

3A, 120V Trench Schottky Surface Mount Rectifier

FEATURES

- AEC-Q101 qualified
- Low power loss, high efficiency
- Ideal for automated placement
- High surge current capability
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free

APPLICATIONS

- Low voltage, high frequency
- DC/DC converter
- Freewheeling diodes
- Reverse battery protection
- Car lighting

MECHANICAL DATA

- Case: SOD-128
- 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: 0.028g (approximately)

| KEY PARAMETERS | | |
|----------------|------------|------|
| PARAMETER | VALUE | UNIT |
| I_F | 3 | A |
| V_{RRM} | 120 | V |
| I_{FSM} | 95 | A |
| $T_{J\ MAX}$ | 175 | °C |
| Package | SOD-128 | |
| Configuration | Single die | |



SOD-128



| ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted) | | | |
|--|--------------|--------------|------|
| PARAMETER | SYMBOL | VALUE | UNIT |
| Repetitive peak reverse voltage | V_{RRM} | 120 | V |
| Reverse voltage, total rms value | $V_{R(RMS)}$ | 84 | V |
| Forward current | I_F | 3 | A |
| Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load | I_{FSM} | 95 | 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-lead thermal resistance | $R_{\theta JL}$ | 13.7 | °C/W |
| Junction-to-ambient thermal resistance | $R_{\theta JA}$ | 71.5 | °C/W |
| Junction-to-case thermal resistance | $R_{\theta JC}$ | 14.4 | °C/W |

Thermal Performance Note: Units mounted on PCB (5mm x 5mm Cu pad test board)

| ELECTRICAL SPECIFICATIONS ($T_A = 25^\circ\text{C}$ unless otherwise noted) | | | | | |
|---|--|---------------|------------|------------|---------------|
| PARAMETER | CONDITIONS | SYMBOL | TYP | MAX | UNIT |
| Forward voltage ⁽¹⁾ | $I_F = 1.5\text{A}, T_J = 25^\circ\text{C}$ | V_F | 0.65 | - | V |
| | $I_F = 3.0\text{A}, T_J = 25^\circ\text{C}$ | | 0.73 | 0.82 | V |
| | $I_F = 1.5\text{A}, T_J = 125^\circ\text{C}$ | | 0.53 | - | V |
| | $I_F = 3.0\text{A}, T_J = 125^\circ\text{C}$ | | 0.60 | 0.69 | V |
| Reverse current @ rated V_R ⁽²⁾ | $T_J = 25^\circ\text{C}$ | I_R | - | 5 | μA |
| | $T_J = 125^\circ\text{C}$ | | - | 2 | mA |
| Junction capacitance | 1MHz, $V_R = 4.0\text{V}$ | C_J | 178 | - | pF |

Notes:

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

| ORDERING INFORMATION | | |
|-----------------------------|----------------|----------------------|
| ORDERING CODE | PACKAGE | PACKING |
| TSFS3H120H | SOD-128 | 14,000 / Tape & Reel |

