

200mA, 100V 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

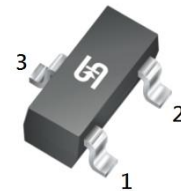
APPLICATIONS

- 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: 8.00mg (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
I_F	200	mA
V_{RRM}	100	V
I_{FSM}	2	A
V_F at $I_F = 10\text{mA}$	0.82	V
$T_{J\text{MAX}}$	150	°C
Package	SOT-23	


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	$t = 1\mu\text{s}$	2	A
	$t = 1\text{s}$	1	A
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	°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	-	0.82	V
Reverse current per diode ⁽²⁾	$V_R = 20\text{V}, T_J = 25^\circ\text{C}$	I_R	-	25	nA
	$V_R = 75\text{V}, T_J = 25^\circ\text{C}$		-	5	μA
	$V_R = 20\text{V}, T_A = 150^\circ\text{C}$		-	50	μA
Reverse breakdown voltage per diode	$I_R = 5\mu\text{A}, T_J = 25^\circ\text{C}$	V_{BR}	75	-	V
	$I_R = 100\mu\text{A}, T_J = 25^\circ\text{C}$		100	-	V
Junction capacitance per diode	$f = 1\text{MHz}, V_R = 0\text{V}$	C_J	-	4	pF
Reverse recovery time per diode	$I_F = 10\text{mA}, I_R = 1\text{mA}, R_L = 100\Omega, V_R = 6\text{V}$	t_{rr}	-	4	ns

Notes:

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

ORDERING INFORMATION		
ORDERING CODE⁽¹⁾	PACKAGE	PACKING
MMBD414x RFG	SOT-23	3,000 / 7" Tape & Reel
MMBD414x R5G	SOT-23	10,000 / 13" Tape & Reel

Notes:

