



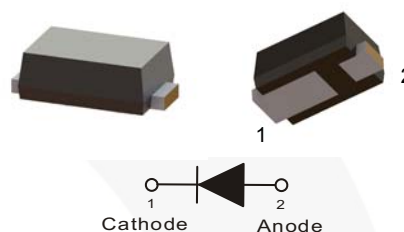
April 2016

# SS13HE - SS16HE

## 1 A, 30 V - 60 V Surface Mount Schottky Barrier Rectifiers

### 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 Mold Compound
  - Industrial Devices Qualified Per AEC-Q101 Rev. C Standards
- \* see authorized use policy



### Ordering Information

Part Number	Top Mark	Package	Packing Method
SS13HE	1A	SOD-323HE	Tape and Reel
SS14HE	1B	SOD-323HE	Tape and Reel
SS16HE	1C	SOD-323HE	Tape and Reel

### Absolute Maximum Ratings

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

Symbol	Parameter	Value			Unit
		SS13HE	SS14HE	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			$^\circ\text{C}$
$T_{STG}$	Storage Temperature Range	-55 to +150			$^\circ\text{C}$

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**Thermal Characteristics<sup>(1)</sup>**

Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

Symbol	Parameter	Value	Unit
$\psi_{JL}$	Junction to Lead Thermal Resistance Thermocouple Soldered to Cathode	21	$^\circ\text{C/W}$
$R_{\theta JA}$	Junction to Ambient Thermal Resistance (1)	199	$^\circ\text{C/W}$

Note 1: Per JE51-3 Recommended Thermal Test Board. Device mounted on FR-4 PCB, board size = 76.2mm x 114.3mm

