

## 150mA, 100V High Speed SMD Switching Diode

### FEATURES

- Low power loss, high efficiency
- Ideal for automated placement
- High surge current capability
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant

### APPLICATIONS

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

### MECHANICAL DATA

- Case: SOD-323F
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 1A whisker test
- Polarity: Indicated by cathode band
- Weight: 4.60mg (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
$I_F$	150	mA
$V_{RRM}$	100	V
$I_{FSM}$	300	mA
$V_F$ at $I_F = 100\text{mA}$	1	V
$T_{J\text{MAX}}$	150	°C
Package	SOD-323F	
Configuration	Single die	


**SOD-323F**


ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)						
PARAMETER		SYMBOL	1N4148WS	1N4448WS	1N914BWS	UNIT
Marking code on the device			S1	S2	S3	
Power dissipation		$P_D$	200			mW
Repetitive peak reverse voltage		$V_{RRM}$	100			V
Forward current		$I_F$	150			mA
Non-repetitive peak forward current	$t = 1\text{s}$	$I_{FSM}$	1	-	0.5	A
	$t = 1\mu\text{s}$		2	0.5	1	A
Junction temperature range		$T_J$	-65 to +150			°C
Storage temperature range		$T_{STG}$	-65 to +150			°C

<b>THERMAL PERFORMANCE</b>			
<b>PARAMETER</b>	<b>SYMBOL</b>	<b>TYP</b>	<b>UNIT</b>
Junction-to-ambient thermal resistance	$R_{\theta JA}$	625	$^{\circ}\text{C/W}$

<b>ELECTRICAL SPECIFICATIONS</b> ( $T_A = 25^{\circ}\text{C}$ unless otherwise noted)						
<b>PARAMETER</b>		<b>CONDITIONS</b>	<b>SYMBOL</b>	<b>MIN</b>	<b>MAX</b>	<b>UNIT</b>
Forward voltage <sup>(1)</sup>	1N4448WS 1N914BWS	$I_F = 5\text{ mA}, T_J = 25^{\circ}\text{C}$	$V_F$	0.62	0.72	V
	1N4148WS	$I_F = 10\text{ mA}, T_J = 25^{\circ}\text{C}$		-	1.00	V
	1N4448WS 1N914BWS	$I_F = 100\text{ mA}, T_J = 25^{\circ}\text{C}$		-	1.00	V
Reverse voltage	$I_R = 5\mu\text{A}, T_J = 25^{\circ}\text{C}$		$V_R$	75	-	V
	$I_R = 100\mu\text{A}, T_J = 25^{\circ}\text{C}$			100	-	V
Reverse current @ rated $V_R$ <sup>(2)</sup>	$V_R = 20\text{V}, T_J = 25^{\circ}\text{C}$		$I_R$	-	25	nA
	$V_R = 75\text{V}, T_J = 25^{\circ}\text{C}$			-	5	$\mu\text{A}$
Junction capacitance	1MHz, $V_R = 0\text{V}$		$C_J$	-	4	pF
Reverse recovery time	$I_F = 10\text{mA}, I_R = 60\text{mA}, R_L = 100\Omega, I_{RR} = 1\text{mA}$		$t_{rr}$	-	4	ns

**Notes:**

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

<b>ORDERING INFORMATION</b>		
<b>ORDERING CODE<sup>(1)</sup></b>	<b>PACKAGE</b>	<b>PACKING</b>
1N4148WS RRG	SOD-323F	3,000 / 7" Tape & Reel
1N4148WS RR	SOD-323F	3,000 / 7" Tape & Reel
1N4148WS R9G	SOD-323F	10,000 / 13" Tape & Reel
1N4148WS R9	SOD-323F	10,000 / 13" Tape & Reel
1N4448WS RRG	SOD-323F	3,000 / 7" Tape & Reel
1N4448WS RR	SOD-323F	3,000 / 7" Tape & Reel
1N4448WS R9G	SOD-323F	10,000 / 13" Tape & Reel
1N4448WS R9	SOD-323F	10,000 / 13" Tape & Reel
1N914BWS RRG	SOD-323F	3,000 / 7" Tape & Reel
1N914BWS RR	SOD-323F	3,000 / 7" Tape & Reel
1N914BWS R9G	SOD-323F	10,000 / 13" Tape & Reel
1N914BWS R9	SOD-323F	10,000 / 13" Tape & Reel

