

200mA, SMD Switching Diode

FEATURES

- Designed for mounting on small surface
- Low Capacitance
- Low forward voltage drop
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

APPLICATIONS

- Switching mode power supply (SMPS)
- Adapters
- Lighting application
- On-board DC/DC converter



MECHANICAL DATA

- Case: SOT-23
- Molding compound meets UL 94 V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 1A whisker test
- Weight: 8 mg (approximately)



KEY PARAMETERS		
PARAMETER	VALUE	UNIT
I_F	200	mA
V_{RRM}	100	V
I_{FSM}	2	A
V_F at $I_F=10mA$	1	V
T_J Max.	150	°C
Package	SOT-23	

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

PARAMETER		SYMBOL	VALUE	UNIT
Marking code on the device	MMBD4148		5D	
	MMBD4148CA		A1	
	MMBD4148CC		A4	
	MMBD4148SE		A7	
Repetitive peak reverse voltage		V_{RRM}	100	V
Forward current		I_F	200	mA
Repetitive peak forward surge current		I_{FRM}	700	mA
Non-repetitive peak forward surge current	at $t=1\mu\text{s}$	I_{FSM}	2	A
	at $t=1\text{s}$		1	
Junction temperature range		T_J	-55 to +150	°C
Storage temperature range		T_{STG}	-55 to +150	°C

THERMAL PERFORMANCE			
PARAMETER	SYMBOL	TYP	UNIT
Junction-to-ambient thermal resistance	$R_{\theta JA}$	357	$^{\circ}\text{C/W}$

ELECTRICAL SPECIFICATIONS ($T_A = 25^{\circ}\text{C}$ unless otherwise noted)					
PARAMETER	CONDITIONS	SYMBOL	MIN	MAX	UNIT
Forward voltage per diode ⁽¹⁾	$I_F = 10\text{mA}, T_J = 25^{\circ}\text{C}$	V_F	-	1.0	V
Reverse current per diode ⁽²⁾	$V_R = 20\text{V}, T_J = 25^{\circ}\text{C}$	I_R	-	25.0	nA
	$V_R = 75\text{V}, T_J = 25^{\circ}\text{C}$		-	5.0	μA
	$V_R = 20\text{V}, T_A = 150^{\circ}\text{C}$		-	50.0	
Reverse breakdown voltage	$I_R = 5\mu\text{A}, T_J = 25^{\circ}\text{C}$	$V_{(BR)}$	75	-	V
	$I_R = 100\mu\text{A}, T_J = 25^{\circ}\text{C}$		100	-	
Junction capacitance	$f = 1\text{MHz}, V_R = 0\text{V}$	C_J	-	4.0	pF
Reverse recovery time	$I_F = 10\text{mA}, I_R = 1\text{mA}, R_L = 100\Omega, V_R = 6\text{V}$	t_{rr}	-	4.0	ns

Notes:

1. Pulse test with $PW = 0.3\text{ ms}$
2. Pulse test with $PW = 30\text{ ms}$

ORDERING INFORMATION		
ORDERING CODE (Note 1)	PACKAGE	PACKING
MMBD414xx RFG	SOT-23	3K / 7" Reel
MMBD414xx R5G	SOT-23	10K / 13" Reel

Note:

1. "xx" defines part no. from "8" to "8SE"

