

0.8A, 200V - 1000V Surface Mount Rectifier

FEATURES

- Glass passivated junction chip
- Ideal for automated placement
- Compliant to RoHS Directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21

APPLICATIONS

- High frequency rectification
- Freewheeling application
- Switching mode converters and inverters in computer, automotive and telecommunication.

| KEY PARAMETERS | | |
|----------------|------------|------|
| PARAMETER | VALUE | UNIT |
| $I_{F(AV)}$ | 0.8 | A |
| V_{RRM} | 200 - 1000 | V |
| I_{FSM} | 20 | A |
| $T_{J\ MAX}$ | 150 | °C |
| Package | SOD-123W | |
| Configuration | Single die | |

MECHANICAL DATA

- Case: SOD-123W
- Molding compound meets UL 94V-0 flammability rating
- Part no. with suffix "H" means AEC-Q101 qualified
- Packing code with suffix "G" means green compound (halogen-free)
- Moisture sensitivity level: level 1, per J-STD-020
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 2 whisker test
- Polarity: As marked
- Weight: 16mg (approximately)



SOD-123W

| ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted) | | | | | | | | |
|---|--------------|-------------|------|------|------|------|------|----|
| PARAMETER | SYMBOL | SDLW | SGLW | SJLW | SKLW | SMLW | UNIT | |
| Marking code on the device | | DLW | GLW | JLW | KLW | MLW | | |
| Repetitive peak reverse voltage | V_{RRM} | 200 | 400 | 600 | 800 | 1000 | V | |
| Reverse voltage, total rms value | $V_{R(RMS)}$ | 140 | 280 | 420 | 560 | 700 | V | |
| Forward current | $I_{F(AV)}$ | 0.8 | | | | | | A |
| Surge peak forward current, 8.3 ms single half sine-wave superimposed on rated load per diode | I_{FSM} | 20 | | | | | | A |
| Junction temperature | T_J | -55 to +150 | | | | | | °C |
| Storage temperature | T_{STG} | -55 to +150 | | | | | | °C |

| THERMAL PERFORMANCE | | | |
|--|-----------------|------------|---------------|
| PARAMETER | SYMBOL | TYP | UNIT |
| Junction-to-lead thermal resistance per diode | $R_{\theta JL}$ | 30 | $^{\circ}C/W$ |
| Junction-to-ambient thermal resistance per diode | $R_{\theta JA}$ | 84 | $^{\circ}C/W$ |
| Junction-to-case thermal resistance per diode | $R_{\theta JC}$ | 31 | $^{\circ}C/W$ |

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

| ELECTRICAL SPECIFICATIONS ($T_A = 25^{\circ}C$ unless otherwise noted) | | | | | |
|--|----------------------------------|---------------|------------|------------|-------------|
| PARAMETER | CONDITIONS | SYMBOL | TYP | MAX | UNIT |
| Forward voltage per diode ⁽¹⁾ | $I_F = 0.4A, T_J = 25^{\circ}C$ | V_F | 0.89 | 0.98 | V |
| | $I_F = 0.8A, T_J = 25^{\circ}C$ | | 0.94 | 1.10 | V |
| | $I_F = 0.4A, T_J = 125^{\circ}C$ | | 0.77 | 0.93 | V |
| | $I_F = 0.8A, T_J = 125^{\circ}C$ | | 0.84 | 1.01 | V |
| Reverse current @ rated V_R per diode ⁽²⁾ | $T_J = 25^{\circ}C$ | I_R | - | 1 | μA |
| | $T_J = 125^{\circ}C$ | | - | 150 | μA |
| Junction capacitance | 1 MHz, $V_R = 4.0V$ | C_J | 7 | - | pF |

Notes:

1. Pulse test with PW=0.3 ms
2. Pulse test with PW=30 ms

| ORDERING INFORMATION | | | | | |
|-----------------------------|---------------------------|---------------------|----------------------------|----------------|-------------------|
| PART NO. | PART NO. SUFFIX(*) | PACKING CODE | PACKING CODE SUFFIX | PACKAGE | PACKING |
| SxLW (Note 1,2) | H | RV | G | SOD-123W | 3,000 / 7" Reel |
| | | RQ | | SOD-123W | 10,000 / 13" Reel |

Notes:

1. "x" defines voltage from 200V (SDLW) to 1000V (SMLW)
 2. Whole series with green compound (halogen-free)
- *: Optional available

| EXAMPLE P/N | | | | | |
|--------------------|-----------------|------------------------|---------------------|----------------------------|--------------------------------------|
| EXAMPLE P/N | PART NO. | PART NO. SUFFIX | PACKING CODE | PACKING CODE SUFFIX | DESCRIPTION |
| SMLWHRVG | SMLW | H | RV | G | AEC-Q101 qualified Green compound |

