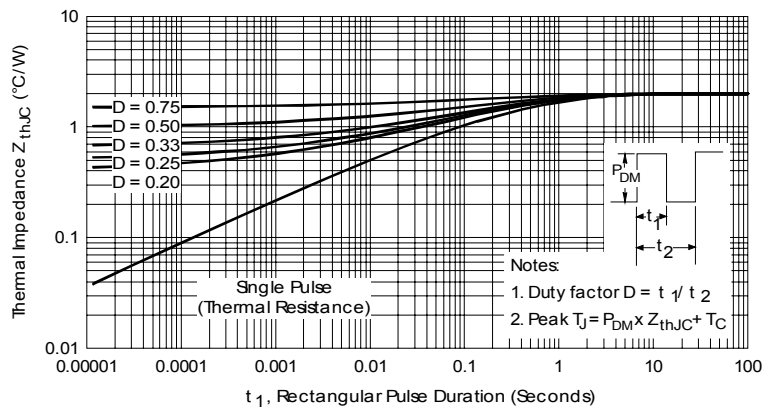


Fig. 4 - Max. Thermal Impedance Z_{thJC} Characteristics (Per Leg)

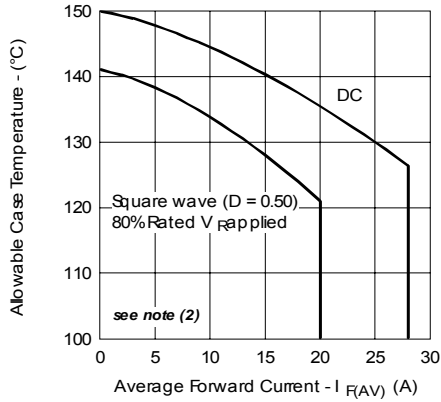


Fig. 5 - Max. Allowable Case Temperature Vs. Average Forward Current (Per Leg)

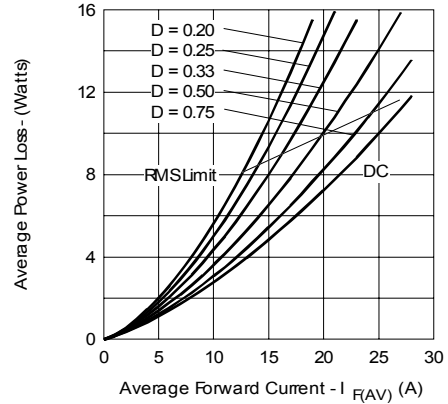


Fig. 6 - Forward Power Loss Characteristics (Per Leg)

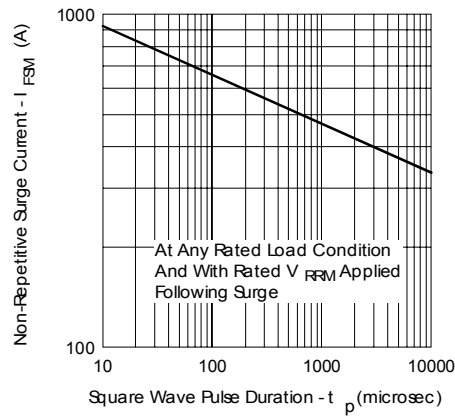


Fig. 7 - Max. Non-Repetitive Surge Current (Per Leg)

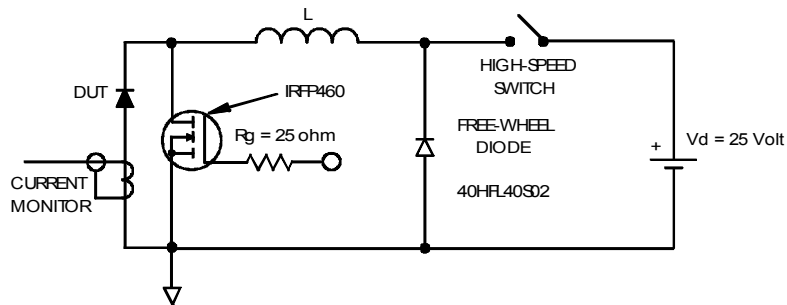
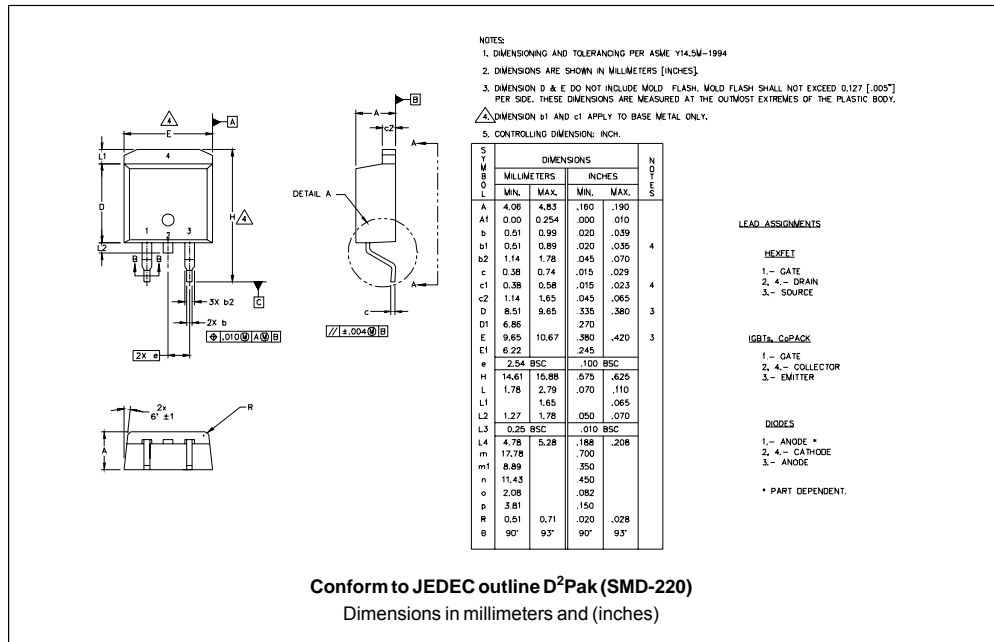


