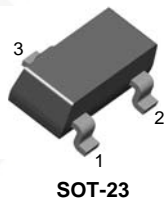


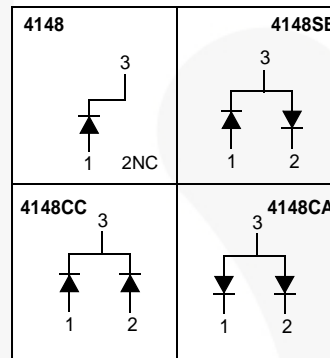


November 2014

# MMBD4148 / MMBD4148SE / MMBD4148CC / MMBD4148CA Small Signal Diode



Connection Diagram



## Ordering Information

| Part Number   | Top Mark | Package   | Packing Method |
|---------------|----------|-----------|----------------|
| MMBD4148      | 5H       | SOT-23 3L | Tape and Reel  |
| MMBD4148_D87Z | 5H       | SOT-23 3L | Tape and Reel  |
| MMBD4148SE    | D4       | SOT-23 3L | Tape and Reel  |
| MMBD4148CC    | D5       | SOT-23 3L | Tape and Reel  |
| MMBD4148CA    | D6       | SOT-23 3L | Tape and Reel  |

## Absolute Maximum Ratings

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

| Symbol      | Parameter                                 |                               | Value       | Unit             |
|-------------|---|-------------------------------|-------------|------------------|
| $V_{RRM}$   | Maximum Repetitive Reverse Voltage        |                               | 100         | V                |
| $I_{F(AV)}$ | Average Rectified Forward Current         |                               | 200         | mA               |
| $I_{FSM}$   | Non-Repetitive Peak Forward Surge Current | Pulse Width = 1.0 second      | 1.0         | A                |
|             |   | Pulse Width = 1.0 microsecond | 2.0         |                  |
| $T_{STG}$   | Storage Temperature Range                 |                               | -55 to +150 | $^\circ\text{C}$ |
| $T_J$       | Operating Junction Temperature            |                               | 150         | $^\circ\text{C}$ |

MMBD4148 / MMBD4148SE / MMBD4148CC / MMBD4148CA — Small Signal Diode

## Thermal Characteristics

Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

| Symbol          | Parameter                               | Value | Unit                      |
|-----------------|---|-------|---------------------------|
| $P_D$           | Power Dissipation                       | 350   | mW                        |
| $R_{\theta JA}$ | Thermal Resistance, Junction-to-Ambient | 357   | $^\circ\text{C}/\text{W}$ |

## Electrical Characteristics

Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

| Symbol   | Parameter               | Conditions  | Min. | Max. | Unit          |
|----------|-------------------------|---|------|------|---------------|
| $V_R$    | Breakdown Voltage       | $I_R = 5.0 \mu\text{A}$   | 75   |      | V             |
|          |                         | $I_R = 100 \mu\text{A}$   | 100  |      |               |
| $V_F$    | Forward Voltage         | $I_F = 10 \text{ mA}$   |      | 1.0  | V             |
| $I_R$    | Reverse Leakage Current | $V_R = 20 \text{ V}$  |      | 25   | nA            |
|          |                         | $V_R = 20 \text{ V}, T_A = 150^\circ\text{C}$   |      | 50   | $\mu\text{A}$ |
|          |                         | $V_R = 75 \text{ V}$  |      | 5.0  | $\mu\text{A}$ |
| $C_T$    | Total Capacitance       | $V_R = 0 \text{ V}, f = 1.0 \text{ MHz}$  |      | 4.0  | pF            |
| $t_{rr}$ | Reverse Recovery Time   | $I_F = 10 \text{ mA}, V_R = 6.0 \text{ V}, I_{RR} = 1.0 \text{ mA}, R_L = 100 \Omega$ |      | 4.0  | ns            |