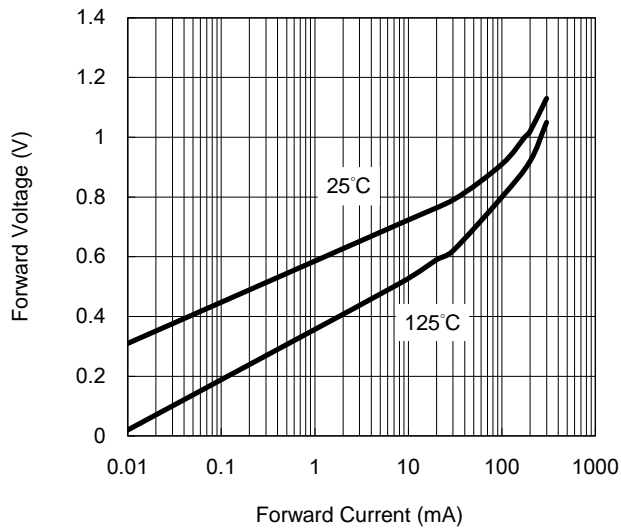
**Notes:**

1. "G" means green compound (halogen-free according to IEC 61249-2-21)

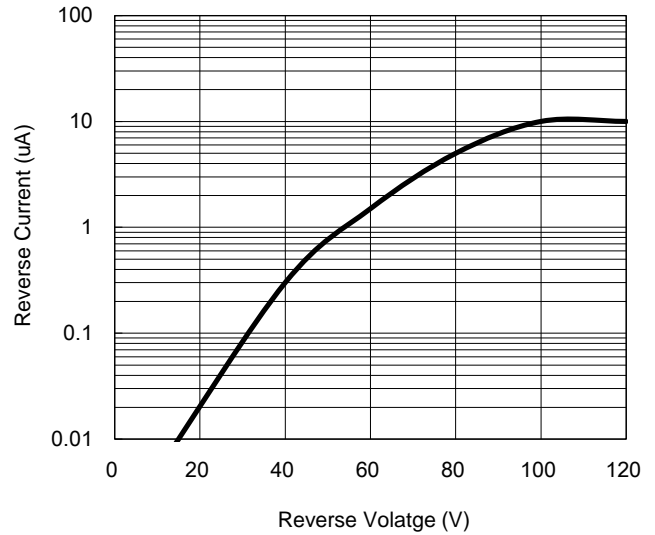
**CHARACTERISTICS CURVES**

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

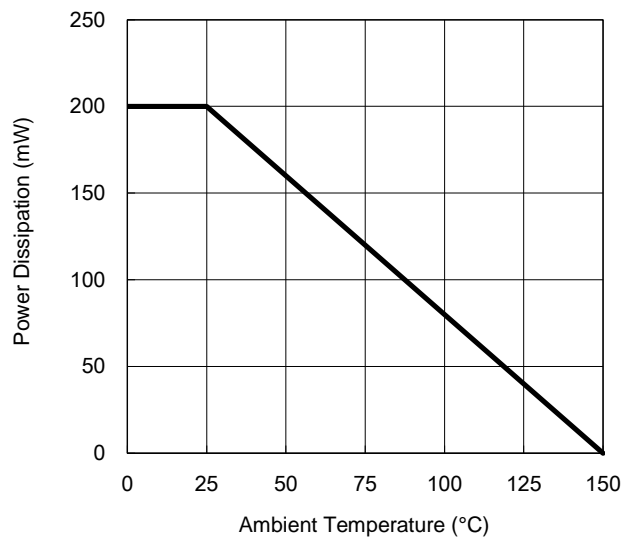
**Fig.1 Forward Voltage VS. Forward Current**



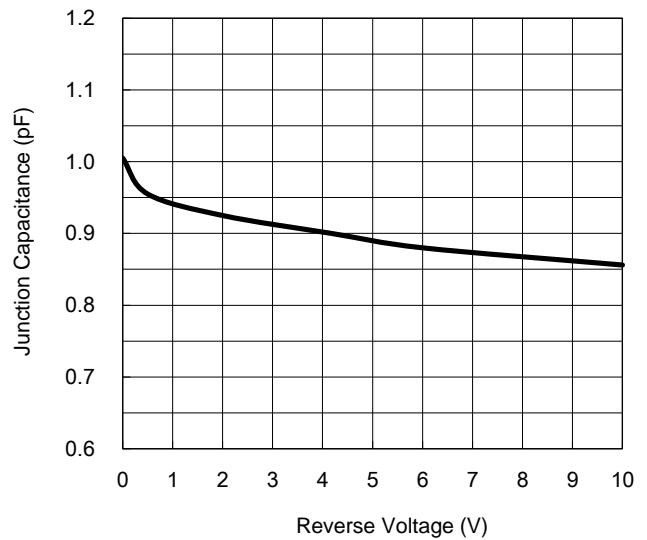
**Fig.2 Reverse Current vs Reverse Voltage**



