



# MBRD2040 THRU MBRD20200

## SCHOTTKY BARRIER RECTIFIERS

REVERSE VOLTAGE - **40 to 200** Volts

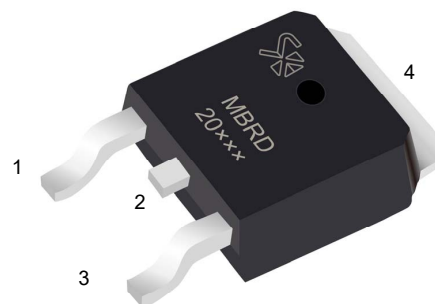
FORWARD CURRENT - **20.0** Amperes

### FEATURES

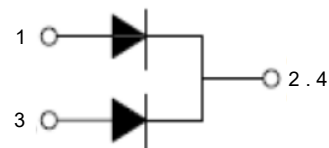
- High current capability
- Low forward voltage drop
- Low power loss, high efficiency
- High surge capability
- High temperature soldering guaranteed
- Mounting position: any

### MECHANICAL DATA

- Case: TO-252
- Approx. Weight: 0.329g ( 0.011oz)
- Lead free finish, RoHS compliant
- Case Material: "Green" molding compound, UL flammability classification 94V-0, "Halogen-free".



TO-252(D-PAK)



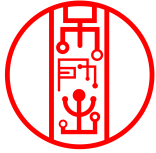
### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

| Parameter                                                                                                       | TO-252                               | MBRD2040   | MBRD2045 | MBRD2060 | MBRD20100  | MBRD20150  | MBRD20200 | Units |
|-----------------------------------------------------------------------------------------------------------------|--------------------------------------|------------|----------|----------|------------|------------|-----------|-------|
| Maximum Recurrent Peak Reverse Voltage                                                                          | V <sub>RRM</sub>                     | 40         | 45       | 60       | 100        | 150        | 200       | V     |
| Maximum RMS voltage                                                                                             | V <sub>RMS</sub>                     | 28         | 32       | 42       | 70         | 105        | 140       | V     |
| Maximum DC Blocking Voltage                                                                                     | V <sub>DC</sub>                      | 40         | 45       | 60       | 100        | 150        | 200       | V     |
| Maximum Average Forward Rectified Current<br>Per leg<br>Per device                                              | I <sub>F(AV)</sub>                   | 10<br>20   |          |          |            |            |           | A     |
| Peak Forward Surge Current,8.3ms<br>Single Half Sine-wave Superimposed<br>on Rated Load (JEDEC method)(Per leg) | I <sub>FSM</sub>                     | 130        |          |          |            |            |           | A     |
| Max Instantaneous Forward Voltage at 10 A DC per leg                                                            | V <sub>F</sub>                       | 0.70       |          | 0.75     | 0.85       | 0.90       | 0.92      | V     |
| Maximum DC Reverse Current T <sub>J</sub> = 25°C<br>at Rated DC Reverse Voltage T <sub>J</sub> =125°C           | I <sub>R</sub>                       | 0.1<br>20  |          |          | 0.05<br>20 |            |           | mA    |
| Typical Junction Capacitance <sup>(1)</sup>                                                                     | C <sub>j</sub>                       | 600        |          | 400      |            |            |           | pF    |
| Typical Thermal Resistance <sup>(2)</sup>                                                                       | R <sub>θJA</sub><br>R <sub>θJC</sub> | 35<br>10   |          |          |            |            |           | °C/W  |
| Operating Junction Temperature Range                                                                            | T <sub>j</sub>                       | -55 ~ +150 |          |          |            | -55 ~ +175 |           | °C    |
| Storage Temperature Range                                                                                       | T <sub>stg</sub>                     | -55 ~ +150 |          |          |            | -55 ~ +175 |           | °C    |

( 1 ) Measured at 1 MHz and applied reverse voltage of 4 V D.C

( 2 ) P.C.B. mounted with 3.81X3.81cm copper pad areas.



