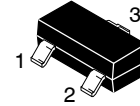


Small Signal Diode

MMBD4148SE, MMBD4148CC, MMBD4148CA



SOT-23 (TO-236)
CASE 318-08

Features

- These are Pb-Free Devices

MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)

| Rating | Symbol | Value | Unit |
|--|--------------------|-------------|------|
| Maximum Repetitive Reverse Voltage | V _{RRM} | 100 | V |
| Average Rectified Forward Current | I _{F(AV)} | 200 | mA |
| Non-Repetitive Peak Forward Surge Current Pulse Width = 1.0 s Pulse Width = 1.0 μs | I _{FSM} | 1.0 2.0 | A |
| Operating Junction Temperature Range | T _J | -55 to +150 | °C |
| Storage Temperature Range | T _{STG} | -55 to +150 | °C |

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

THERMAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

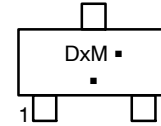
| Characteristic | Symbol | Value | Unit |
|---|------------------|-------|------|
| Power Dissipation | P _D | 350 | mW |
| Thermal Resistance, Junction-to-Ambient | R _{θJA} | 357 | °C/W |

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

| Characteristic | Symbol | Min | Typ | Max | Unit |
|--|-----------------|-------------|-------------|-----------------|----------------|
| Breakdown Voltage I _R = 5.0 μA I _R = 100 μA | V _R | 75 100 | - - | - - | V |
| Forward Voltage I _F = 10 mA | V _F | - | - | 1.0 | V |
| Reverse Leakage Current V _R = 20 V V _R = 20 V, T _A = 150°C V _R = 75 V | I _R | - - - | - - - | 25 50 5.0 | nA μA μA |
| Total Capacitance V _R = 0 V, f = 1.0 MHz | C _T | - | - | 4.0 | pF |
| Reverse Recovery Time I _F = 10 mA, V _R = 6.0 V, I _{RR} = 1.0 mA, R _L = 100 Ω | t _{rr} | - | - | 4.0 | ns |

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

MARKING DIAGRAM

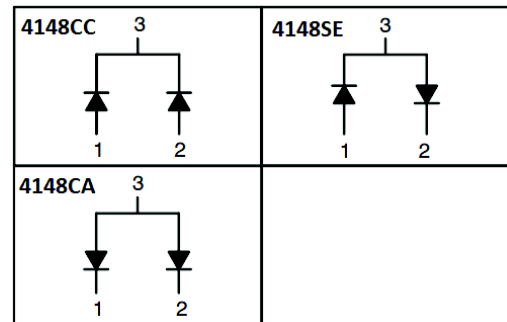


Dx = Device Code
x = 4, 5, 6

M = Assembly Operation Month
▪ = Pb-Free Package

(Note: Microdot may be in either location)

CONNECTION DIAGRAMS



ORDERING INFORMATION

See detailed ordering and shipping information on page 4 of this data sheet.

