

1.2A, 600V - 1000V Fast Recovery Surface Mount Rectifier

FEATURES

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

APPLICATIONS

- DC to DC converter
- Switching mode converters and inverters
- General purpose

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: 0.022g (approximately)

| KEY PARAMETERS | | |
|----------------|------------|------|
| PARAMETER | VALUE | UNIT |
| I_F | 1.2 | A |
| V_{RRM} | 600 - 1000 | V |
| I_{FSM} | 50 | A |
| $T_{J\ MAX}$ | 175 | °C |
| Package | SOD-123HE | |
| Configuration | Single die | |



SOD-123HE



| ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted) | | | | | |
|--|--------------|--------------|--------|--------|------|
| PARAMETER | SYMBOL | RS1JLS | RS1KLS | RS1MLS | UNIT |
| Marking code on the device | | RJLS | RKLS | RMLS | |
| Repetitive peak reverse voltage | V_{RRM} | 600 | 800 | 1000 | V |
| Reverse voltage, total rms value | $V_{R(RMS)}$ | 420 | 560 | 700 | V |
| Forward current | I_F | 1.2 | | | A |
| Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load | I_{FSM} | 50 | | | A |
| Junction temperature | T_J | - 55 to +175 | | | °C |
| Storage temperature | T_{STG} | - 55 to +175 | | | °C |

| THERMAL PERFORMANCE | | | |
|--|-----------------|------------|-------------|
| PARAMETER | SYMBOL | TYP | UNIT |
| Junction-to-ambient thermal resistance | $R_{\theta JA}$ | 80 | °C/W |
| Junction-to-lead thermal resistance | $R_{\theta JL}$ | 20 | °C/W |

| ELECTRICAL SPECIFICATIONS ($T_A = 25^\circ\text{C}$ unless otherwise noted) | | | | | |
|---|---|---------------|------------|------------|---------------|
| PARAMETER | CONDITIONS | SYMBOL | TYP | MAX | UNIT |
| Forward voltage ⁽¹⁾ | $I_F = 1.2\text{A}, T_J = 25^\circ\text{C}$ | V_F | - | 1.3 | V |
| Reverse current @ rated V_R ⁽²⁾ | $T_J = 25^\circ\text{C}$ | I_R | - | 5 | μA |
| | $T_J = 125^\circ\text{C}$ | | - | 150 | μA |
| Reverse recovery time | $I_F = 0.5\text{A}, I_R = 1.0\text{A}$ $I_{rr} = 0.25\text{A}$ | t_{rr} | - | 300 | ns |

Notes:

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

| ORDERING INFORMATION | | |
|-------------------------------------|----------------|----------------------|
| ORDERING CODE ⁽¹⁾ | PACKAGE | PACKING |
| RS1xLS | SOD-123HE | 10,000 / Tape & Reel |

Notes:

1. "x" defines voltage from 600V(RS1JLS) to 1000V(RS1MLS)

