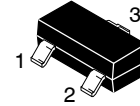


Small Signal Diode

MMBD4148SE, MMBD4148CC, MMBD4148CA



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

Features

- These are Pb-Free Devices

MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ 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	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55 to +150	$^\circ\text{C}$

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

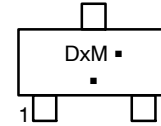
Characteristic	Symbol	Value	Unit
Power Dissipation	P_D	350	mW
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	357	$^\circ\text{C}/\text{W}$

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

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

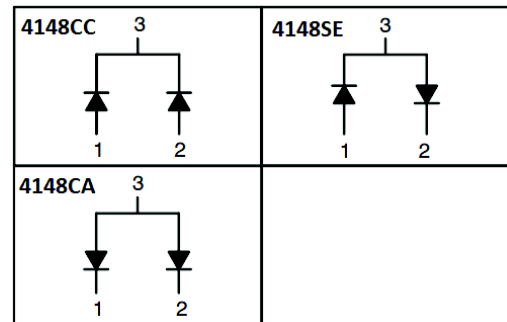


Dx = Device Code
x = 4, 5, 6

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.

MMBD4148SE, MMBD4148CC, MMBD4148CA

TYPICAL PERFORMANCE CHARACTERISTICS

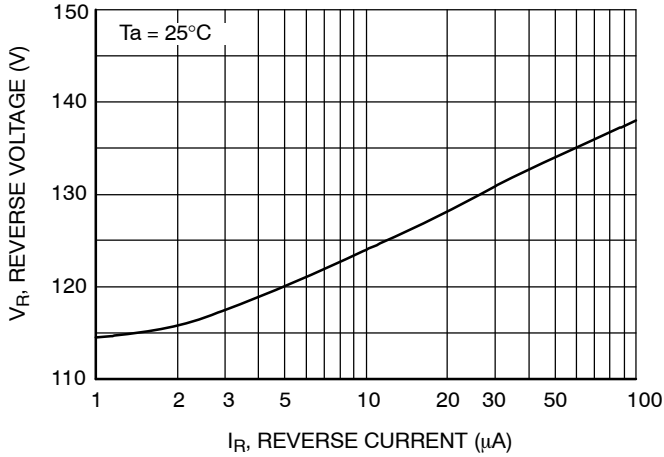


Figure 1. Reverse Voltage vs. Reverse Current
BV – 1.0 to 100 μ A