TYPICAL PERFORMANCE CHARACTERISTICS

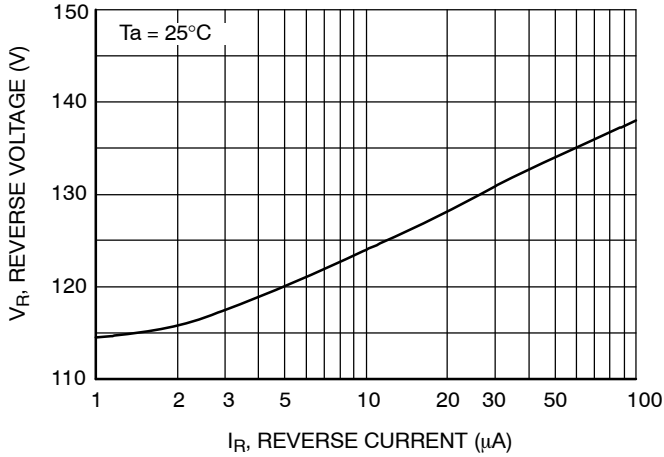


Figure 1. Reverse Voltage vs. Reverse Current
BV – 1.0 to 100 μ A

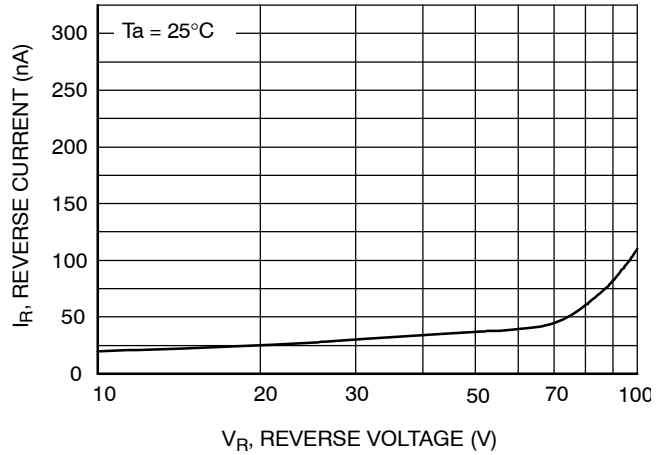


Figure 2. Reverse Current vs. Reverse Voltage
IR – 10 to 100 V

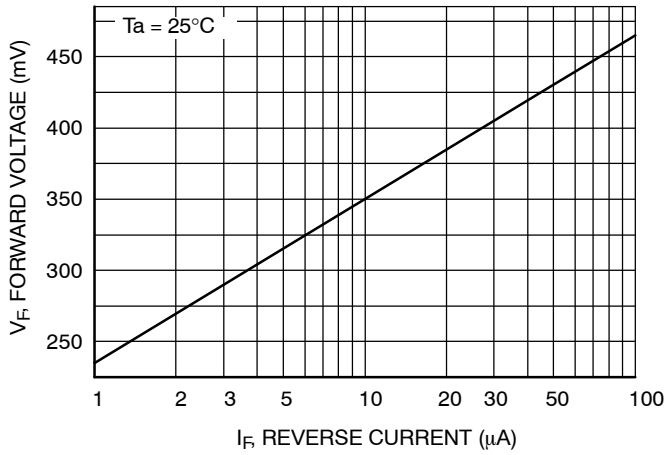


Figure 3. Forward Voltage vs. Forward Current
VF – 1.0 to 100 μ A

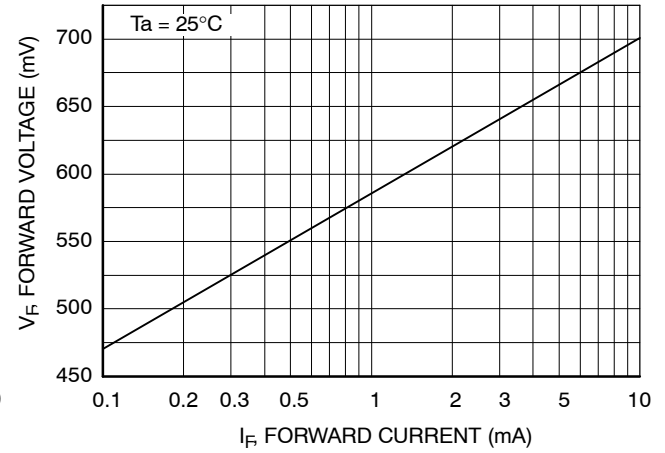


Figure 4. Forward Voltage vs. Forward Current
VF – 0.1 to 10 mA

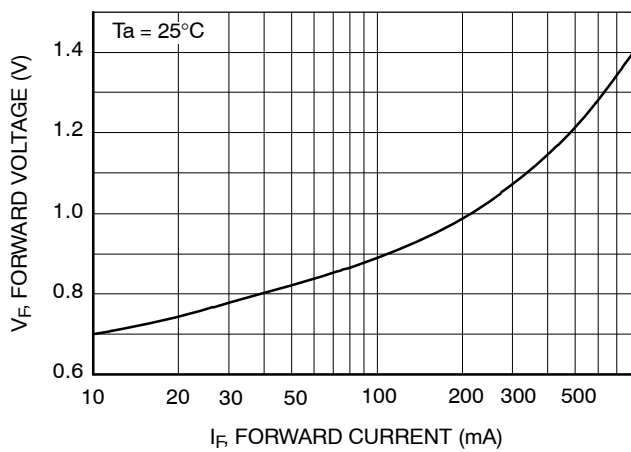


Figure 5. Forward Voltage vs. Forward Current
VF – 10 to 800 mA

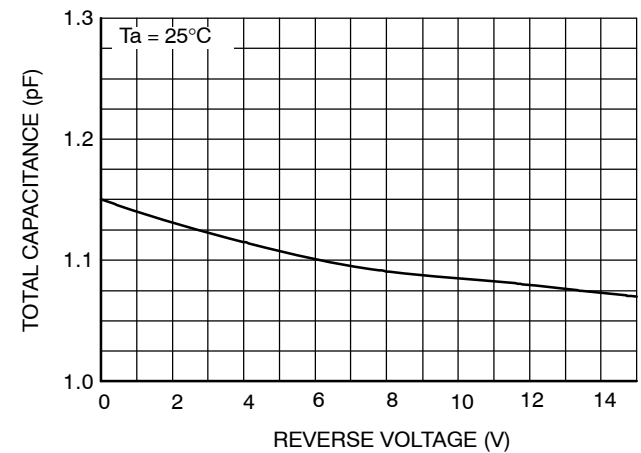


Figure 6. Total Capacitance vs. Reverse Voltage

MMBD4148SE, MMBD4148CC, MMBD4148CA

TYPICAL PERFORMANCE CHARACTERISTICS (Continued)

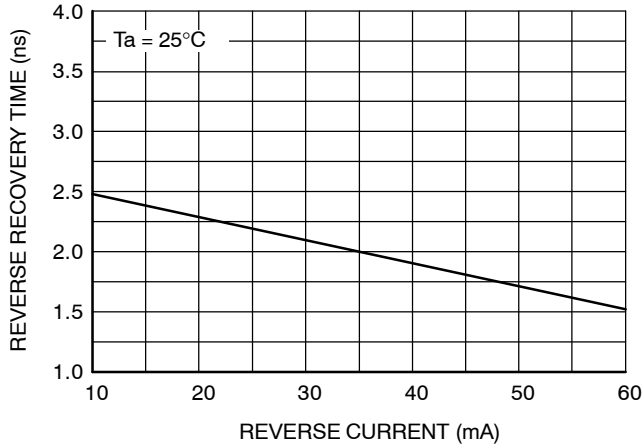


