

## 1A, 40V - 200V Schottky Barrier Surface Mount Rectifier

### FEATURES

- Ideal for automated placement
- Compact package size, profile <0.85mm
- Ultra low leakage current
- High surge current capability
- Low power loss, high efficiency
- 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
- DC to DC converter

### MECHANICAL DATA

- Case: SOD-123HE
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 2 whisker test
- Polarity: Indicated by cathode band
- Weight: 0.021g (approximately)

| KEY PARAMETERS |            |      |
|----------------|------------|------|
| PARAMETER      | VALUE      | UNIT |
| $I_F$          | 1          | A    |
| $V_{RRM}$      | 40 - 200   | V    |
| $I_{FSM}$      | 30         | A    |
| $T_{J\ MAX}$   | 150        | °C   |
| Package        | SOD-123HE  |      |
| Configuration  | Single die |      |



| ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)        |              |              |             |              |              |              |      |
|--|--------------|--------------|-------------|--------------|--------------|--------------|------|
| PARAMETER  | SYMBOL       | SS1H4<br>LS  | SS1H6<br>LS | SS1H10<br>LS | SS1H15<br>LS | SS1H20<br>LS | UNIT |
| Marking code on the device   |              | 1H4LS        | 1H6LS       | 1H10LS       | 1H15LS       | 1H20LS       |      |
| Repetitive peak reverse voltage  | $V_{RRM}$    | 40           | 60          | 100          | 150          | 200          | V    |
| Reverse voltage, total rms value   | $V_{R(RMS)}$ | 28           | 42          | 70           | 105          | 140          | V    |
| Forward current  | $I_F$        | 1            |             |              |              |              | A    |
| Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load | $I_{FSM}$    | 30           |             |              |              |              | A    |
| Junction temperature   | $T_J$        | - 55 to +150 |             |              |              |              | °C   |
| Storage temperature  | $T_{STG}$    | - 55 to +150 |             |              |              |              | °C   |

| <b>THERMAL PERFORMANCE</b>             |                 |            |             |
|--|-----------------|------------|-------------|
| <b>PARAMETER</b>                       | <b>SYMBOL</b>   | <b>TYP</b> | <b>UNIT</b> |
| Junction-to-lead thermal resistance    | $R_{\theta JL}$ | 20         | °C/W        |
| Junction-to-ambient thermal resistance | $R_{\theta JA}$ | 72         | °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>TYP</b> | <b>MAX</b> | <b>UNIT</b>   |
| Forward voltage <sup>(1)</sup>  | SS1H4LS              | $I_F = 1\text{A}, T_J = 25^\circ\text{C}$ | $V_F$         | -          | 0.65       | V             |
|   | SS1H6LS              |   |               | -          | 0.70       | V             |
|   | SS1H10LS             |   |               | -          | 0.80       | V             |
|   | SS1H15LS<br>SS1H20LS |   |               | -          | 0.85       | V             |
| Reverse current @ rated $V_R$ <sup>(2)</sup>  | SS1H4LS<br>SS1H6LS   | $T_J = 25^\circ\text{C}$                  | $I_R$         | -          | 1.0        | $\mu\text{A}$ |
|   |                      | $T_J = 125^\circ\text{C}$                 |               | -          | 0.3        | mA            |
|   | SS1H10LS<br>SS1H15LS | $T_J = 25^\circ\text{C}$                  |               | -          | 1.0        | $\mu\text{A}$ |
|   |                      | $T_J = 125^\circ\text{C}$                 |               | -          | 0.2        | mA            |
|   | SS1H20LS             | $T_J = 25^\circ\text{C}$                  |               | -          | 1.0        | $\mu\text{A}$ |
|   |                      | $T_J = 125^\circ\text{C}$                 |               | -          | 0.1        | mA            |

**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</b> <sup>(1)</sup> | <b>PACKAGE</b> | <b>PACKING</b>       |
| SS1HxLS                             | SOD-123HE      | 10,000 / Tape & Reel |