**Fig.3 Admissible Power Dissipation Curve**

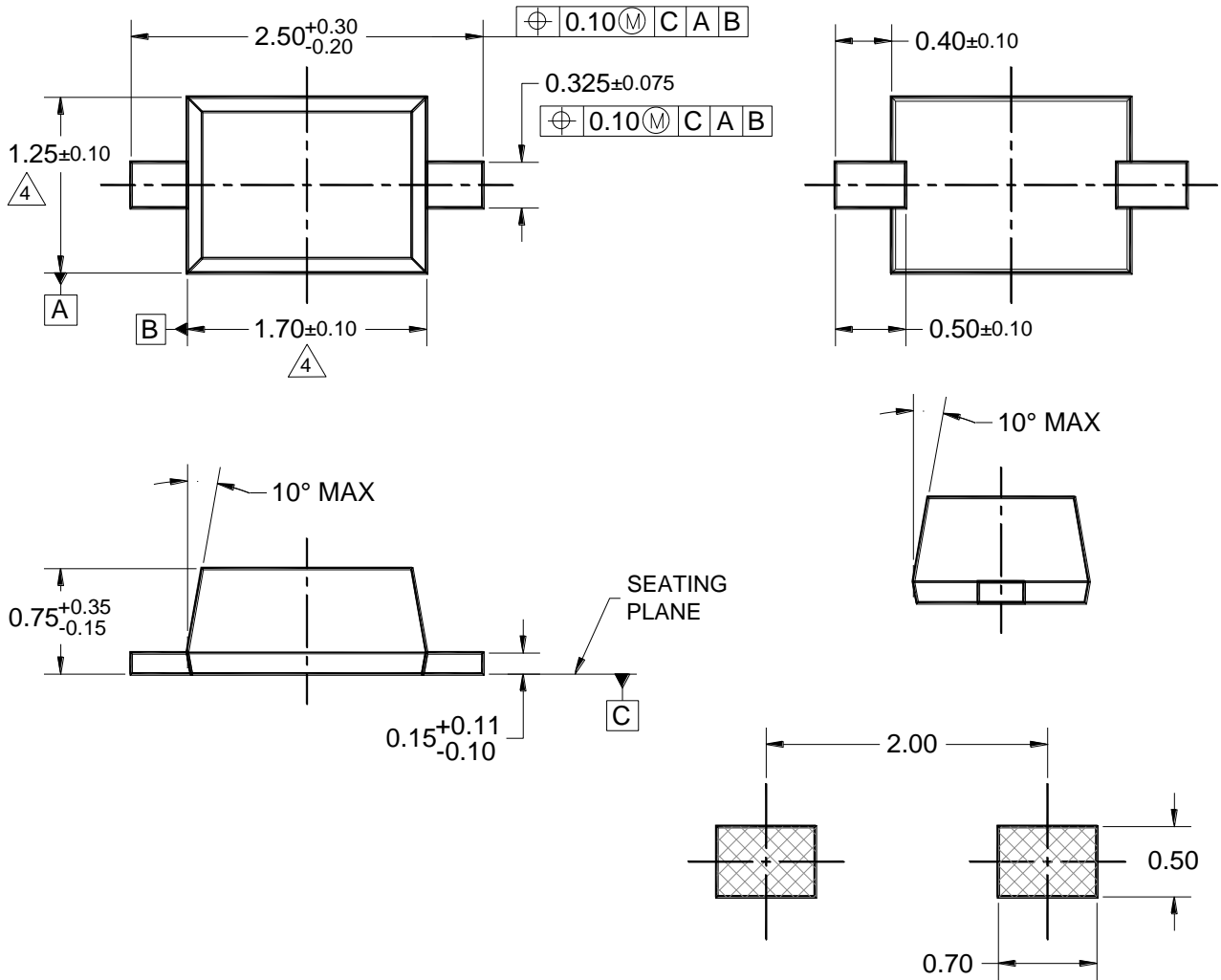


**Fig.4 Typical Junction Capacitance**

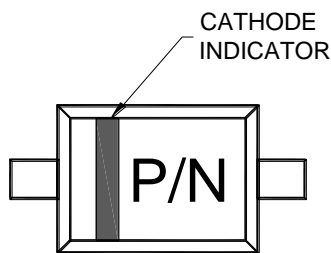


**PACKAGE OUTLINE DIMENSIONS**

**SOD-323F**



**SUGGESTED PAD LAYOUT**



**MARKING DIAGRAM**

P/N = MARKING CODE

**NOTES: UNLESS OTHERWISE SPECIFIED**

1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. DIMENSIONING AND TOLERANCING PER ASME Y14.5M-1994.
3. PACKAGE OUTLINE REFERENCE: EIAJ ED-7500A-1, SC-90.
4. MOLDED PLASTIC BODY LATERAL DIMENSIONS DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.
5. DWG NO. REF: HQ2SD07-SOD323F-018 REV A.

## **Notice**

Specifications of the products displayed herein are subject to change without notice. TSC or anyone on its behalf assumes no responsibility or liability for any errors or inaccuracies.

Purchasers are solely responsible for the choice, selection, and use of TSC products and TSC assumes no liability for application assistance or the design of Purchasers' products.

Information contained herein is intended to provide a product description only. No license, express or implied, to any intellectual property rights is granted by this document. Except as provided in TSC's terms and conditions of sale for such products, TSC assumes no liability whatsoever, and disclaims any express or implied warranty, relating to sale and/or use of TSC products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright, or other intellectual property right.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify TSC for any damages resulting from such improper use or sale.