Figure 7. Reverse Recovery Time vs. Reverse Current
TRR - IR 10 mA to 60 mA

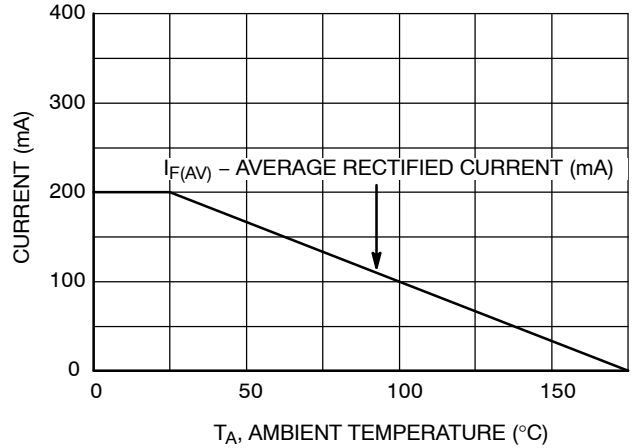


Figure 8. Average Rectified Current ($I_{F(AV)}$)
vs. Ambient Temperature (T_A)

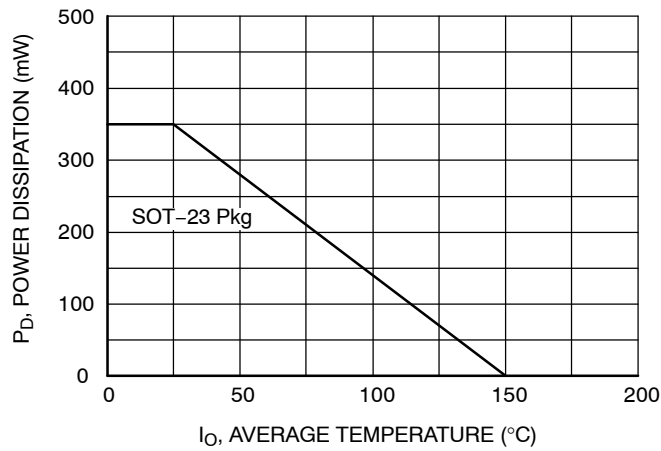


Figure 9. Power Derating Curve

MMBD4148SE, MMBD4148CC, MMBD4148CA

ORDERING INFORMATION

| Part Number | Top Mark | Package | Pinout | Pinout Style | Shipping† |
|-------------|----------|---------------------|--|--------------|---------------------|
| MMBD4148SE | D4 | SOT-23 (Pb-Free) | pin 1 = Anode, pin 2 = Cathode, pin 3 = Cathode/Anode | Style 11 | 3,000 / Tape & Reel |
| MMBD4148CC | D5 | | pin 1 = Anode, pin 2 = Anode, pin 3 = Cathode | Style 23 | 3,000 / Tape & Reel |
| MMBD4148CA | D6 | | pin 1 = Cathode, pin 2 = Cathode, pin 3 = Anode/Anode | Style 12 | 3,000 / Tape & Reel |