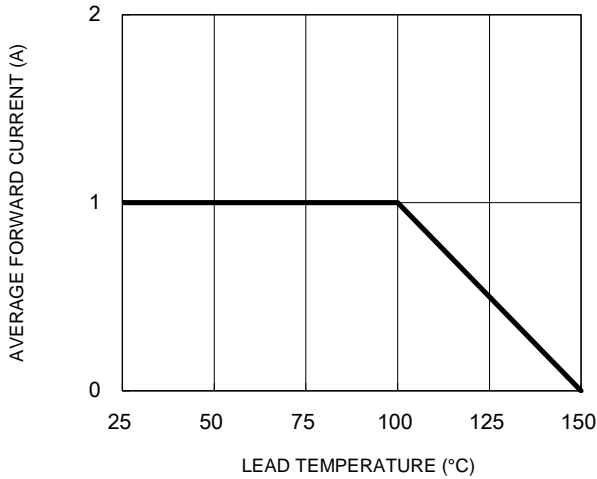
**Notes:**

1. "x" defines voltage from 40V(SS1H4LS) to 200V(SS1H20LS)

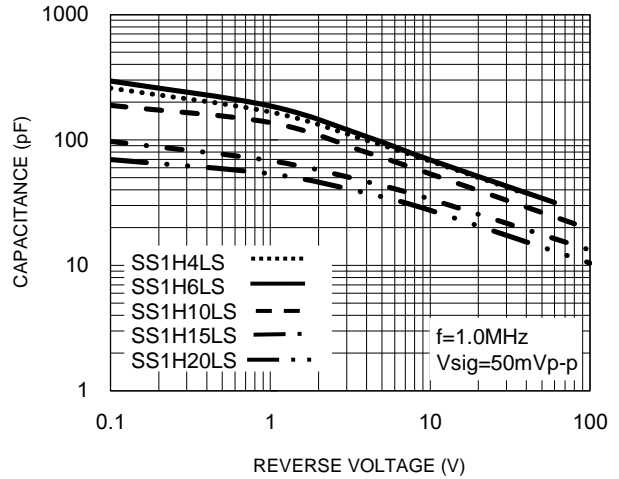
**CHARACTERISTICS CURVES**

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

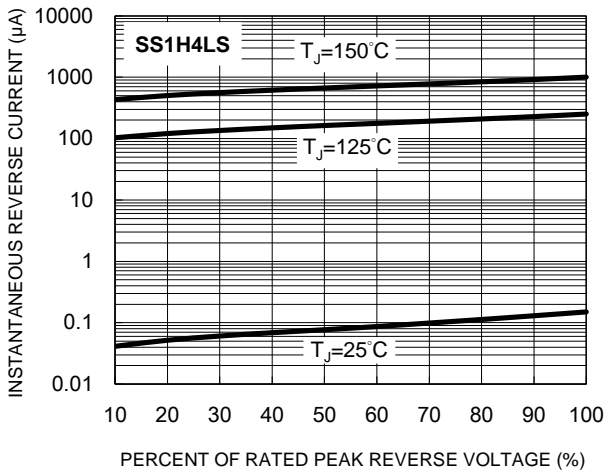
**Fig.1 Forward Current Derating Curve**



