



# MER3DMB-AU

## Surface Mount Super Fast Recovery Rectifier

**Voltage** 200 V **Current** 3 A

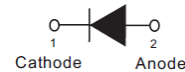
### Features

- Superfast recovery times-epitaxial construction
- Low forward voltage, high current capability
- Low leakage
- Plastic package has Underwriters Laboratory Flammability Classification 94V-O
- AEC-Q101 qualified
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

### Mechanical Data

- Case : SMB Package
- Terminals : Solderable per MIL-STD-750, Method 2026
- Approx. Weight : 0.092 grams

### SMB



### Maximum Ratings and Thermal Characteristics (T<sub>A</sub> = 25 °C unless otherwise noted)

| PARAMETER                                                                            | SYMBOL                    | LIMIT   | UNITS |
|--------------------------------------------------------------------------------------|---------------------------|---------|-------|
| Maximum Repetitive Peak Reverse Voltage                                              | V <sub>RRM</sub>          | 200     | V     |
| Maximum RMS Voltage                                                                  | V <sub>RMS</sub>          | 140     | V     |
| Maximum DC Blocking Voltage                                                          | V <sub>DC</sub>           | 200     | V     |
| Maximum Average Forward Current                                                      | I <sub>F(AV)</sub>        | 3       | A     |
| Peak Forward Surge Current : 8.3 ms Single Half Sine-Wave Superimposed On Rated Load | I <sub>FSM</sub>          | 75      | A     |
| Typical Junction Capacitance<br>Measured at 1 MHz And Applied V <sub>R</sub> = 4 V   | C <sub>J</sub>            | 31      | pF    |
| Typical Thermal Resistance                                                           | (Note 1) R <sub>θJA</sub> | 135     | °C/W  |
|                                                                                      | (Note 2) R <sub>θJC</sub> | 14      |       |
|                                                                                      | (Note 2) R <sub>θJL</sub> | 17      |       |
| Operating Junction Temperature Range                                                 | T <sub>J</sub>            | -55~175 | °C    |
| Storage Temperature Range                                                            | T <sub>STG</sub>          | -55~175 | °C    |



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## Electrical Characteristics ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

| PARAMETER               | SYMBOL    | TEST CONDITION                                                                              | MIN.                      | TYP. | MAX. | UNITS |
|-------------------------|-----------|---------------------------------------------------------------------------------------------|---------------------------|------|------|-------|
| Forward Voltage         | $V_F$     | $I_F = 1\text{ A}, T_J = 25^\circ\text{C}$                                                  | -                         | 0.79 | -    | V     |
|                         |           | $I_F = 2\text{ A}, T_J = 25^\circ\text{C}$                                                  | -                         | 0.85 | -    | V     |
|                         |           | $I_F = 3\text{ A}, T_J = 25^\circ\text{C}$                                                  | -                         | -    | 0.95 | V     |
|                         |           | $I_F = 1\text{ A}, T_J = 125^\circ\text{C}$                                                 | -                         | 0.65 | -    | V     |
|                         |           | $I_F = 2\text{ A}, T_J = 125^\circ\text{C}$                                                 | -                         | 0.73 | -    | V     |
|                         |           | $I_F = 3\text{ A}, T_J = 125^\circ\text{C}$                                                 | -                         | 0.78 | -    | V     |
| Reverse Current         | $I_R$     | $V_R = 160\text{ V}, T_J = 25^\circ\text{C}$                                                | -                         | 3    | -    | nA    |
|                         |           | $V_R = 200\text{ V}, T_J = 25^\circ\text{C}$                                                | -                         | -    | 1    | uA    |
|                         |           | $V_R = 200\text{ V}, T_J = 125^\circ\text{C}$                                               | -                         | -    | 50   |       |
| Reverse Recovery Time   | $T_{RR}$  | $I_F = 0.5\text{ A}, I_R = 1\text{ A},$<br>$I_{RR} = 0.25\text{ A}, T_J = 25^\circ\text{C}$ | -                         | -    | 35   | ns    |
| Reverse Recovery Time   | $T_{RR}$  | $I_F = 3\text{ A}, V_R = 200\text{ V}$<br>$di/dt = 300\text{ A/uS}$                         | -                         | 20   | -    | ns    |
| Peak Recovery Current   | $I_{RRM}$ |                                                                                             | -                         | 4.6  | -    | A     |
| Reverse Recovery Charge | $Q_{RR}$  | $T_J = 25^\circ\text{C}$                                                                    | -                         | 52   | -    | nC    |
| Reverse Recovery Time   | $T_{RR}$  | $I_F = 3\text{ A}, V_R = 200\text{ V}$<br>$di/dt = 300\text{ A/uS}$                         | -                         | 30   | -    | ns    |
| Peak Recovery Current   | $I_{RRM}$ |                                                                                             | -                         | 6.9  | -    | A     |
| Reverse Recovery Charge | $Q_{RR}$  |                                                                                             | $T_J = 125^\circ\text{C}$ | -    | 110  | -     |

**NOTES :**

1. Mounted on a FR4 PCB, single-sided copper, standard footprint.
2. Mounted on a FR4 PCB, single-sided copper, with 100 cm<sup>2</sup> copper pad area.