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D

MECHANICAL CASE OUTLINE PACKAGE DIMENSIONS



SOT-23 (TO-236)
CASE 318
ISSUE AT

DATE 01 MAR 2023

SCALE 4:1



NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M,1994.
2. CONTROLLING DIMENSION: MILLIMETERS
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF THE BASE MATERIAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS.

| DIM | MILLIMETERS | | | INCHES | | |
|----------------|-------------|------|------|--------|-------|-------|
| | MIN. | NOM. | MAX. | MIN. | NOM. | MAX. |
| A | 0.89 | 1.00 | 1.11 | 0.035 | 0.039 | 0.044 |
| A1 | 0.01 | 0.06 | 0.10 | 0.000 | 0.002 | 0.004 |
| b | 0.37 | 0.44 | 0.50 | 0.015 | 0.017 | 0.020 |
| c | 0.08 | 0.14 | 0.20 | 0.003 | 0.006 | 0.008 |
| D | 2.80 | 2.90 | 3.04 | 0.110 | 0.114 | 0.120 |
| E | 1.20 | 1.30 | 1.40 | 0.047 | 0.051 | 0.055 |
| e | 1.78 | 1.90 | 2.04 | 0.070 | 0.075 | 0.080 |
| L | 0.30 | 0.43 | 0.55 | 0.012 | 0.017 | 0.022 |
| L1 | 0.35 | 0.54 | 0.69 | 0.014 | 0.021 | 0.027 |
| H _E | 2.10 | 2.40 | 2.64 | 0.083 | 0.094 | 0.104 |
| T | 0° | --- | 10° | 0° | --- | 10° |

GENERIC MARKING DIAGRAM*



- XXX = Specific Device Code
- M = Date Code
- = Pb-Free Package

*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "▪", may or may not be present. Some products may not follow the Generic Marking.



RECOMMENDED MOUNTING FOOTPRINT

* For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

STYLES ON PAGE 2

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MECHANICAL CASE OUTLINE

PACKAGE DIMENSIONS



SOT-23 (TO-236) CASE 318 ISSUE AT

DATE 01 MAR 2023

| | | | | | |
|---|---|---|---|---|---|
| STYLE 1 THRU 5: CANCELLED | STYLE 6: PIN 1. BASE 2. EMITTER 3. COLLECTOR | STYLE 7: PIN 1. EMITTER 2. BASE 3. COLLECTOR | STYLE 8: PIN 1. ANODE 2. NO CONNECTION 3. CATHODE | | |
| STYLE 9: PIN 1. ANODE 2. ANODE 3. CATHODE | STYLE 10: PIN 1. DRAIN 2. SOURCE 3. GATE | STYLE 11: PIN 1. ANODE 2. CATHODE 3. CATHODE-ANODE | STYLE 12: PIN 1. CATHODE 2. CATHODE 3. ANODE | STYLE 13: PIN 1. SOURCE 2. DRAIN 3. GATE | STYLE 14: PIN 1. CATHODE 2. GATE 3. ANODE |
| STYLE 15: PIN 1. GATE 2. CATHODE 3. ANODE | STYLE 16: PIN 1. ANODE 2. CATHODE 3. CATHODE | STYLE 17: PIN 1. NO CONNECTION 2. ANODE 3. CATHODE | STYLE 18: PIN 1. NO CONNECTION 2. CATHODE 3. ANODE | STYLE 19: PIN 1. CATHODE 2. ANODE 3. CATHODE-ANODE | STYLE 20: PIN 1. CATHODE 2. ANODE 3. GATE |
| STYLE 21: PIN 1. GATE 2. SOURCE 3. DRAIN | STYLE 22: PIN 1. RETURN 2. OUTPUT 3. INPUT | STYLE 23: PIN 1. ANODE 2. ANODE 3. CATHODE | STYLE 24: PIN 1. GATE 2. DRAIN 3. SOURCE | STYLE 25: PIN 1. ANODE 2. CATHODE 3. GATE | STYLE 26: PIN 1. CATHODE 2. ANODE 3. NO CONNECTION |
| STYLE 27: PIN 1. CATHODE 2. CATHODE 3. CATHODE | STYLE 28: PIN 1. ANODE 2. ANODE 3. ANODE | | | | |

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