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 = 10mA	0.82	V
$T_{J\,MAX}$	150	°C
Package	SOT-23	



SOT-23

ABSOLUTE MAXIMUM RATINGS (T_A = 25°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 = 1μs	I_{FSM}	2	A
	t = 1s		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°C unless otherwise noted)

PARAMETER	CONDITIONS	SYMBOL	MIN	MAX	UNIT
Forward voltage per diode[1]	I_F = 10mA, T_J = 25°C	V_F	-	0.82	V
Reverse current per diode[2]	V_R = 20V ,T_J = 25°C	I_R	-	25	nA
	V_R = 75V ,T_J = 25°C		-	5	μA
	V_R = 20V ,T_A = 150°C		-	50	μA
Reverse breakdown voltage per diode	I_R = 5μA ,T_J = 25°C	V_{BR}	75	-	V
	I_R = 100μA ,T_J = 25°C		100	-	V
Junction capacitance per diode	f = 1MHz, V_R = 0V	C_J	-	4	pF
Reverse recovery time per diode	I_F = 10mA, I_R = 1mA, R_L = 100Ω, V_R = 6V	t_{rr}	-	4	ns

Notes:

1. Pulse test with PW = 0.3ms
2. Pulse test with PW = 30ms

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°C unless otherwise noted)

