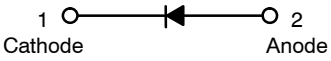
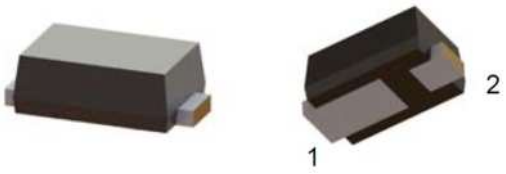
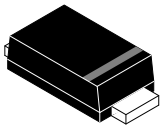
Surface Mount Schottky Barrier Rectifiers

1 A, 30 V - 60 V

SS13HE, NRVBSS13HE Series





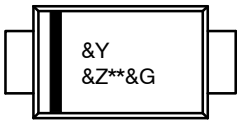


SOD−323EP
CASE 477AD

Features

- Very Low Profile − Typical Height of 0.68 mm
- Low Power Loss, High Efficiency
- Moisture Sensitivity Level 1 per J−STD−020
- UL Flammability 94V−0 Classification
- RoHS Compliant / Green Molding Compound
- NRVB Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC−Q101 Qualified and PPAP Capable

MARKING DIAGRAM



Band Indicates Cathode

&Y	= Binary Calendar Year Coding Scheme
&Z	= Assembly Plant Code
**	= Specific Device Code
&G	= Single Digit Weekly Data Code

ORDERING INFORMATION

Part Number	Device Code Marking	Package	Shipping Method†
SS13HE	1A	SOD−323HE	3000 / Tape and Reel
SS14HE	1B	SOD−323HE	3000 / Tape and Reel
SASS14HE	1B	SOD−323HE	3000 / Tape and Reel
SS16HE	1C	SOD−323HE	3000 / Tape and Reel
NRVBSS13HE	1A	SOD−323HE	3000 / Tape and Reel
NRVBSS14HE	1B	SOD−323HE	3000 / Tape and Reel
NRVBSS16HE	1C	SOD−323HE	3000 / Tape and Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

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Table 1. ABSOLUTE MAXIMUM RATINGS Values are at T_A = 25°C unless otherwise noted.

Symbol	Parameter	Value			Unit
		SS13HE	SS14HE, SASS14HE	SS16HE	
V_{RRM}	Maximum Repetitive Peak Reverse Voltage	30	40	60	V
V_R	Reverse Voltage	30	40	60	V
$I_{F(AV)}$	Maximum Average Forward Rectified Current	1			A
I_{FSM}	Peak Forward Surge Current: 8.3 ms Single Half Sine−Wave Superimposed on Rated Load	25			A
T_J	Operating Junction Temperature Range	−55 to +150			°C
T_{STG}	Storage Temperature Range	−55 to +150			°C

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

Table 2. THERMAL CHARACTERISTICS (Note 1) Values are at T_A = 25°C unless otherwise noted.

Symbol	Parameter	Value	Unit
Ψ_{JL}	Junction−to−Lead Thermal Resistance Thermocouple Soldered to Cathode	21	°C/W
$R_{\theta JA}$	Junction−to−Ambient Thermal Resistance (Note 1)	199	°C/W

1. Per JESD51−3 Recommended Thermal Test Board. Device mounted on FR−4 PCB, board size = 76.2 mm x 114.3 mm

Table 3. ELECTRICAL CHARACTERISTICS Values are at T_A = 25°C unless otherwise noted.

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
V_F	Instantaneous Forward Voltage (Note 2)	I_F = 0.5 A, T_J = 25°C	SS13HE, SS14HE, SASS14HE		0.41		V
		I_F = 0.5 A, T_J = 125°C			0.31		
		I_F = 1.0 A, T_J = 25°C			0.46	0.55	
		I_F = 1.0 A, T_J = 125°C			0.40	0.50	
		I_F = 0.5 A, T_J = 25°C	SS16HE		0.51		
		I_F = 0.5 A, T_J = 125°C			0.45		
		I_F = 1.0 A, T_J = 25°C			0.61	0.68	
		I_F = 1.0 A, T_J = 125°C			0.54	0.60	
I_R	Reverse Current at Rated V_R	T_J = 25°C	SS13HE, SS14HE, SASS14HE		5.0	50	μA
		T_J = 125°C			3.0	10	mA
		T_J = 25°C	SS16HE		2.0	50	μA
		T_J = 125°C			1.5	10	mA
T_{rr}	Reverse Recovery Time	I_F = 0.5 A, I_R = 1.0 A, I_{rr} = 0.25 A	SS13HE, SS14HE, SASS14HE		5.6		ns
			SS16HE		8.3		
C_J	Junction Capacitance	V_R = 4.0 V, f = 1 MHz	SS13HE, SS14HE, SASS14HE		55		pF
			SS16HE		43		