## Typical Performance Characteristics

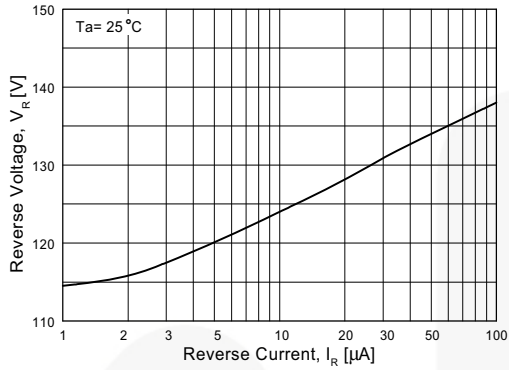


Figure 1. Reverse Voltage vs. Reverse Current  
BV - 1.0 to 100  $\mu$ A

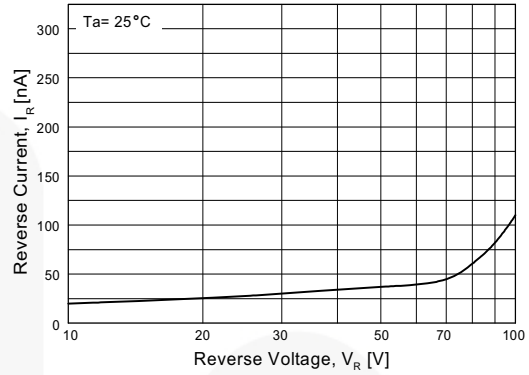


Figure 2. Reverse Current vs. Reverse Voltage  
IR - 10 to 100 V

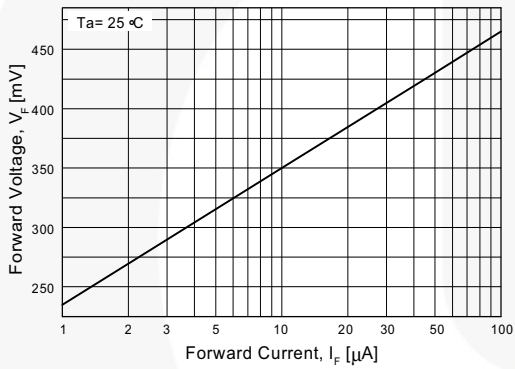


Figure 3. Forward Voltage vs. Forward Current  
VF - 1.0 to 100  $\mu$ A

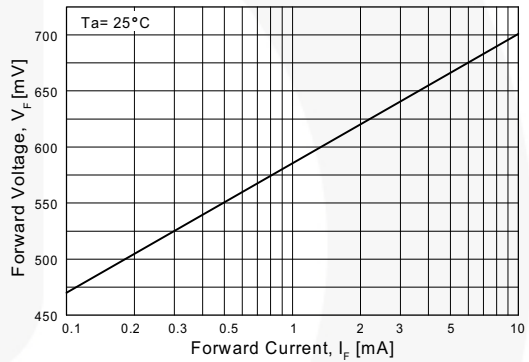


Figure 4. Forward Voltage vs. Forward Current  
VF - 0.1 to 10 mA

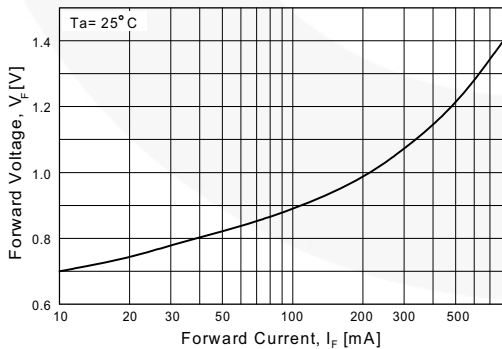


Figure 5. Forward Voltage vs. Forward Current  
VF - 10 to 800 mA

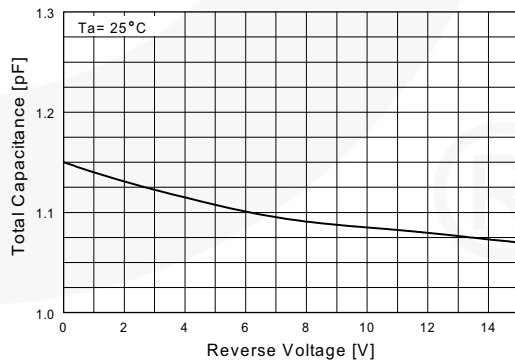


Figure 6. Total Capacitance vs. Reverse Voltage

Typical Performance Characteristics (Continued)