Fig.1 Power Derating Curve

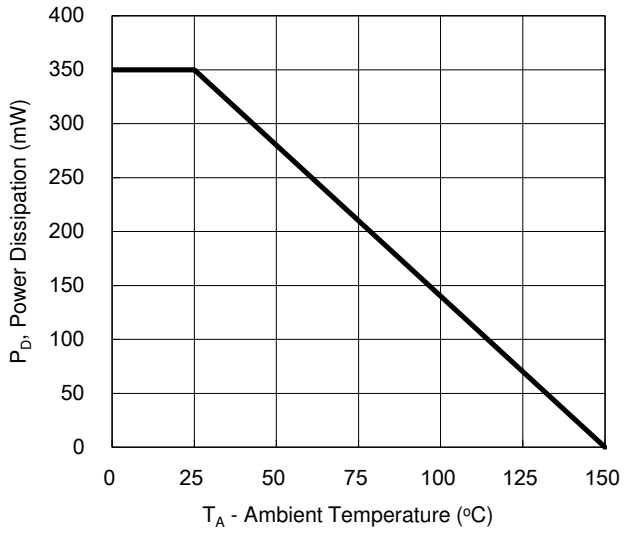


Fig.2 Forward Characteristics

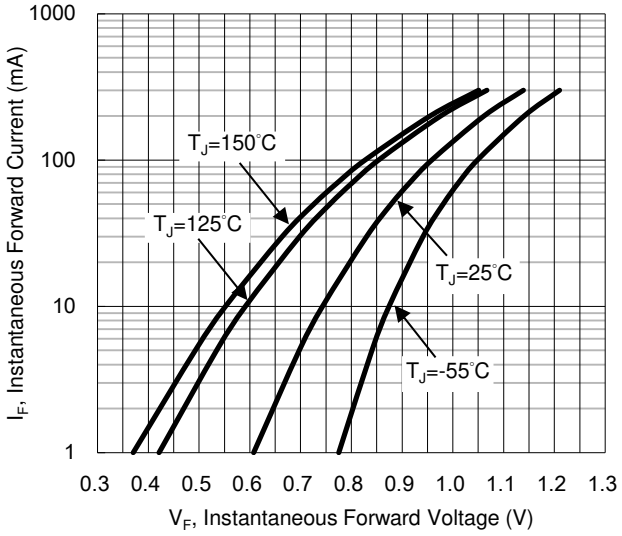


Fig.3 Typical Reverse Characteristics

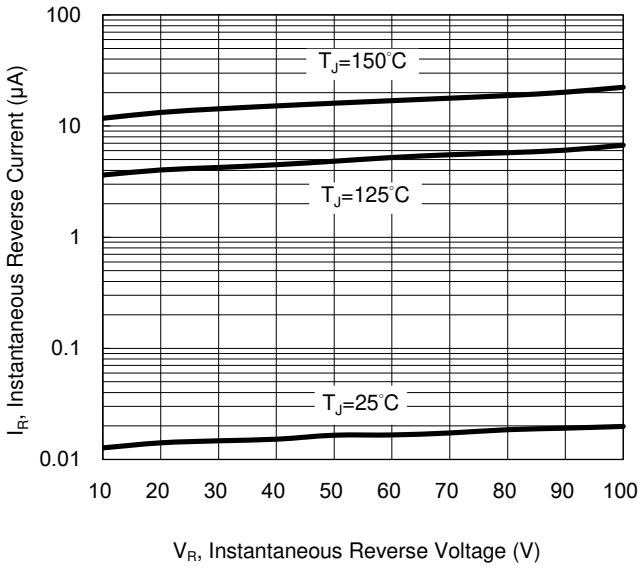
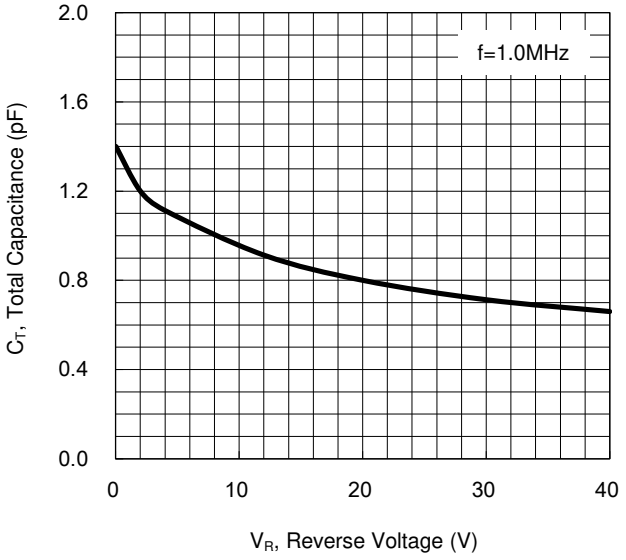
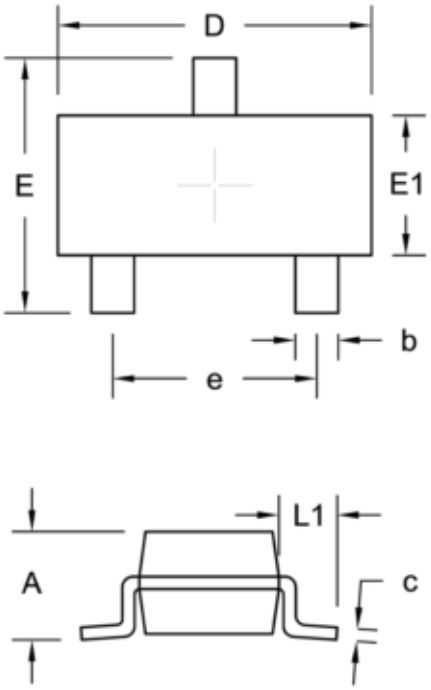


Fig.4 Typical Capacitance vs. Reverse Voltage



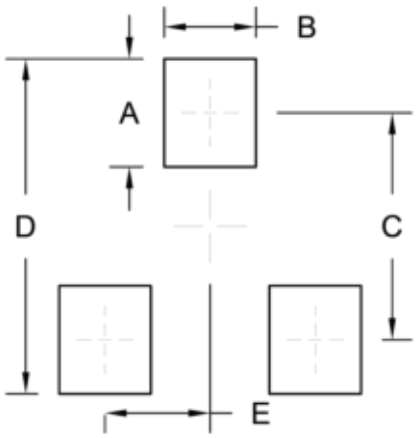
PACKAGE OUTLINE DIMENSIONS

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.	

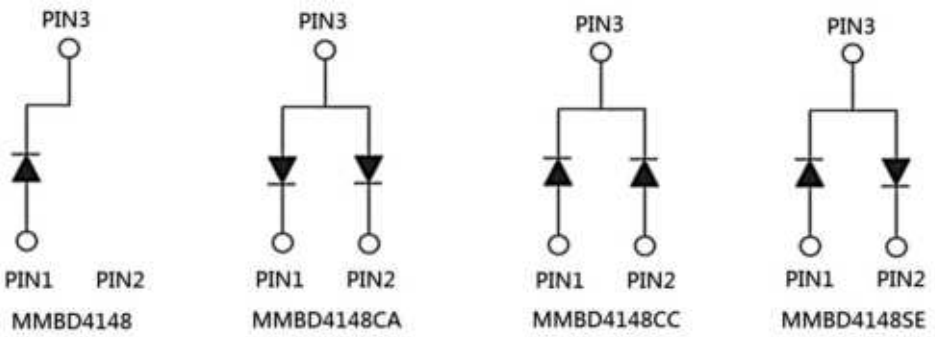
SUGGESTED PAD LAYOUT



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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