CHARACTERISTICS CURVES

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

Fig.1 Forward Current Derating Curve

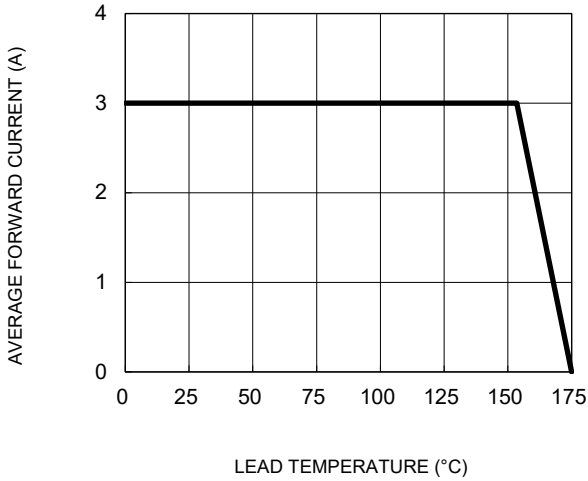


Fig.2 Typical Junction Capacitance

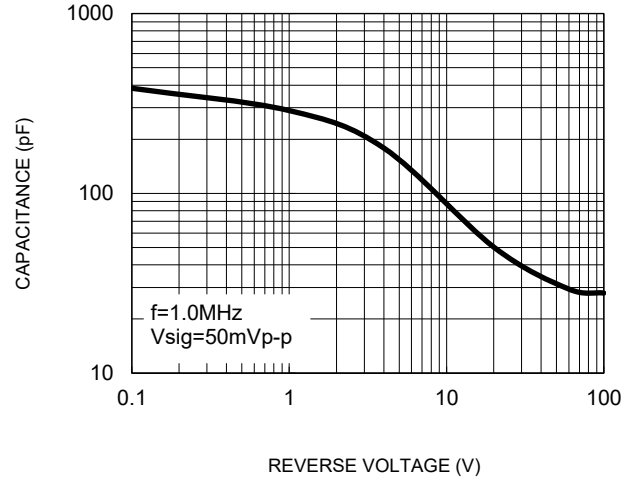


Fig.3 Typical Reverse Characteristics

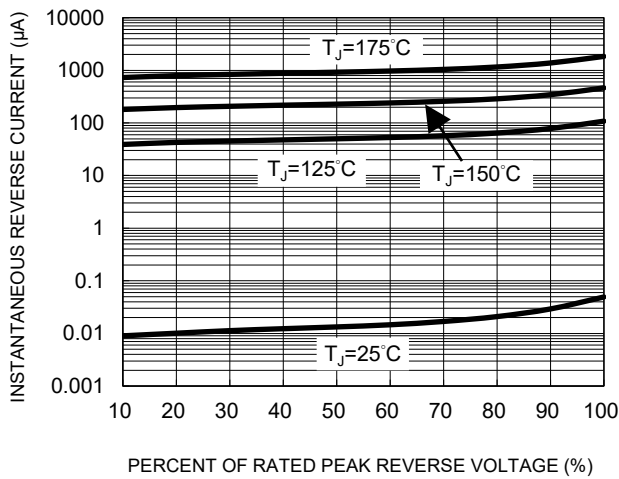


Fig.4 Typical Forward Characteristics

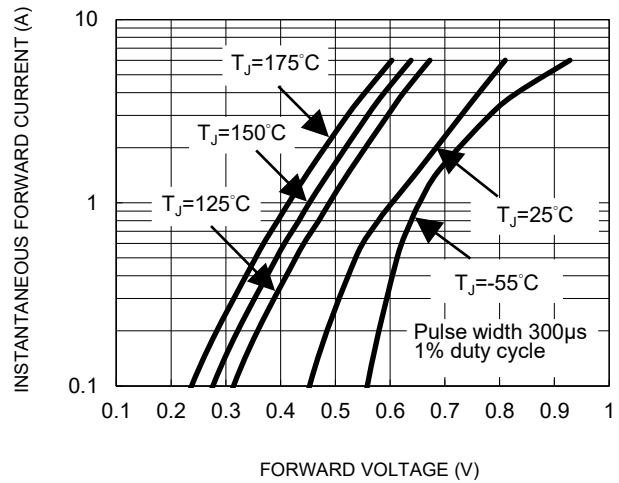
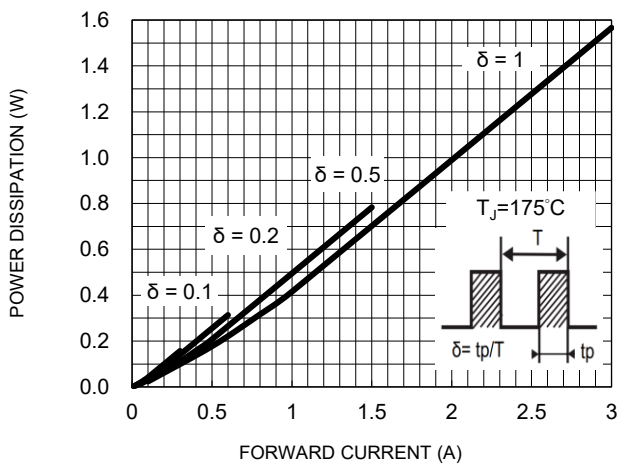