# MER3DMB-AU

## TYPICAL CHARACTERISTIC CURVES

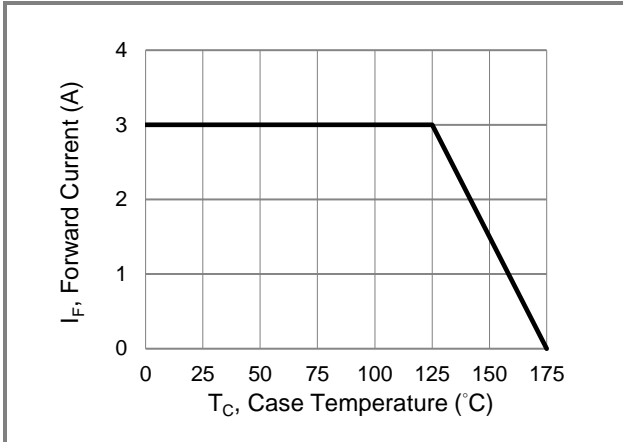


Fig.1 Forward Current Derating Curve

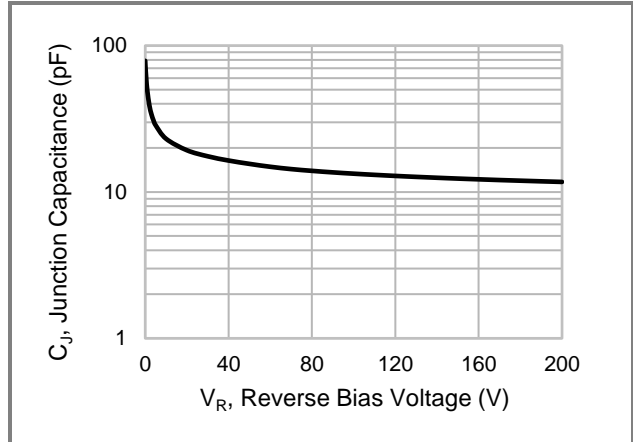


Fig.2 Typical Junction Capacitance

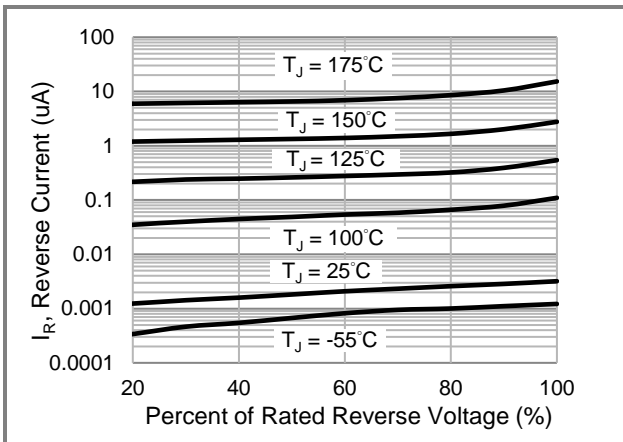


Fig.3 Typical Reverse Characteristics

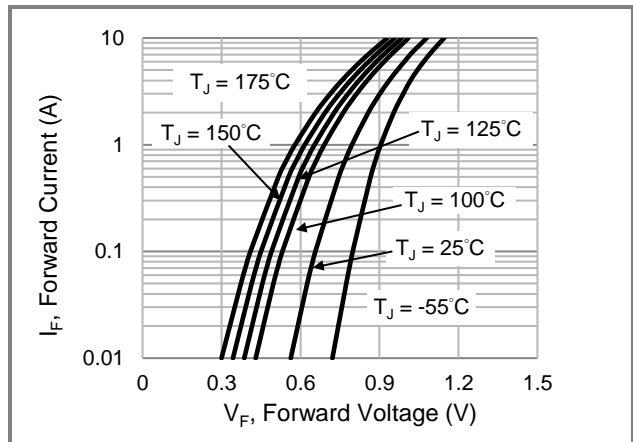


Fig.4 Typical Forward Characteristics

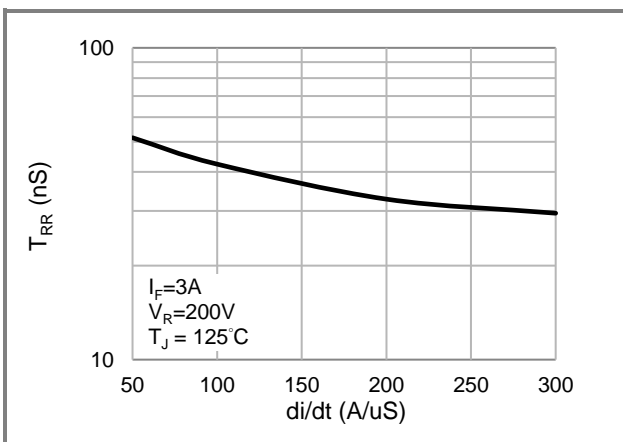


Fig.5 Typical Reverse Recovery Time Versus di/dt

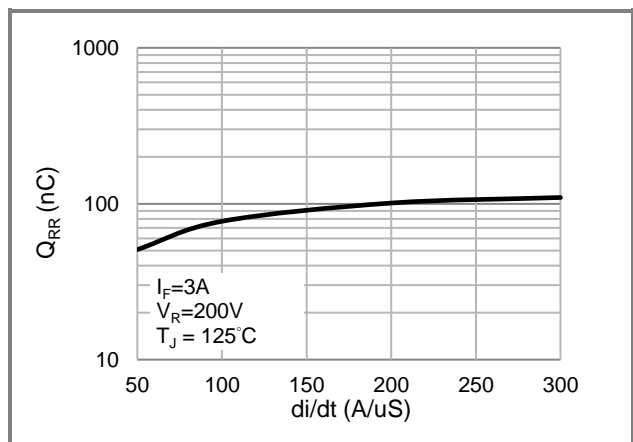


Fig.6 Typical Reverse Recovery Charge Versus di/dt