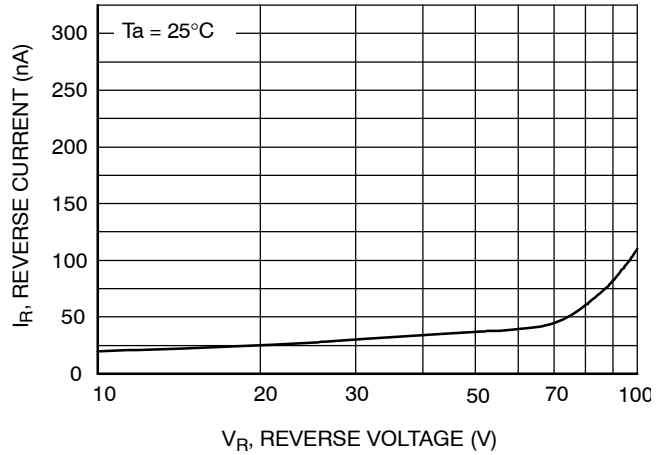


Figure 2. Reverse Current vs. Reverse Voltage
IR – 10 to 100 V

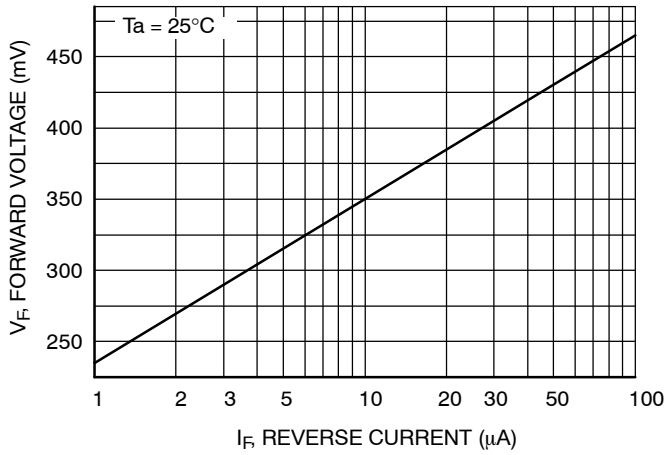


Figure 3. Forward Voltage vs. Forward Current
VF – 1.0 to 100 μ A

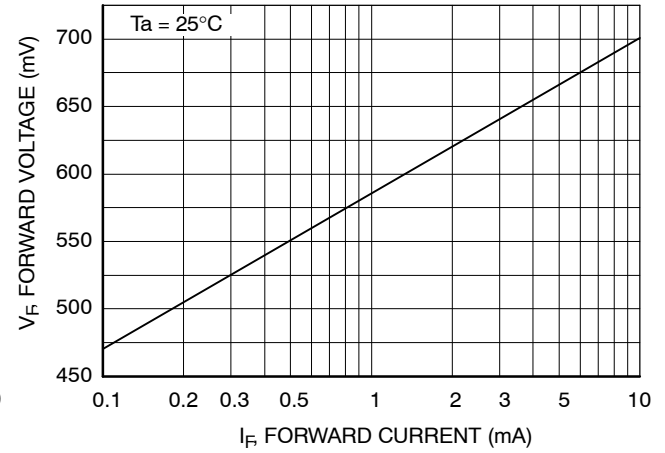


Figure 4. Forward Voltage vs. Forward Current
VF – 0.1 to 10 mA

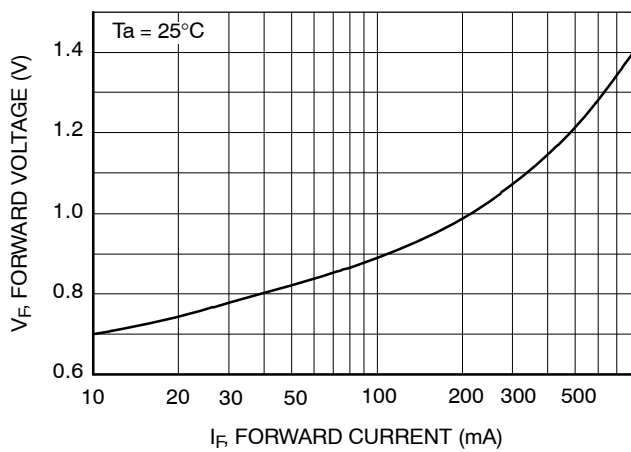


Figure 5. Forward Voltage vs. Forward Current
VF – 10 to 800 mA

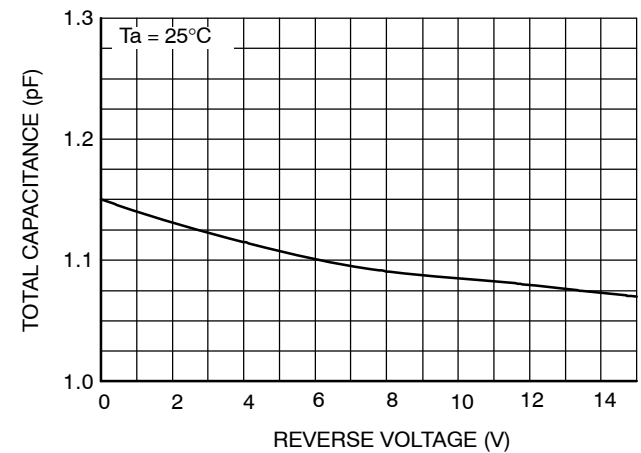


Figure 6. Total Capacitance vs. Reverse Voltage

MMBD4148SE, MMBD4148CC, MMBD4148CA

TYPICAL PERFORMANCE CHARACTERISTICS (Continued)

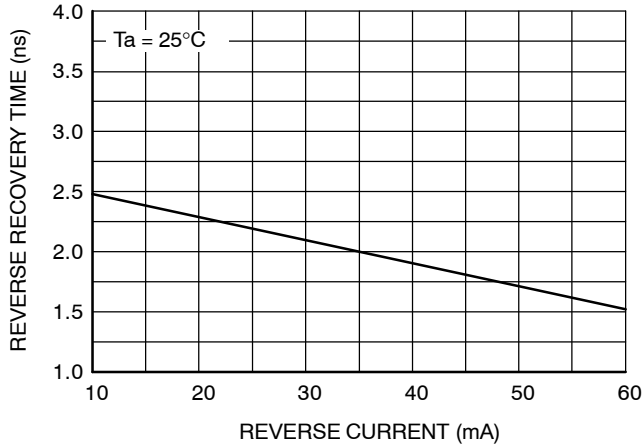


Figure 7. Reverse Recovery Time vs. Reverse Current
TRR - IR 10 mA to 60 mA

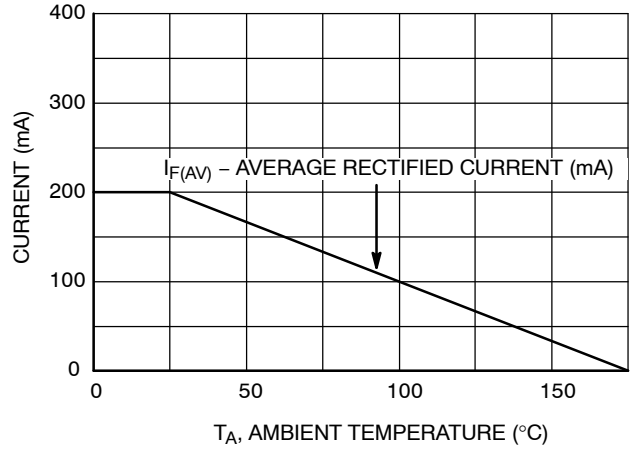


Figure 8. Average Rectified Current ($I_{F(AV)}$)
vs. Ambient Temperature (T_A)

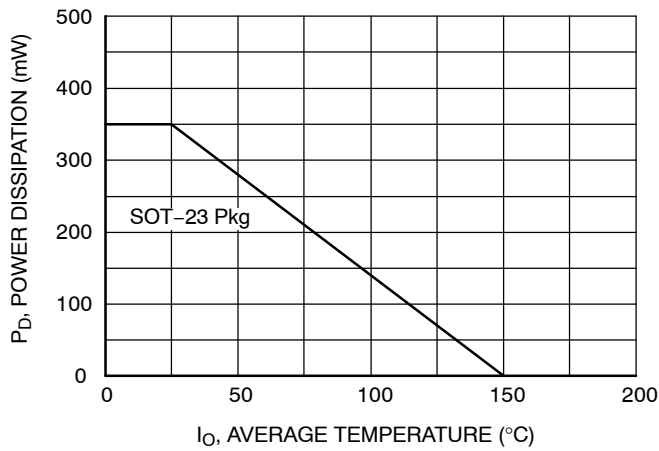


Figure 9. Power Derating Curve

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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