CHARACTERISTICS CURVES

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

Fig. 1 Power Derating Curve

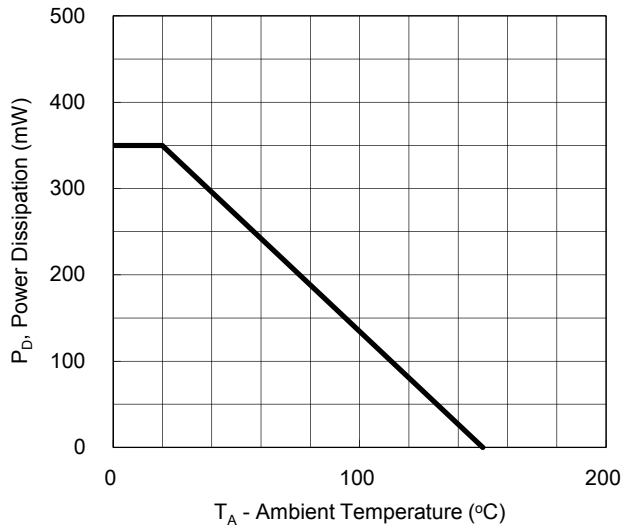


Fig.2 Forward Characteristics

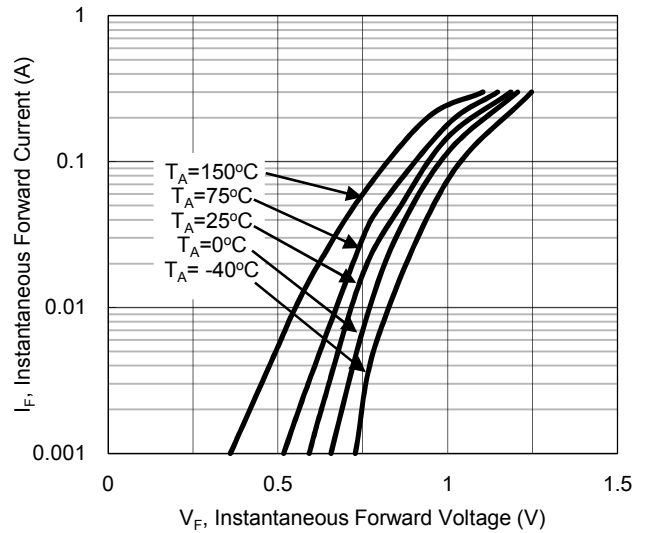


Fig.3 Typical Reverse Characteristics

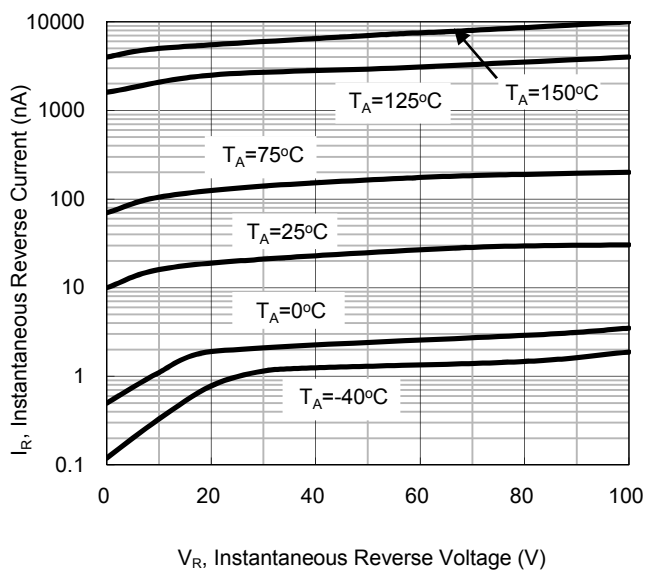
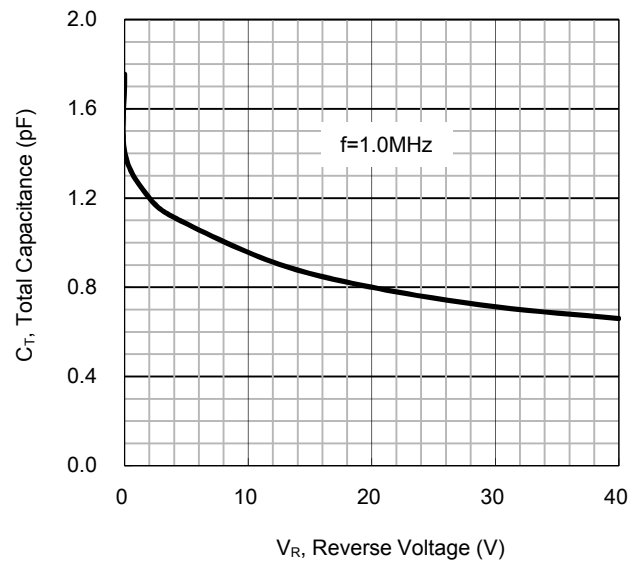
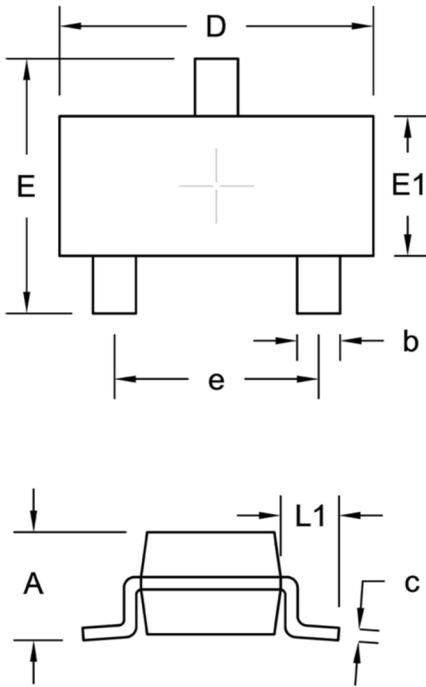


Fig.4 Typical Capacitance vs. Reverse Voltage



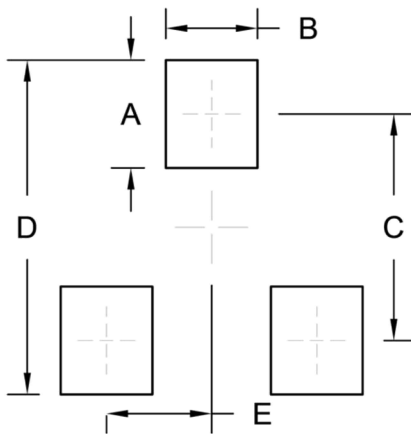
PACKAGE OUTLINE DIMENSION

SOT-23



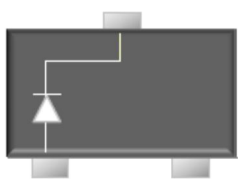
DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	0.89	1.12	0.035	0.044
b	0.30	0.50	0.012	0.020
c	0.08	0.20	0.003	0.008
D	2.80	3.04	0.110	0.120
E	2.10	2.64	0.083	0.104
E1	1.20	1.40	0.047	0.055
e	1.90 BSC		0.075 BSC	
L1	0.54 REF.		0.021 REF.	

SUGGEST PAD LAYOUT

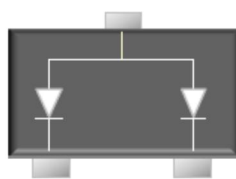


Symbol	Unit (mm)	Unit (inch)
A	1.00	0.039
B	0.85	0.033
C	2.10	0.083
D	3.10	0.122
E	0.98	0.039

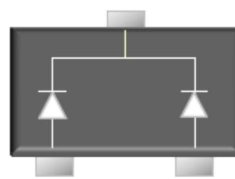
PIN CONFIGURATION



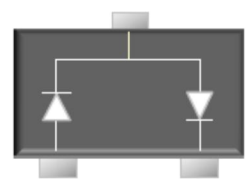
MMBD4148



MMBD4148CA



MMBD4148CC



MMBD4148SE

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