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Fig.1 Typical Forward Current Derating Curve

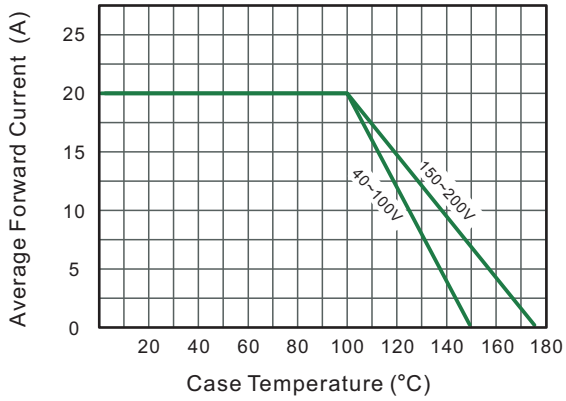


Fig.2 Typical Reverse Characteristics

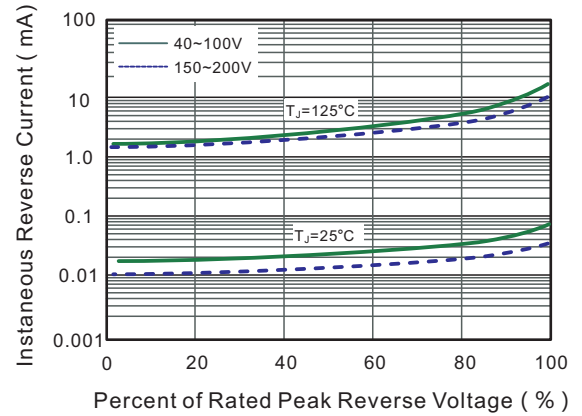


Fig.3 Typical Forward Characteristics

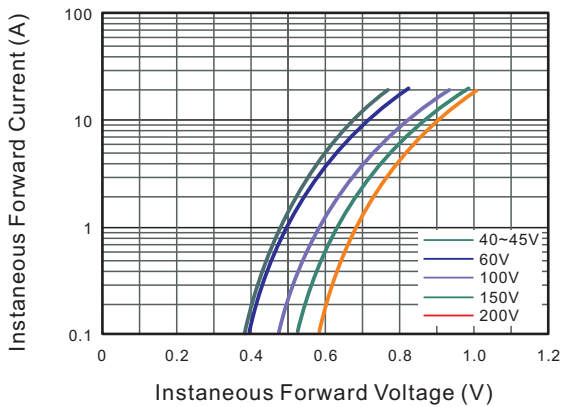


Fig.4 Typical Junction Capacitance

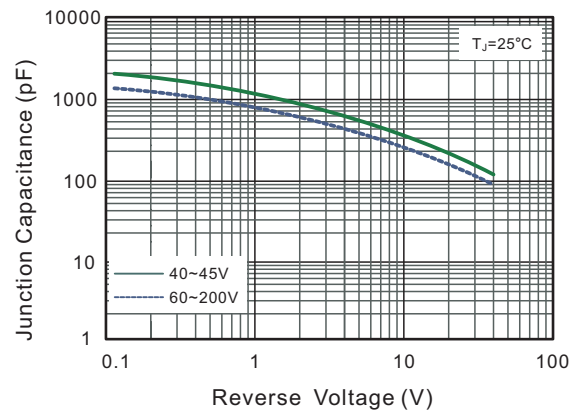


Fig.5 Maximum Non-Repetitive Peak Forward Surge Current

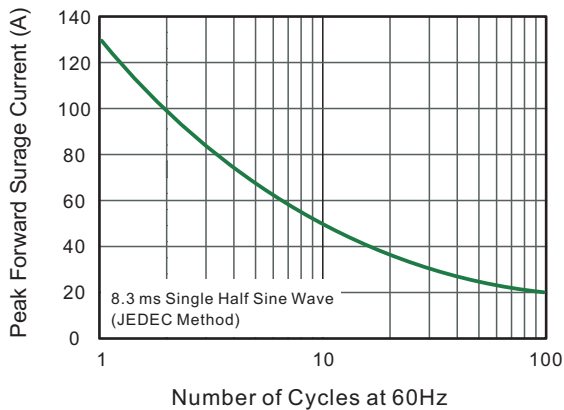
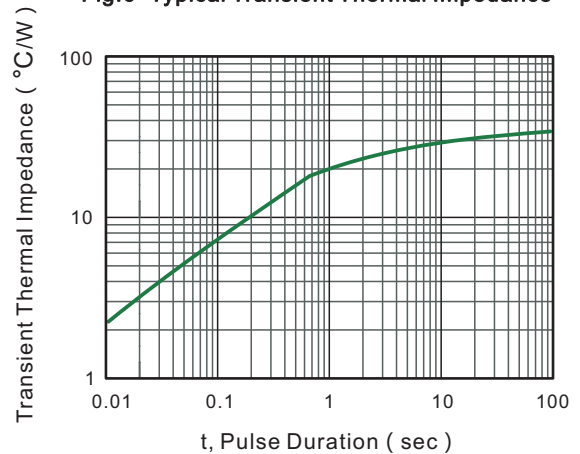
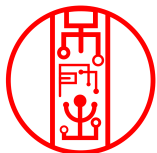