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

CHARACTERISTICS CURVES

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

Fig.1 Power Derating Curve

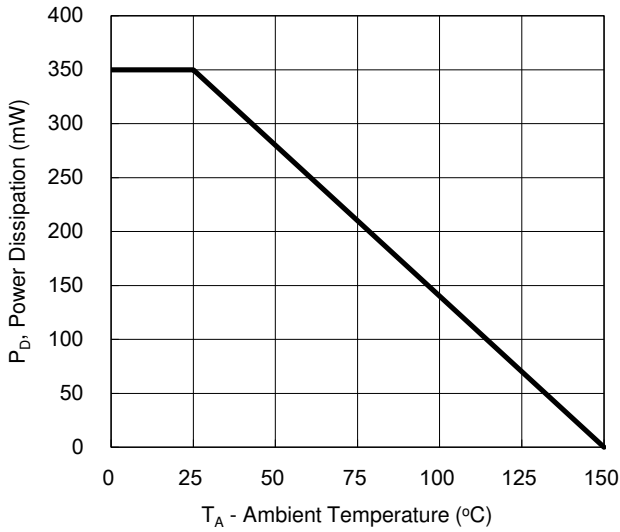


Fig.2 Forward Characteristics

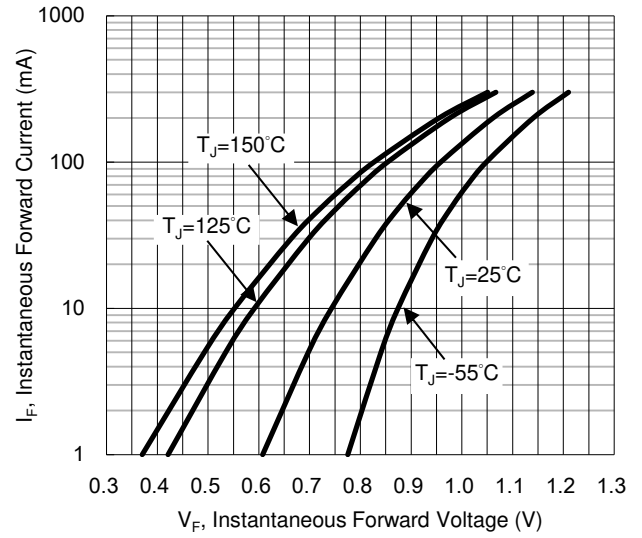


Fig.3 Typical Reverse Characteristics

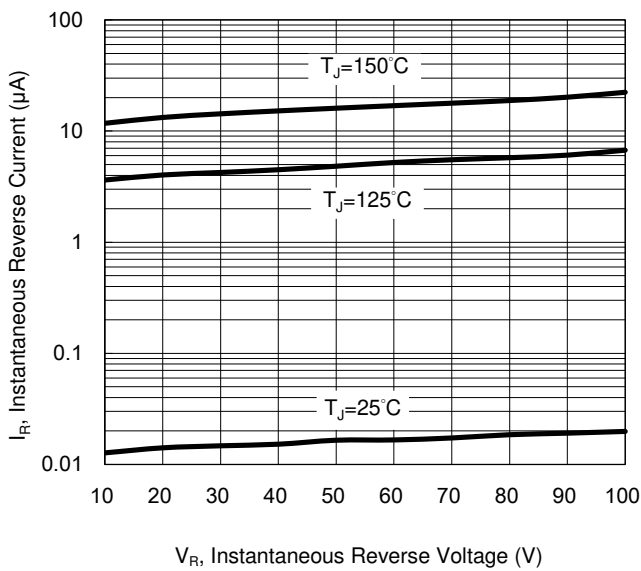
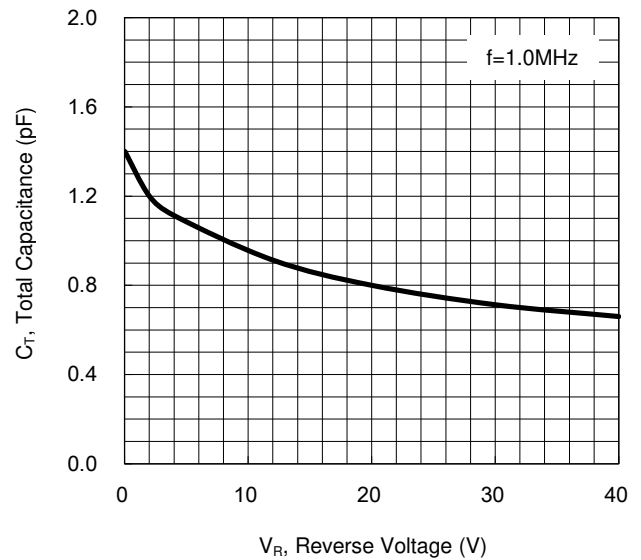
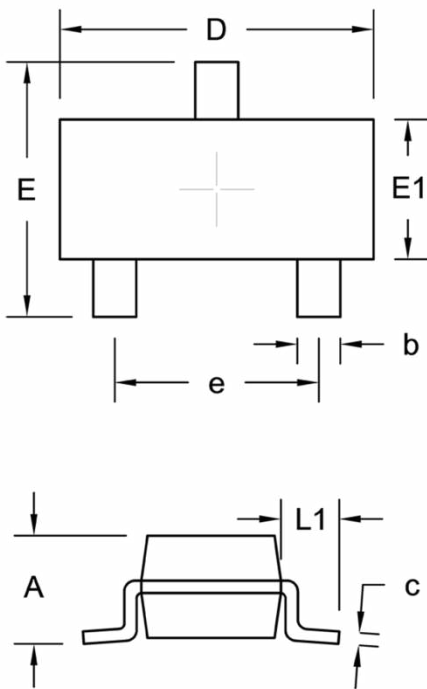


Fig.4 Typical Capacitance vs. Reverse Voltage



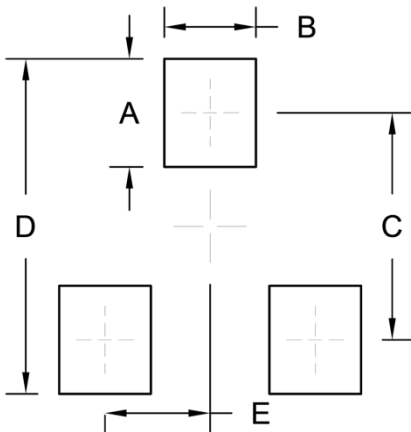
PACKAGE OUTLINE DIMENSIONS

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.	

SUGGESTED PAD LAYOUT

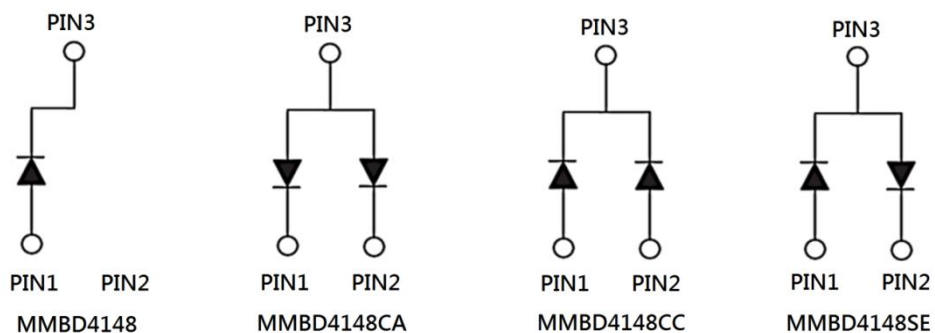


Symbol	Unit (mm)	Unit (inch)
A	1.00	0.039
B	0.85	0.033
C	2.10	0.083
D	3.10	0.122
E	0.98	0.039

Notes:

This recommended land pattern is for reference purposes only. Please consult your manufacturing group to ensure your PCB design guidelines are met.

PIN CONFIGURATION



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