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

2. Pulse test with PW = 300 μs, 1% duty cycle

TYPICAL PERFORMANCE CHARACTERISTICS

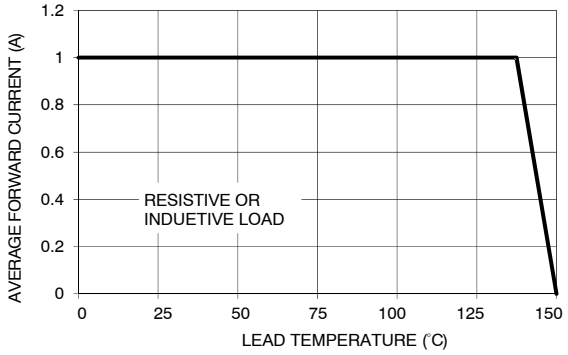

Figure 1. Forward Current Derating Curve



Figure 2. Maximum Non−Repetitive Forward Surge Current

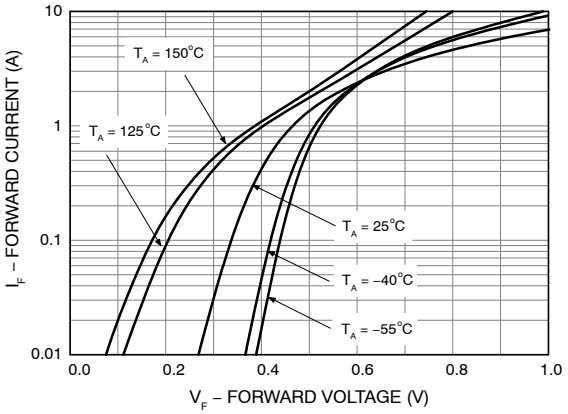

Figure 3. Typical Forward Characteristics – SS13HE / SS14HE

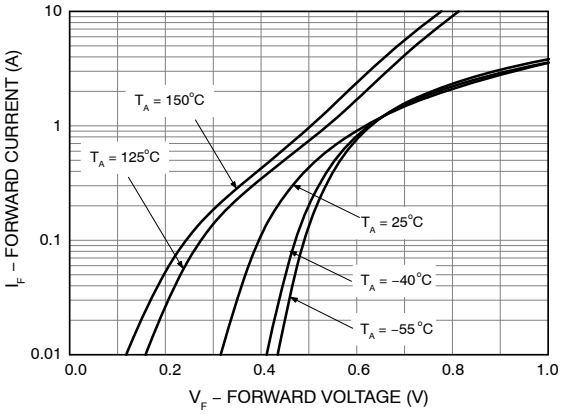

Figure 4. Typical Forward Characteristics – SS16HE

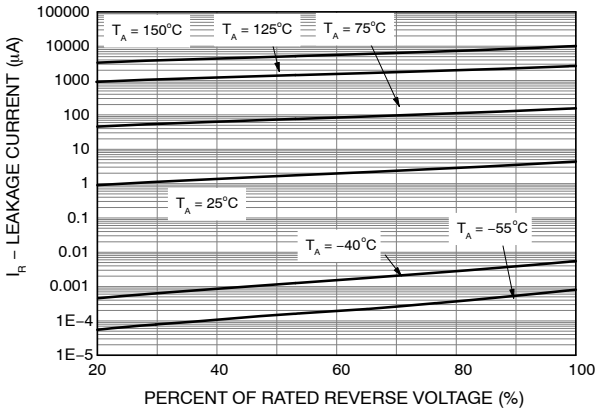

Figure 5. Typical Reverse Characteristics – SS13HE / SS14HE