CHARACTERISTICS CURVES

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

Fig.1 Forward Current Derating Curve

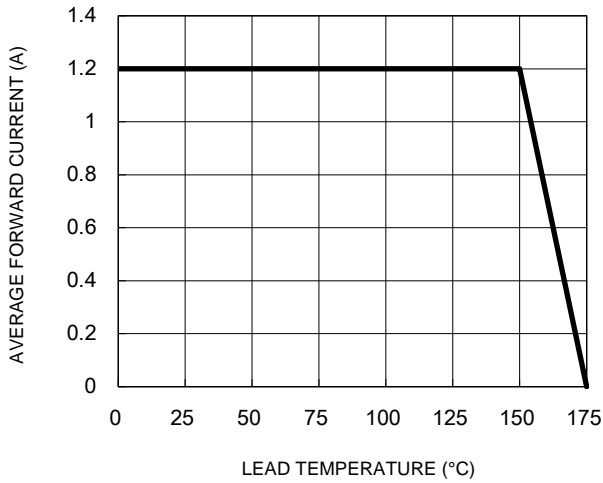


Fig.2 Typical Junction Capacitance

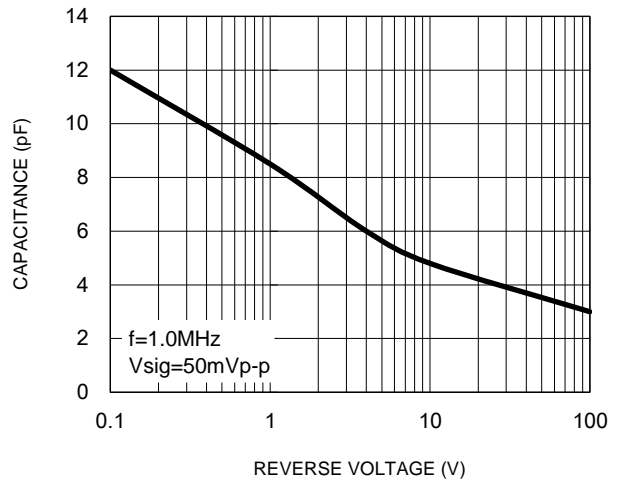


Fig.3 Typical Reverse Characteristics

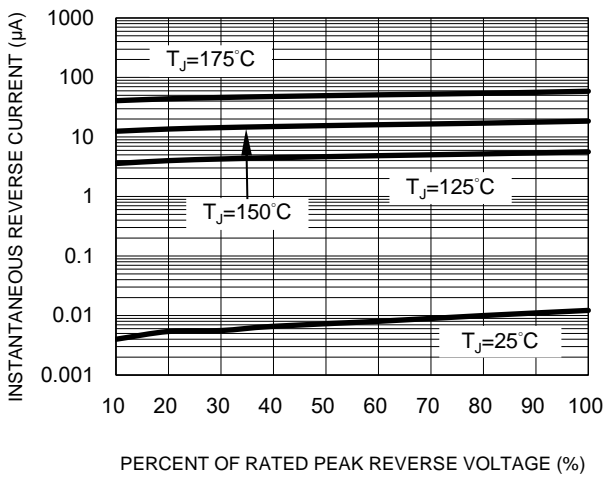


Fig.4 Typical Forward Characteristics

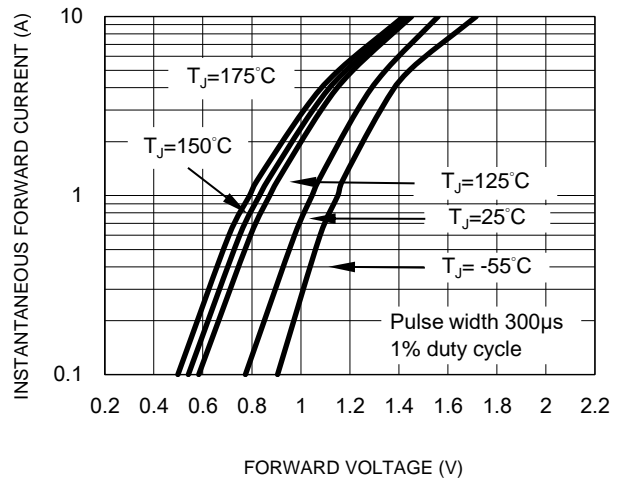
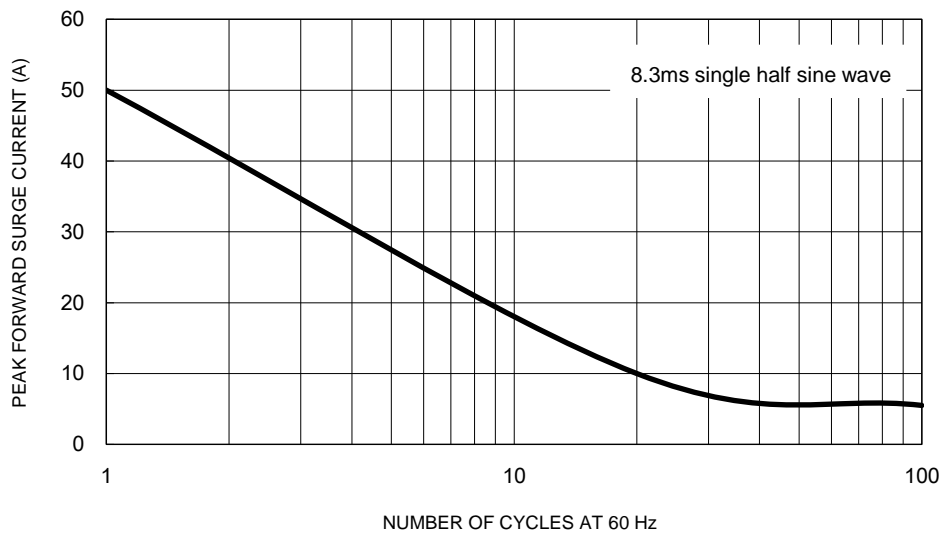