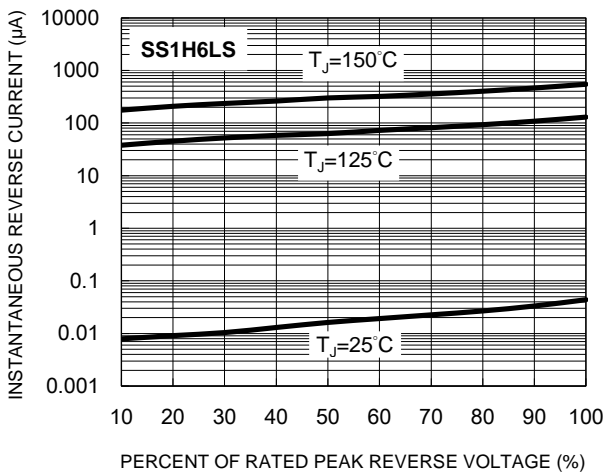
**Fig.2 Typical Junction Capacitance**



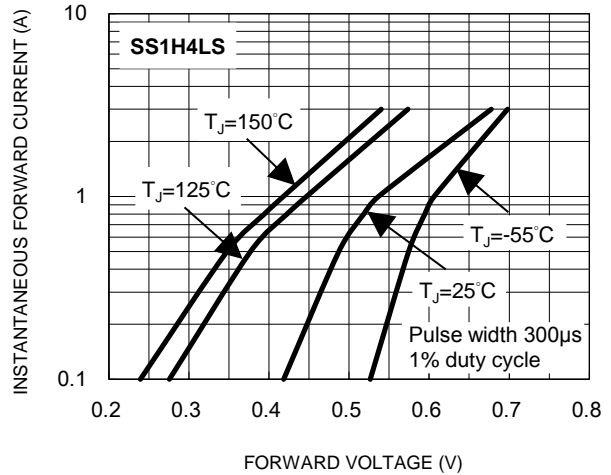
**Fig.3 Typical Reverse Characteristics**



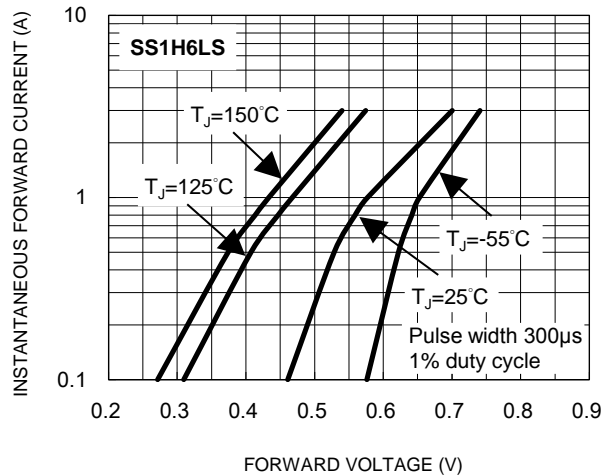
**Fig.5 Typical Reverse Characteristics**



**Fig.4 Typical Forward Characteristics**



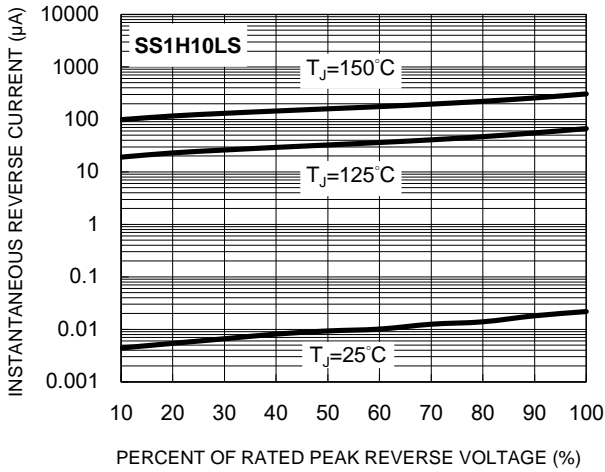
**Fig.6 Typical Forward Characteristics**