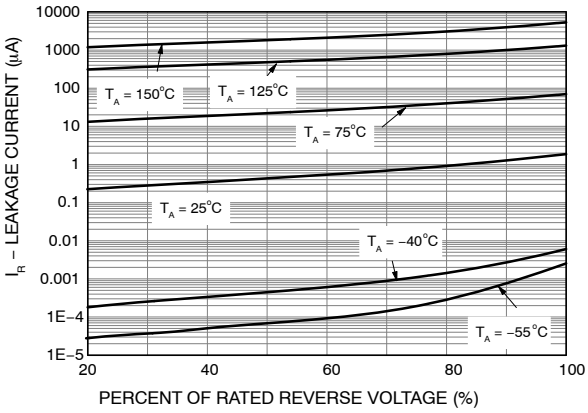

Figure 6. Typical Reverse Characteristics – SS16HE

TYPICAL PERFORMANCE CHARACTERISTICS

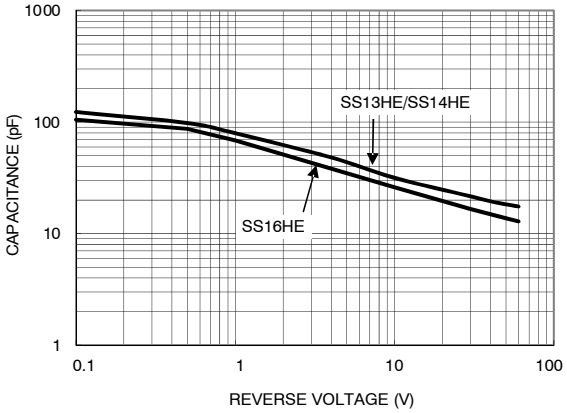

Figure 7. Typical Junction Capacitance

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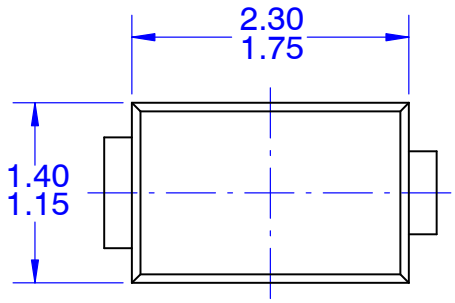
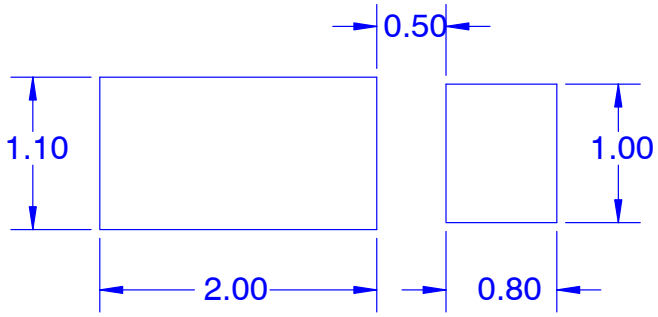
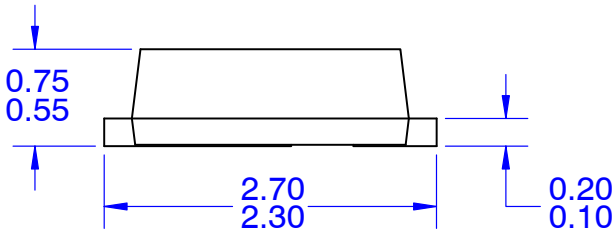


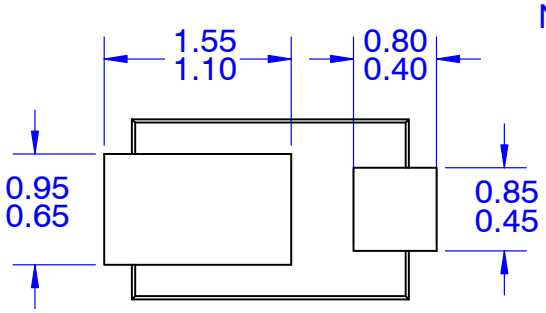
TOP VIEW



LAND PATTERN RECOMMENDATION



FRONT VIEW



BOTTOM VIEW

NOTES:

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