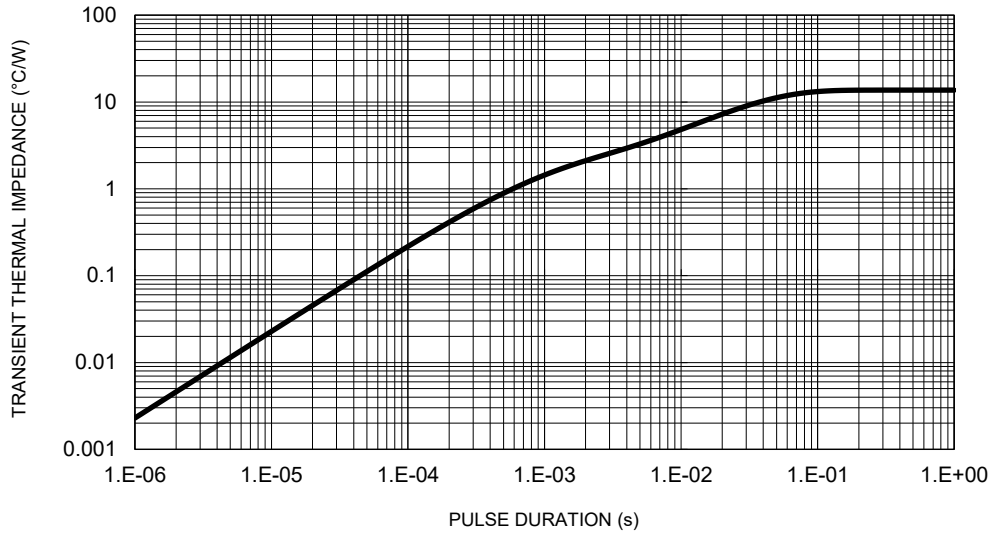
Fig.5 Typical Forward Power Dissipation vs. Forward Current