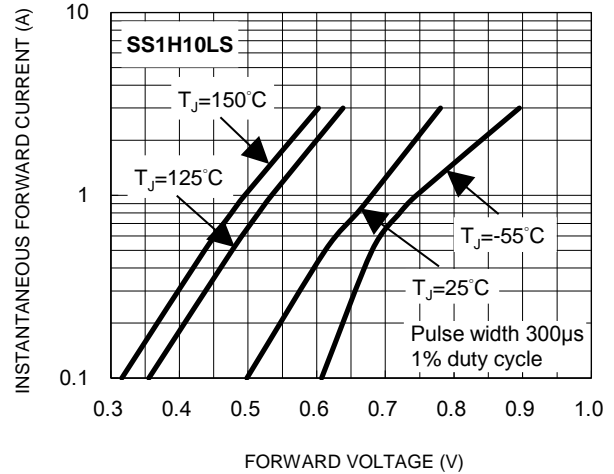
**CHARACTERISTICS CURVES**

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

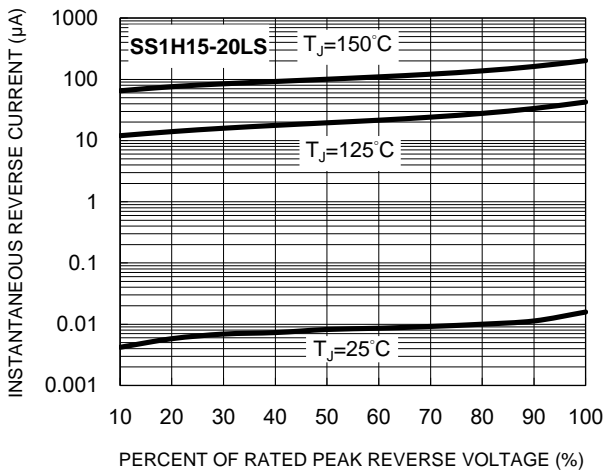
**Fig.7 Typical Reverse Characteristics**



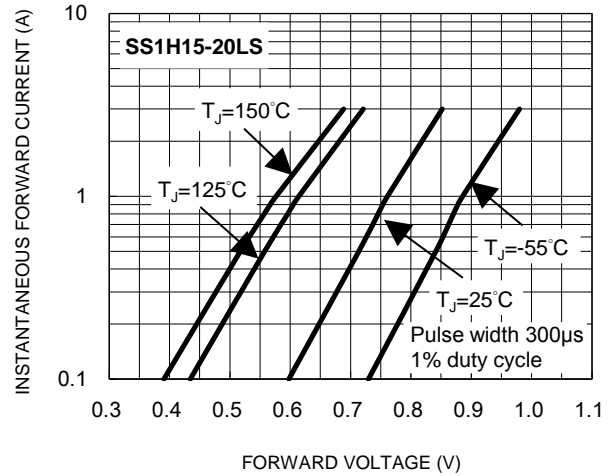
**Fig.8 Typical Forward Characteristics**



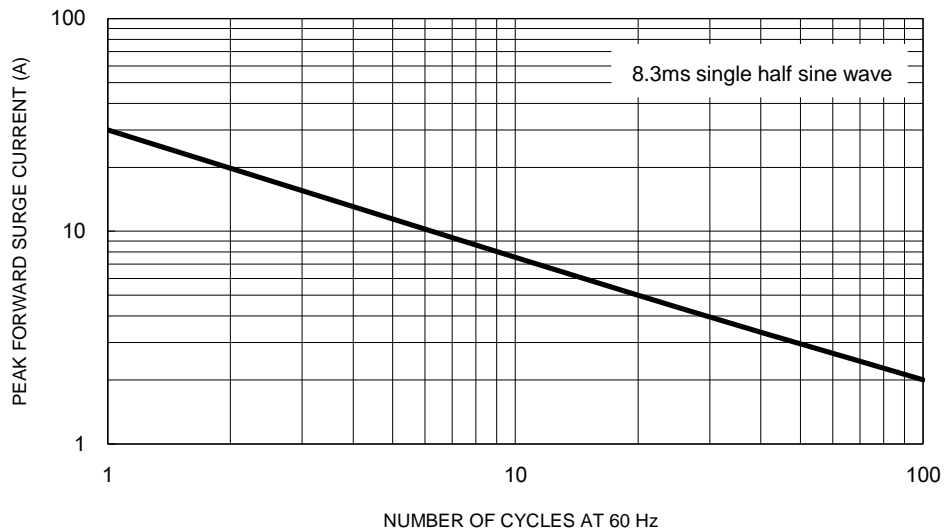
**Fig.9 Typical Reverse Characteristics**