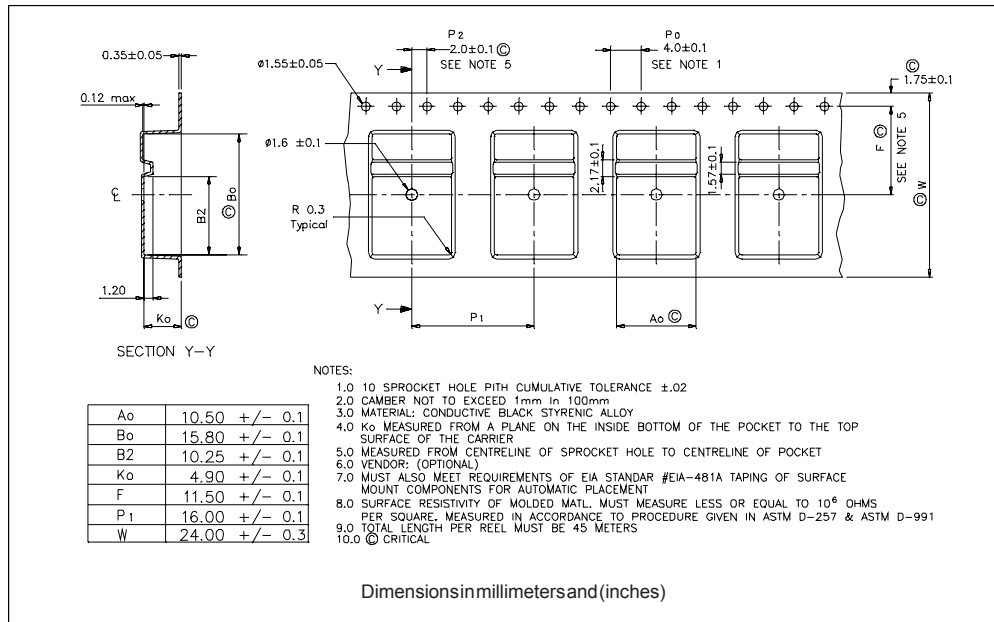
Fig. 8 - Unclamped Inductive Test Circuit

- (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);
 $P_{d_{REV}} = \text{Inverse Power Loss} = V_{R1} \times I_{R1} (1 - D)$; $I_{R1} @ V_{R1} = 10V$

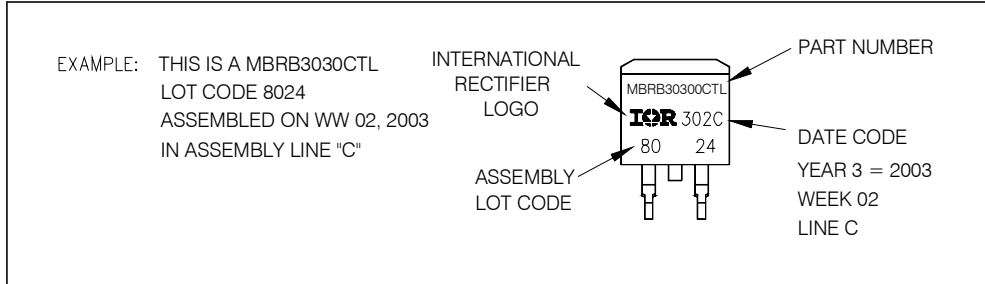
Outline Table



Tape & Reel Information



Part Marking Information



Ordering Information Table

| Device Code | MBR | B | 30 | 30 | CT | L | TRL | - |
|-------------|-----|--|----|----|----|---|-----|---|
| | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ | ⑧ |
| 1 | - | Schottky MBR Series | | | | | | |
| 2 | - | B = D ² PAK | | | | | | |
| 3 | - | Current Rating (30 = 30A) | | | | | | |
| 4 | - | Voltage Rating (30 = 30V) | | | | | | |
| 5 | - | CT = Center Tap (Dual) | | | | | | |
| 6 | - | L = Low V _F | | | | | | |
| 7 | - | <ul style="list-style-type: none"> • none = Tube (50 pieces) • TRL = Tape & Reel (Left Oriented - for D²Pak only) • TRR = Tape & Reel (Right Oriented - for D²Pak only) | | | | | | |
| 8 | - | <ul style="list-style-type: none"> • none = Standard Production • PbF = Lead-Free | | | | | | |

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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