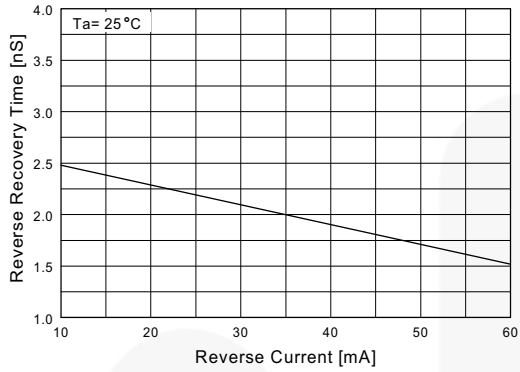


Figure 7. Reverse Recovery Time vs. Reverse Current  
TRR - IR 10 mA to 60 mA

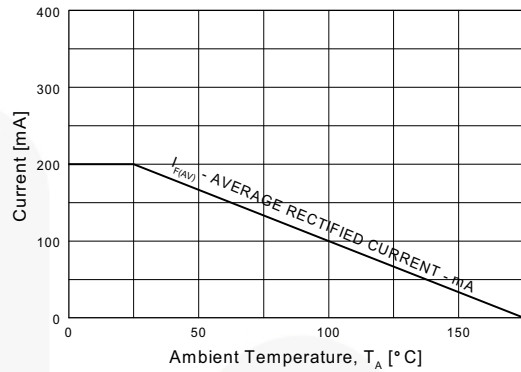


Figure 8. Average Rectified Current ( $I_{F(AV)}$ )  
vs. Ambient Temperature ( $T_A$ )

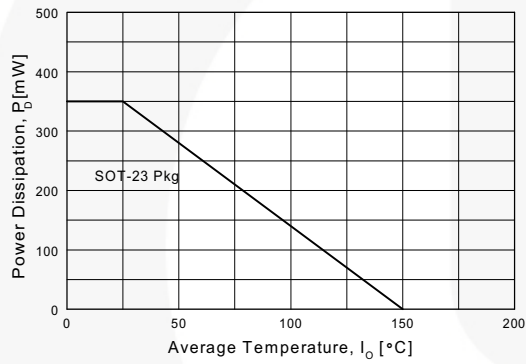
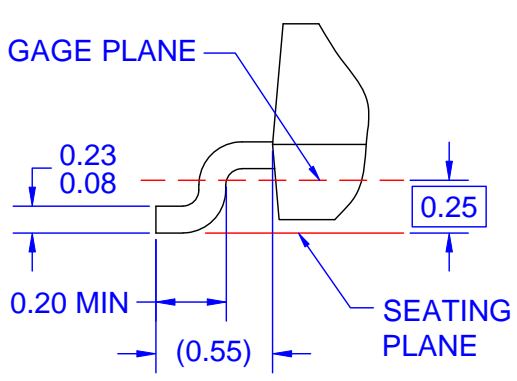
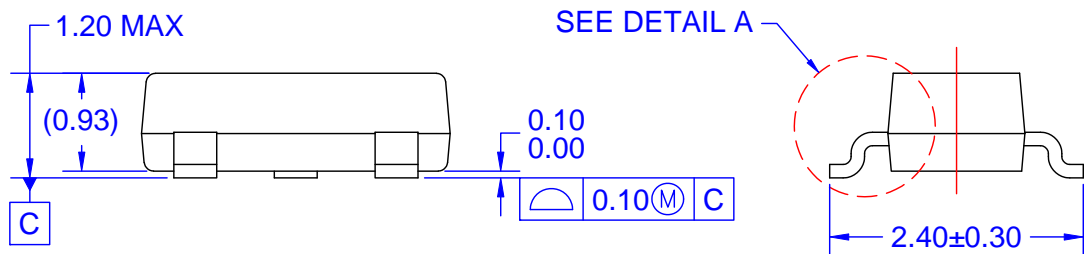


Figure 9. Power Derating Curve



**DETAIL A**  
 SCALE: 2X

- NOTES: UNLESS OTHERWISE SPECIFIED
- A) REFERENCE JEDEC REGISTRATION TO-236, VARIATION AB, ISSUE H.
  - B) ALL DIMENSIONS ARE IN MILLIMETERS.
  - C) DIMENSIONS ARE INCLUSIVE OF BURRS, MOLD FLASH AND TIE BAR EXTRUSIONS.
  - D) DIMENSIONING AND TOLERANCING PER ASME Y14.5M - 1994.
  - E) DRAWING FILE NAME: MA03DREV10



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| CorePOWER™               | GTO™   | Quiet Series™                         | TinyPWM™         |
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| EfficientMax™            | MicroPak™                                      | SPM®                                  | Ultra FRFET™     |
| ESBC™                    | MicroPak2™                                     | STEALTH™                              | UniFET™          |
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| FastvCore™               | mWSaver®                                       | Sync-Lock™                            |                  |
| FETBench™                | OptoHiT™                                       |                                       |                  |
| FPS™                     | OPTOLOGIC®                                     |                                       |                  |

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