**Fig.10 Typical Forward Characteristics**

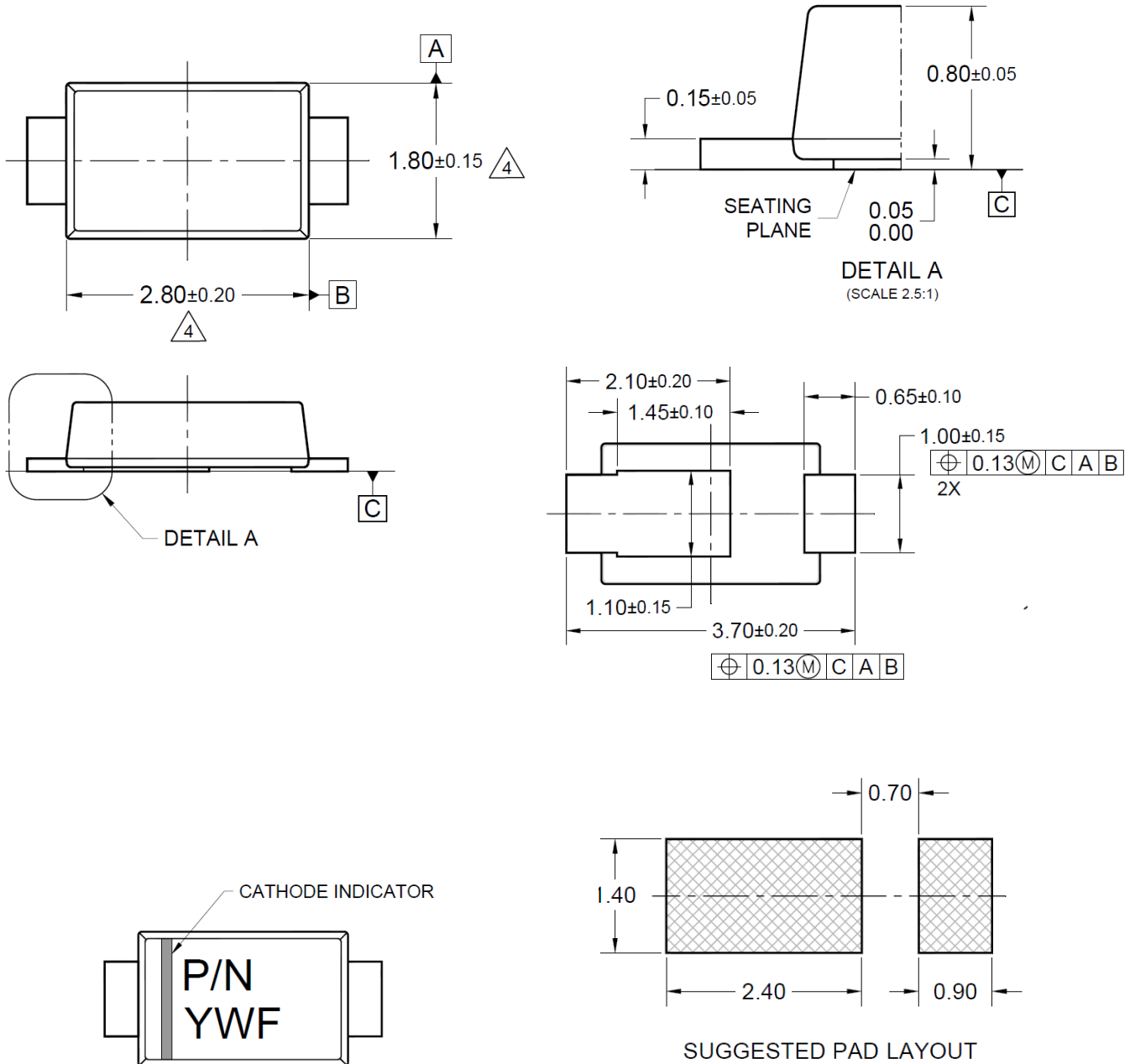


**Fig.11 Maximum Non-Repetitive Forward Surge Current**



**PACKAGE OUTLINE DIMENSIONS**

**SOD-123HE**



MARKING DIAGRAM

P/N = MARKING CODE  
 YW = DATE CODE  
 F = FACTORY CODE

NOTES: UNLESS OTHERWISE SPECIFIED

1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. DIMENSIONING AND TOLERANCING PER ASME Y14.5M-2009.
3. THERE IS NO EXISTING INDUSTRY STANDARD FOR THIS PACKAGE.
4. MOLDED PLASTIC BODY DIMENSIONS DO NOT INCLUDE MOLD FLASH.
5. DWG NO. REF: HQ2SD07-SOD123HE-038 REV A.

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