350mW, SMD Switching Diode

FEATURES

- Designed for mounting on small surface
- Low Capacitance
- Low forward voltage drop
- Compliant to RoHS directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- 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
- Moisture sensitivity level: level 1, per J-STD-020
- Packing code with suffix "G" means green compound (halogen-free)
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 1A whisker test
- Polarity: Indicated by cathode band
- Weight: 8 mg (approximately)

KEY PARAMETERS		
PARAMETER	**VALUE**	**UNIT**
$I_{F(AV)}$	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	
Configuration	Single dice	

Pb-Free RoHS COMPLIANT HALOGEN FREE

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)				
PARAMETER		**SYMBOL**	**PART NUMBER**	**UNIT**
Marking code on the device	MMBD4148		5D	
	MMBD4148CA		A1	
	MMBD4148CC		A4	
	MMBD4148SE		A7	
Repetitive peak reverse voltage		V_{RRM}	75	V
Forward current		$I_{F(AV)}$	200	mA
Repetitive peak forward surge current		I_{FRM}	700	mA
Non-repetitive peak forward surge current	at t=1μs	I_{FSM}	2	A
	at t=1s		1	
Junction temperature range		T_J	-55 to +150	°C
Storage temperature range		T_{STG}	-55 to +150	°C

THERMAL PERFORMANCE			
PARAMETER	**SYMBOL**	**LIMIT**	**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	-	1.0	V
Reverse current @ rated V_R per diode (2)	V_R=20V ,T_J = 25°C	I_R	-	25.0	nA
	V_R=75V ,T_J = 25°C		-	5.0	μA
	V_R=20V ,T_A = 150°C		-	50.0	
Reverse breakdown voltage	I_R=5μA ,T_J = 25°C	$V_{(BR)}$	75	-	V
	I_R=100μA ,T_J = 25°C		100	-	
Junction capacitance	1 MHz, V_R=0V	C_J	-	4.0	pF
Reverse recovery time	I_F=10mA,I_R=1mA, R_L=100Ω, V_R=6V	t_{rr}	-	4.0	ns

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

ORDERING INFORMATION				
PART NO.	**PACKING CODE**	**PACKING CODE SUFFIX**	**PACKAGE**	**PACKING**
MMBD414X (Note 1&2)	RF	G	SOT-23	3K / 7" Reel
	R5			10K / 13" Reel

Notes:
1. Whole series with green compound
2. “XX” is Device code from “8” to ”8SE”.

EXAMPLE				
EXAMPLE P/N	**PART NO.**	**PACKING CODE**	**PACKING CODE SUFFIX**	**DESCRIPTION**
MMBD4148 RFG	MMBD4148	RF	G	Green compound

CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig. 1 Power Derating Curve

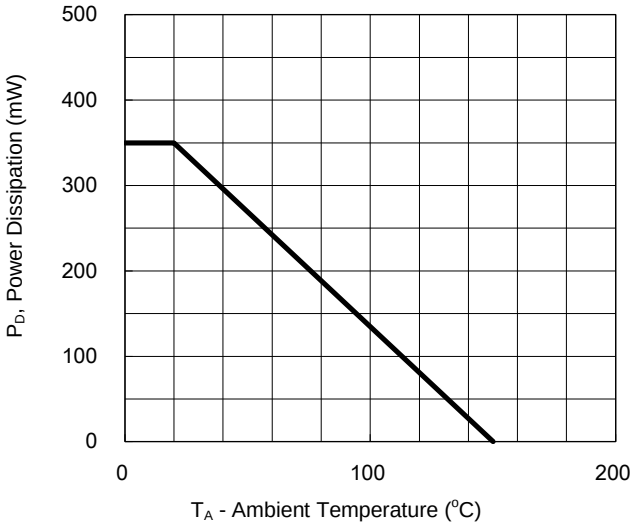


Fig.2 Forward Characteristics

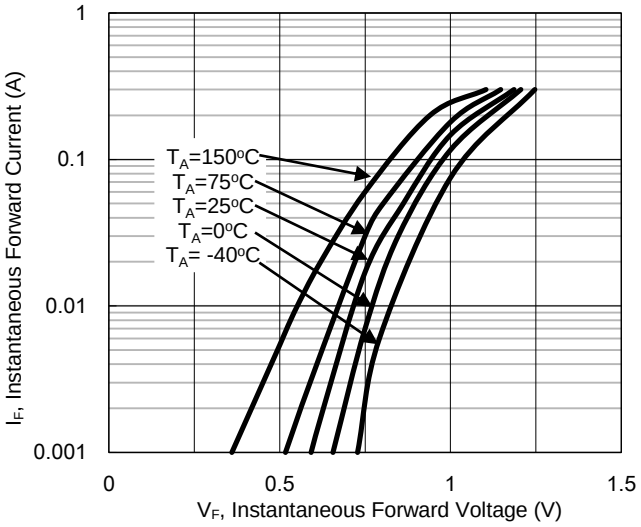


Fig.3 Typical Reverse Characteristics

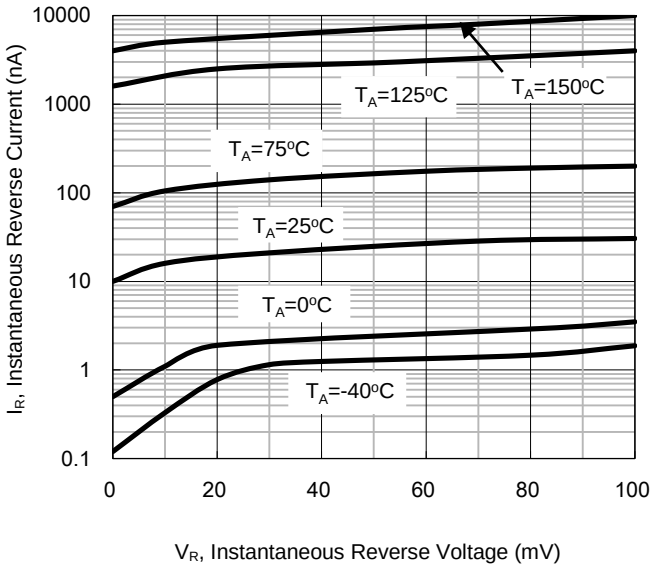
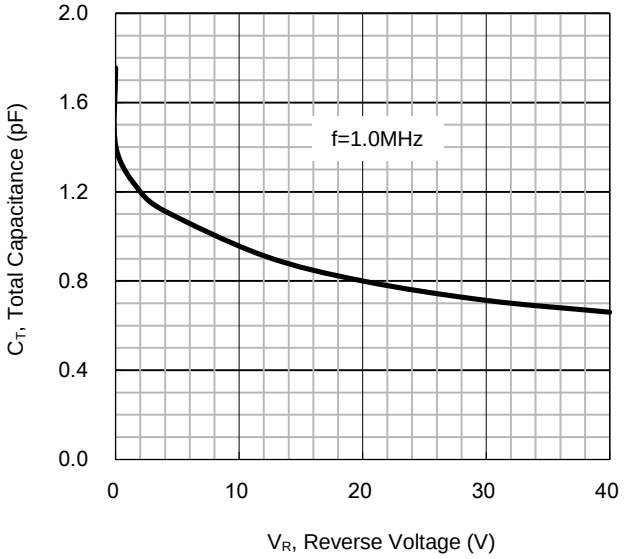
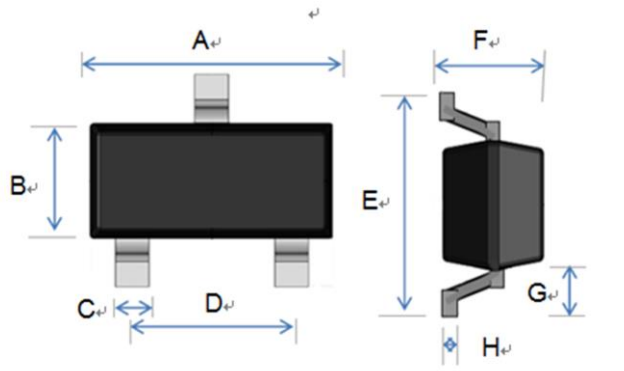


Fig.4 Typical Capacitance vs. Reverse Voltage



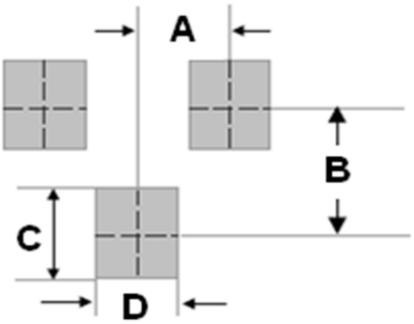
PACKAGE OUTLINE DIMENSION

SOT-23



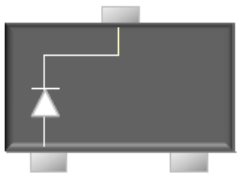
DIM.	Unit(mm)		Unit(inch)	
	Min	Max	Min	Max
A	2.70	3.10	0.106	0.122
B	1.10	1.50	0.043	0.059
C	0.30	0.51	0.012	0.020
D	1.78	2.04	0.070	0.080
E	2.10	2.64	0.083	0.104
F	0.89	1.30	0.035	0.051
G	0.55 REF		0.022 REF	
H	0.10 REF		0.004 REF	

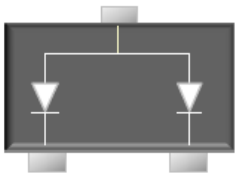
SUGGEST PAD LAYOUT

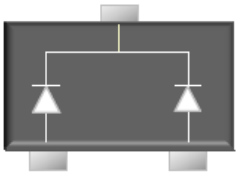


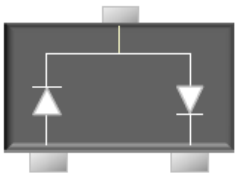
DIM.	Unit(mm)	Unit(inch)
	TYP	TYP
A	0.95	0.037
B	2.00	0.079
C	0.90	0.035
D	0.80	0.031

PIN CONFIGURATION


MMBD4148


MMBD4148CA


MMBD4148CC


MMBD4148SE

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Адрес: 105318, г.Москва, ул.Щербаковская д.3, офис 1107

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Офис по работе с юридическими лицами:

105318, г.Москва, ул.Щербаковская д.3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: info@moschip.ru

Skype отдела продаж:
moschip.ru
moschip.ru_4
moschip.ru_6
moschip.ru_9