Fig.5 Maximum Non-Repetitive Forward Surge Current



CHARACTERISTICS CURVES

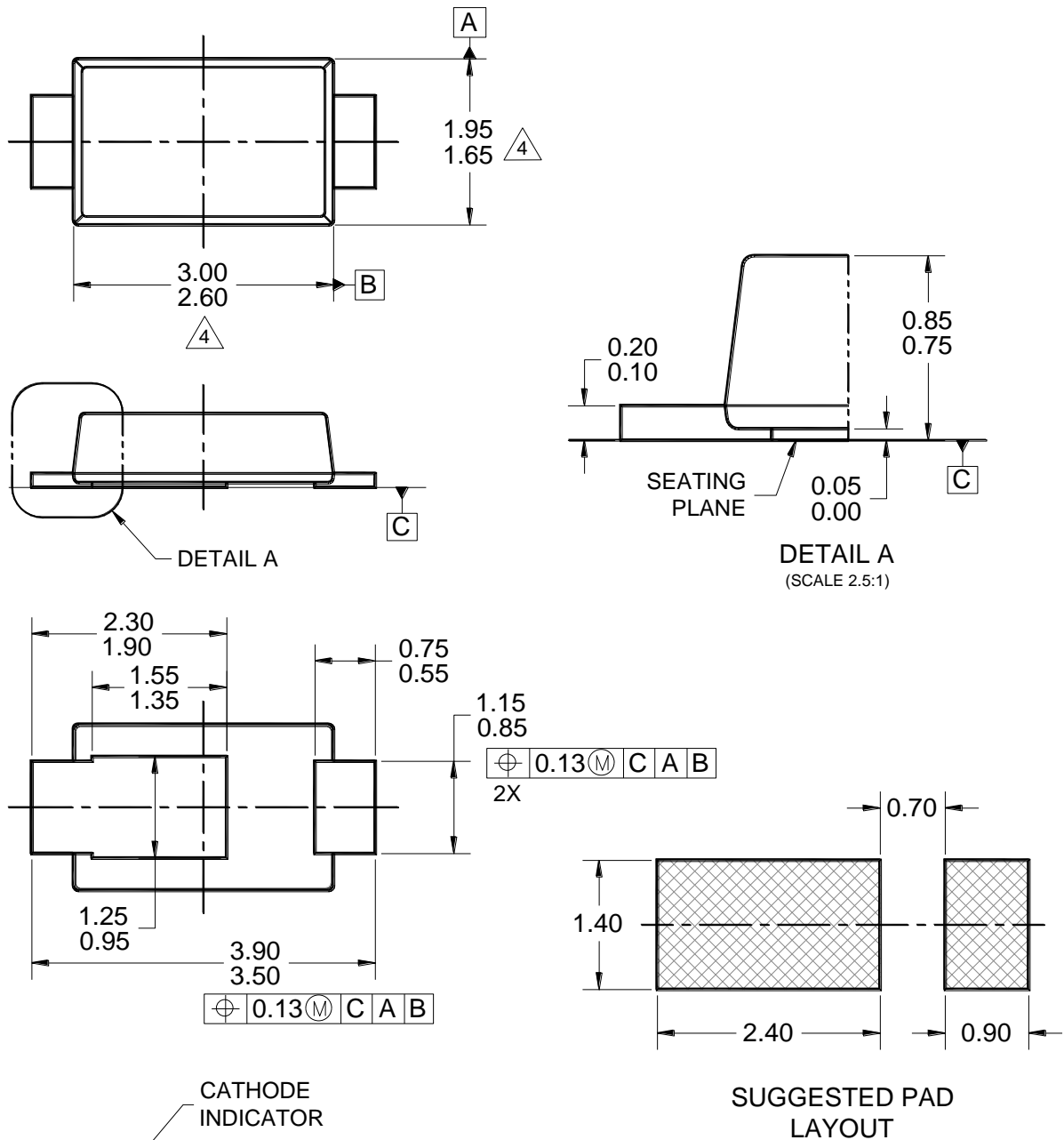
(T_A = 25°C unless otherwise noted)

Fig.6 Reverse Recovery Time Characteristic and Test Circuit Diagram



PACKAGE OUTLINE DIMENSIONS

SOD-123HE



MARKING DIAGRAM

P/N = MARKING CODE
YWF = 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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