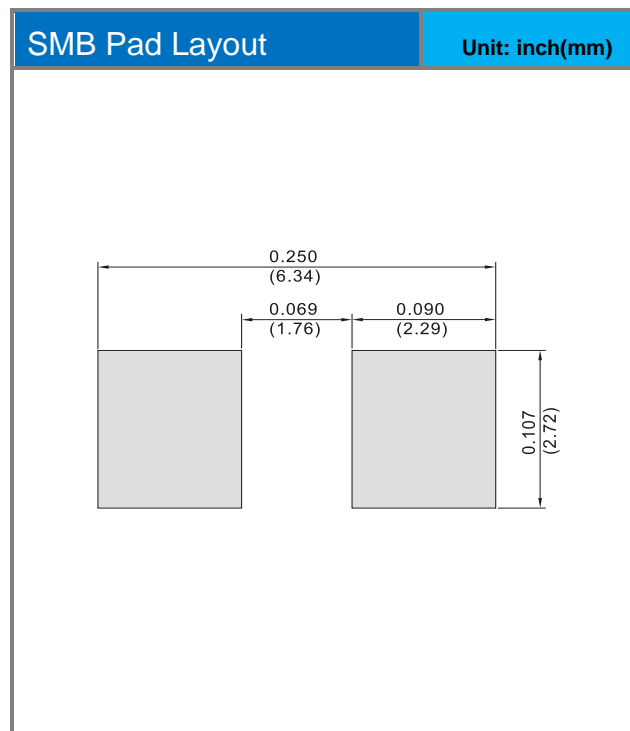
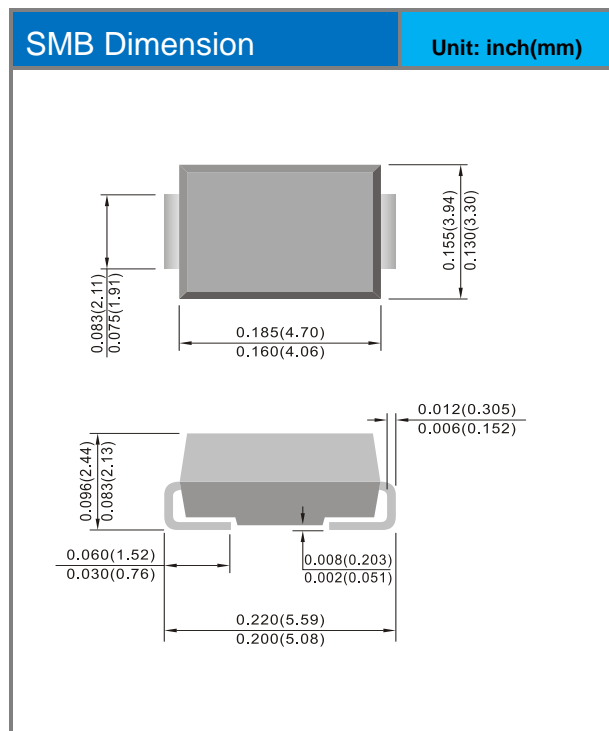


# MER3DMB-AU

Part No. Packing Code Version

| Part No. Packing Code | Package Type | Packing Type      | Marking | Version                        |
|-----------------------|--------------|-------------------|---------|--------------------------------|
| MER3DMB-AU_R2_006A1   | SMB          | 3K pcs / 13" reel | MER3DB  | Halogen free<br>RoHS compliant |

## Packaging Information & Mounting Pad Layout





## MER3DMB-AU

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