CHARACTERISTICS CURVES

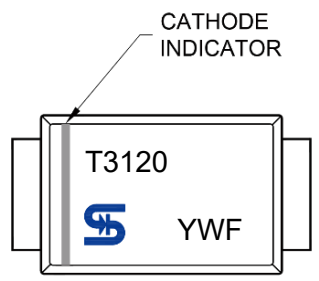
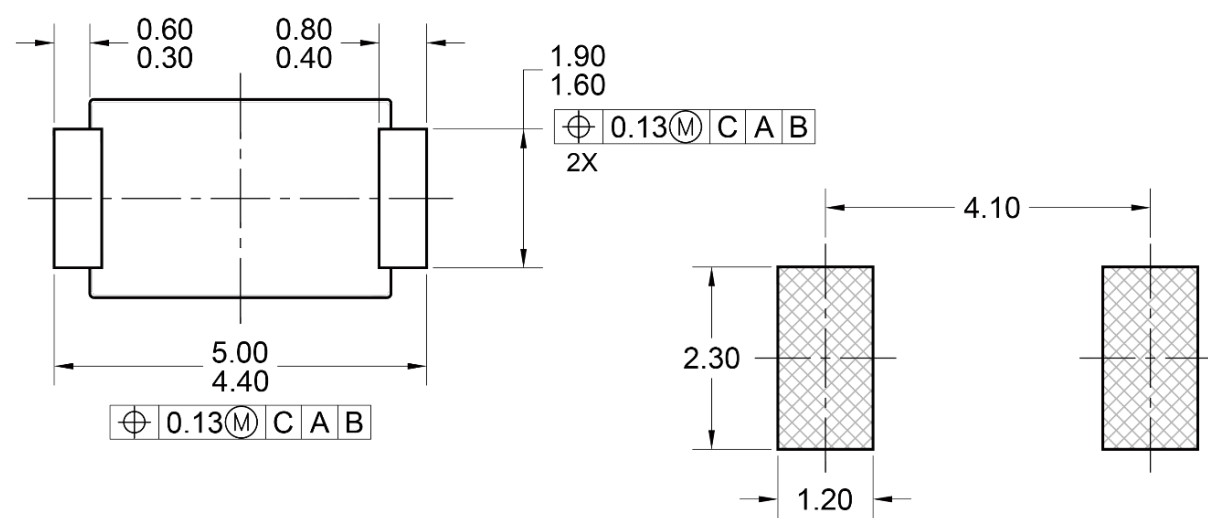
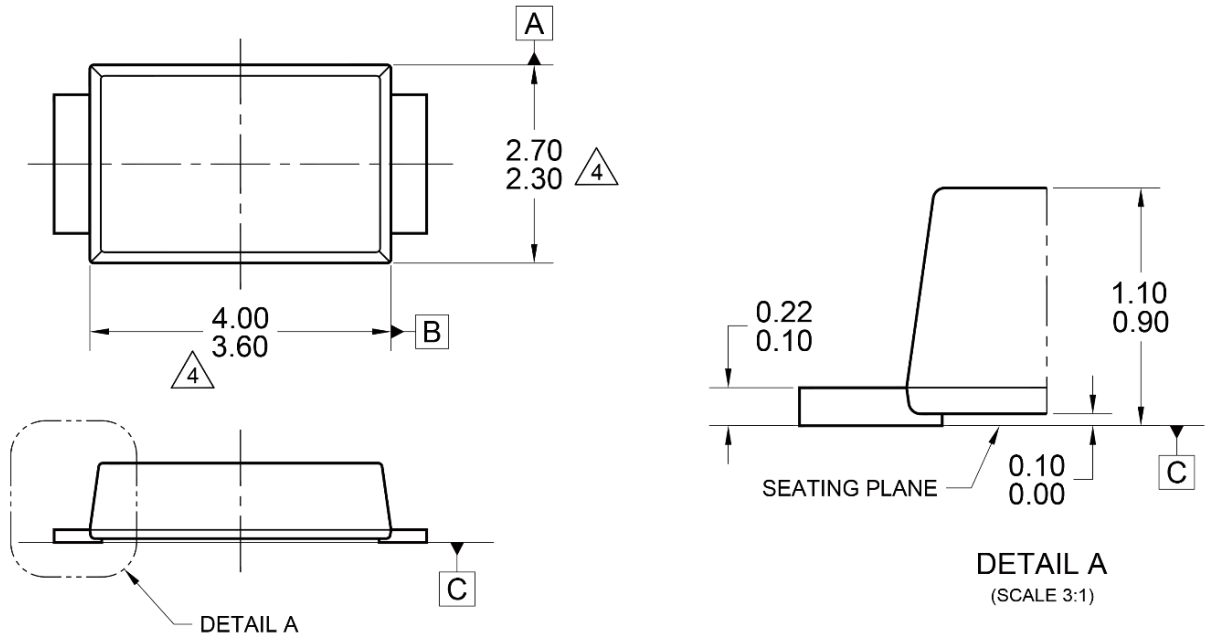
(T_A = 25°C unless otherwise noted)

Fig.6 Typical Transient Thermal Characteristics



PACKAGE OUTLINE DIMENSIONS

SOD-128




MARKING DIAGRAM

YW = DATE CODE
F = FACTORY CODE

SUGGESTED PAD LAYOUT

NOTES: UNLESS OTHERWISE SPECIFIED

1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. DIMENSIONING AND TOLERANCING PER ASME Y14.5M-2009.
3. PACKAGE OUTLINE REFERENCE: JEDEC DO-221, VARIATION AD, ISSUE B.
4.  MODIFIED PLASTIC BODY DIMENSIONS DO NOT INCLUDE MOLD FLASH.
5. DWG NO. REF: HQ2SD07-SOD128-039 REV A.

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