Fig.6- Typical Transient Thermal Impedance

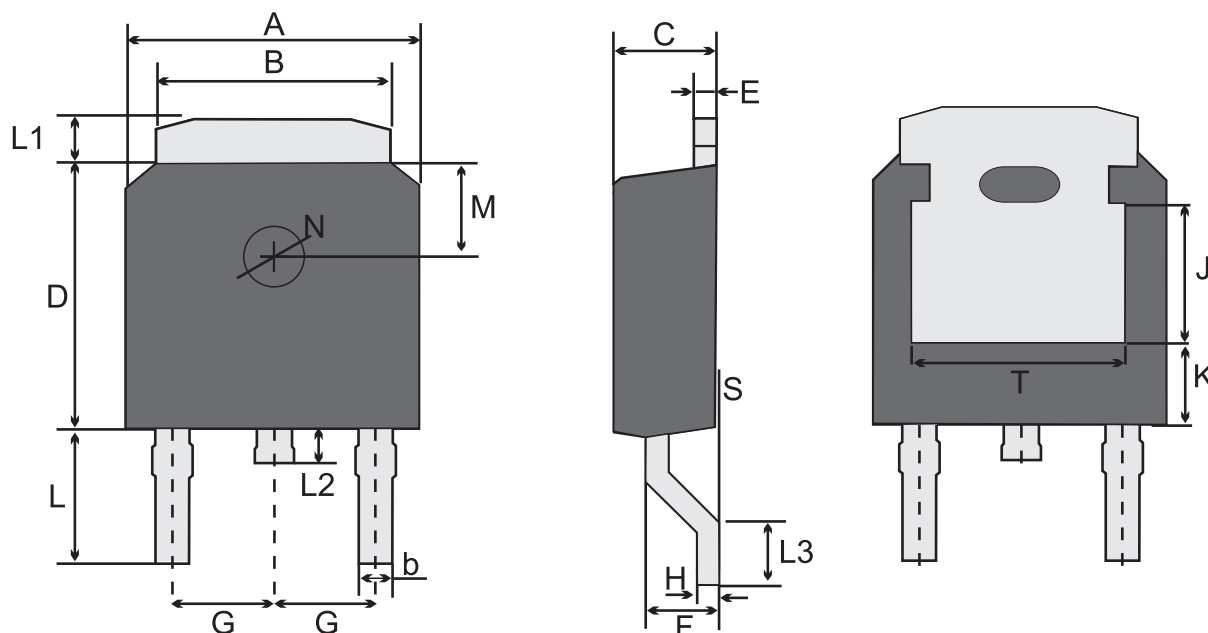




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## PACKAGE OUTLINE

TO-252(D-PAK)



TO-252 (D-PAK) Mechanical data

| UNIT |     | A   | B    | b    | C   | D   | E    | F    | G           | H    | L   | L1  | L2  | L3   | S    | M           | N           | J           | T            | K           |
|------|-----|-----|------|------|-----|-----|------|------|-------------|------|-----|-----|-----|------|------|-------------|-------------|-------------|--------------|-------------|
| mm   | max | 6.7 | 5.53 | 0.86 | 2.5 | 6.3 | 0.61 | 1.87 | 2.3<br>typ. | 0.55 | 3.0 | 1.2 | 1.0 | 1.75 | 0.23 | 1.8<br>typ. | 1.3<br>typ. | 3.2<br>ref. | 4.83<br>ref. | 1.8<br>ref. |
|      | typ | 6.6 | 5.33 | 0.76 | 2.3 | 6.1 | 0.51 | 1.57 |             | 0.50 | 2.8 | 1.0 | 0.8 | 1.30 | 0.15 |             |             |             |              |             |
|      | min | 6.3 | 5.13 | 0.66 | 2.1 | 5.9 | 0.41 | 1.27 |             | 0.45 | 2.6 | 0.8 | 0.6 | 1.0  | /    |             |             |             |              |             |
| mil  | max | 264 | 218  | 34   | 98  | 248 | 24   | 74   | 91<br>typ.  | 22   | 118 | 47  | 39  | 69   | 9.1  | 71<br>typ.  | 51<br>typ.  | 126<br>ref. | 190<br>ref.  | 71<br>ref.  |
|      | typ | 260 | 210  | 30   | 91  | 240 | 20   | 62   |             | 20   | 110 | 39  | 31  | 51   | 5.9  |             |             |             |              |             |
|      | min | 248 | 202  | 26   | 83  | 232 | 16   | 50   |             | 18   | 102 | 31  | 24  | 39   | /    |             |             |             |              |             |