**Electrical Characteristics**

Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

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

**Note:**

2. Pulse test with  $PW = 300\text{ }\mu\text{s}$ , 1% duty cycle.

## Typical Performance Characteristics

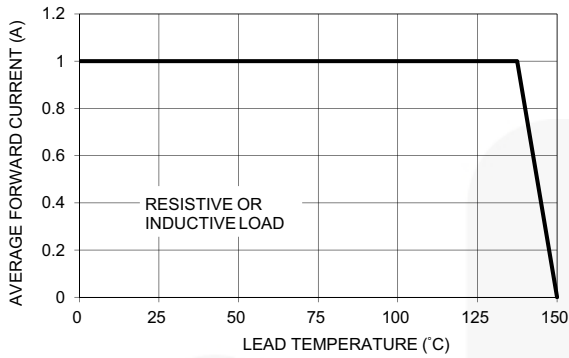


Figure 1. Forward Current Derating Curve

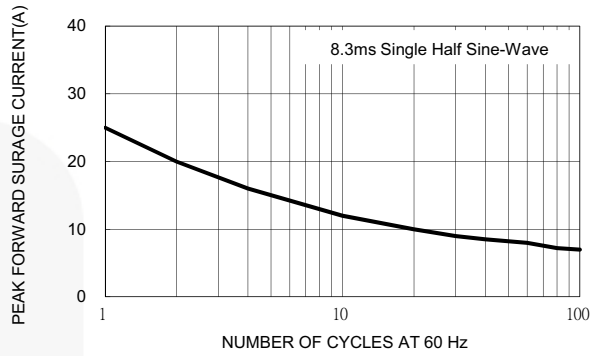


Figure 2. Maximum Non-Repetitive Forward Surge Current

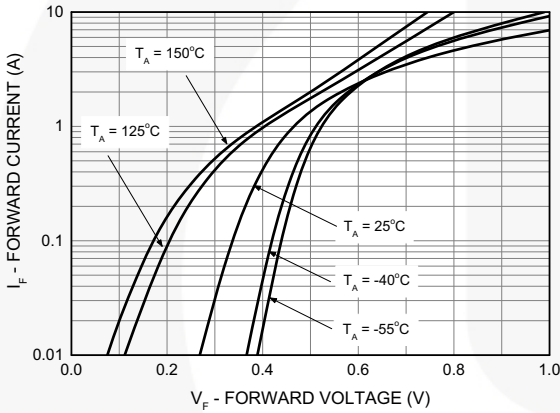


Figure 3. Typical Forward Characteristics  
- SS13HE / SS14HE

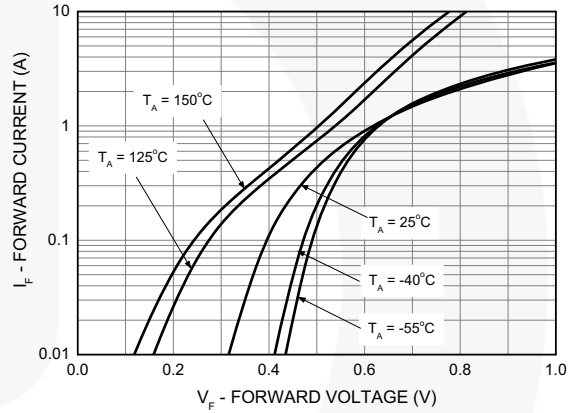


Figure 4. Typical Forward Characteristics  
- SS16HE

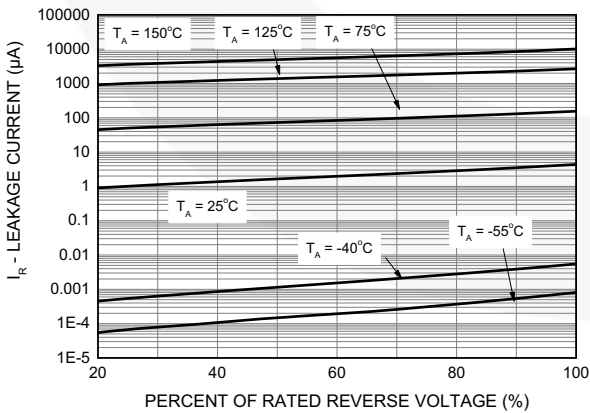


Figure 5. Typical Reverse Characteristics  
- SS13HE / SS14HE

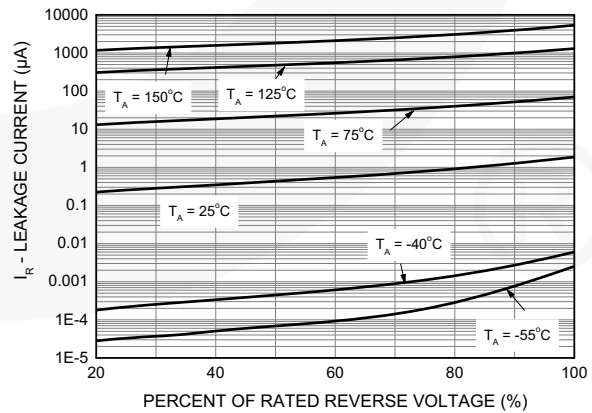
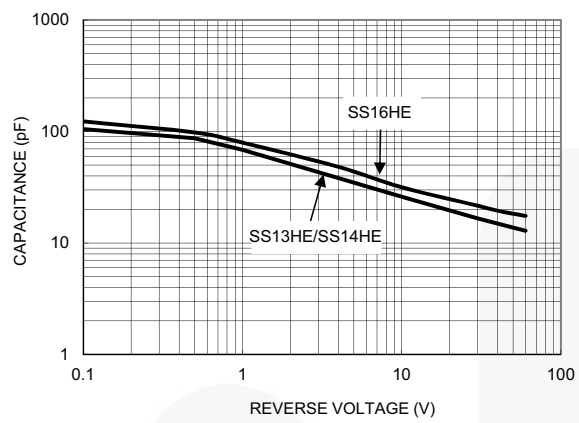
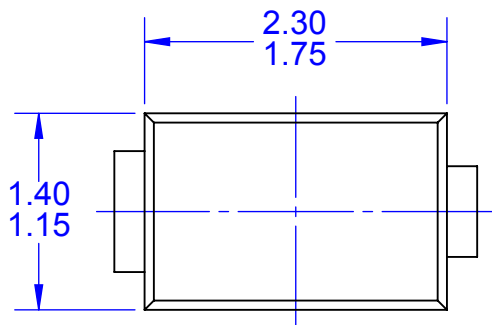


Figure 6. Typical Reverse Characteristics  
- SS16HE

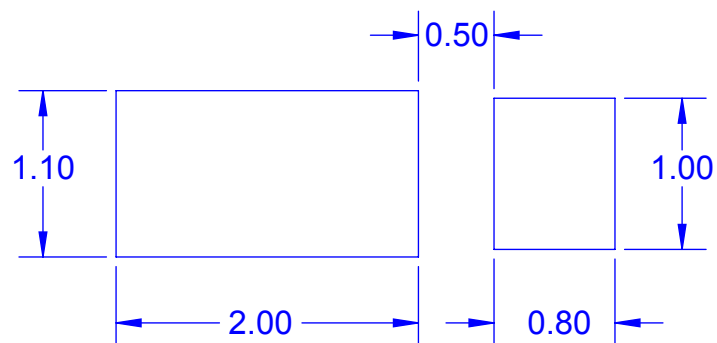
**Typical Performance Characteristics** (Continued)



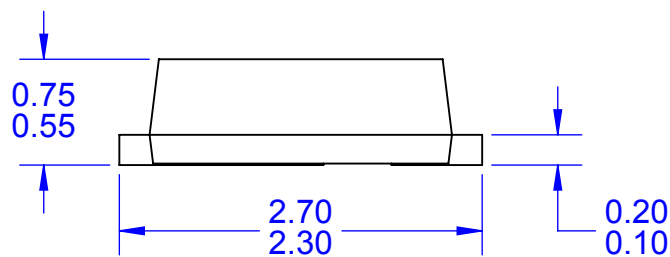
**Figure 7. Typical Junction Capacitance**



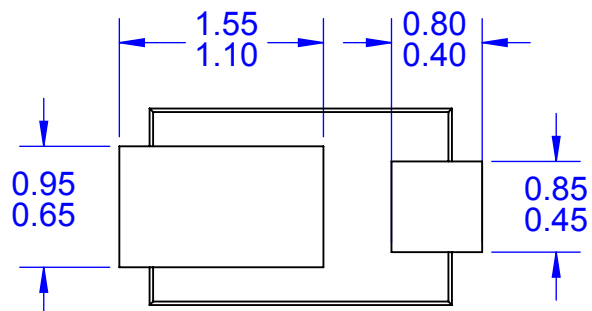
TOP VIEW



LAND PATTERN RECOMMENDATION



FRONT VIEW



BOTTOM VIEW

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