CHARACTERISTICS CURVES

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

Fig.1 Forward Current Derating Curve

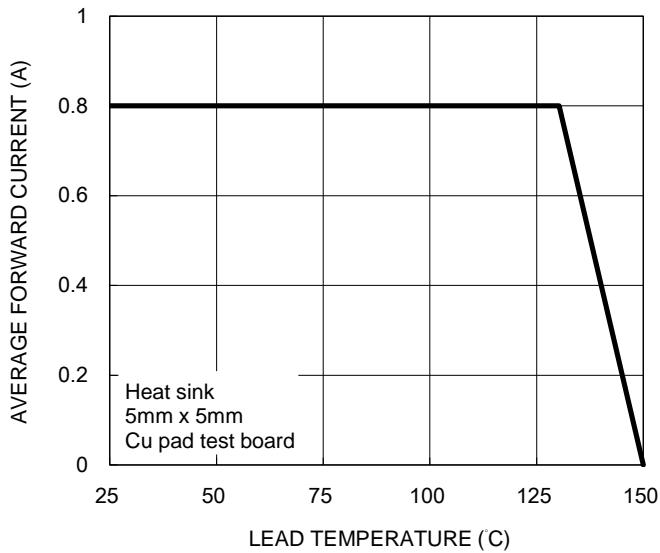


Fig.2 Typical Junction Capacitance

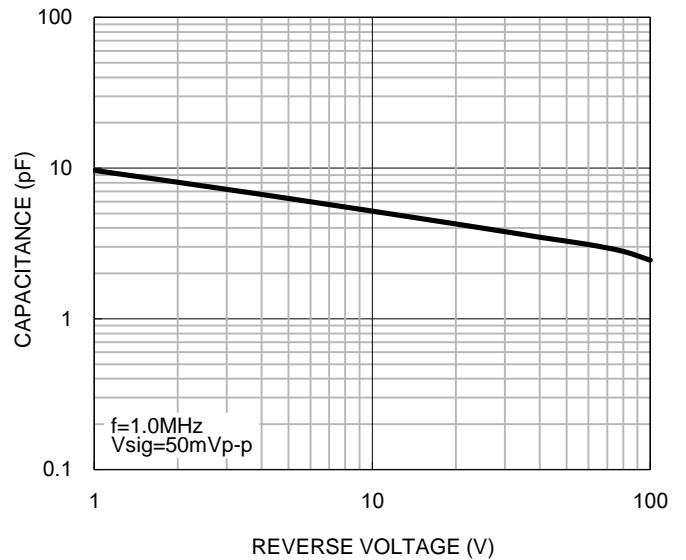


Fig.3 Typical Reverse Characteristics

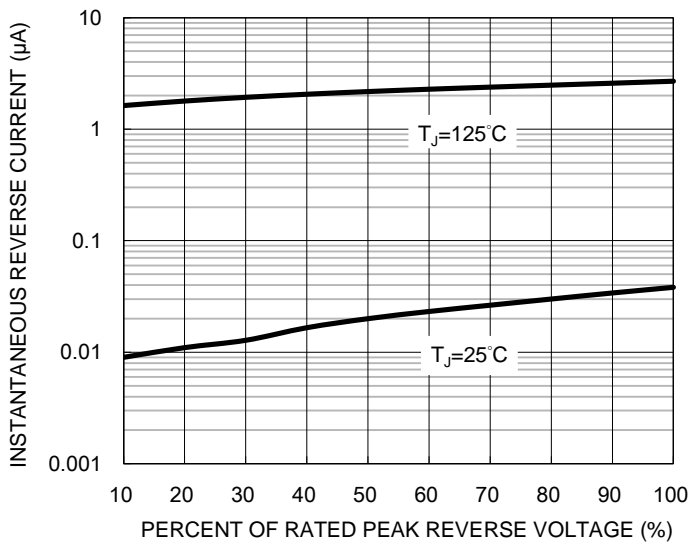
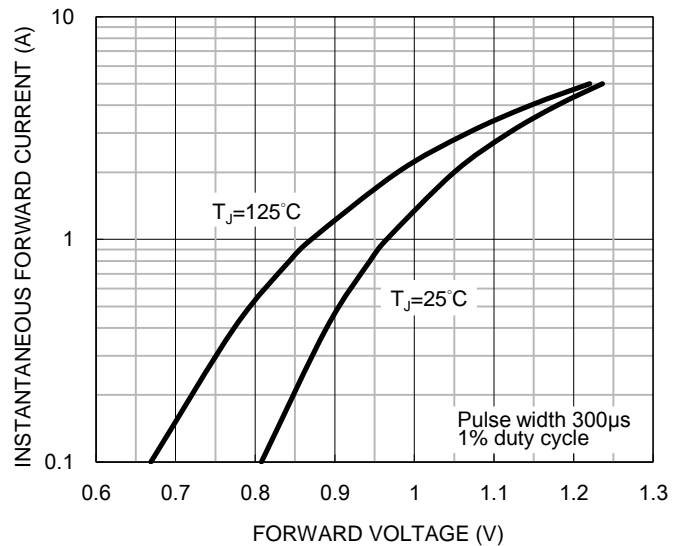
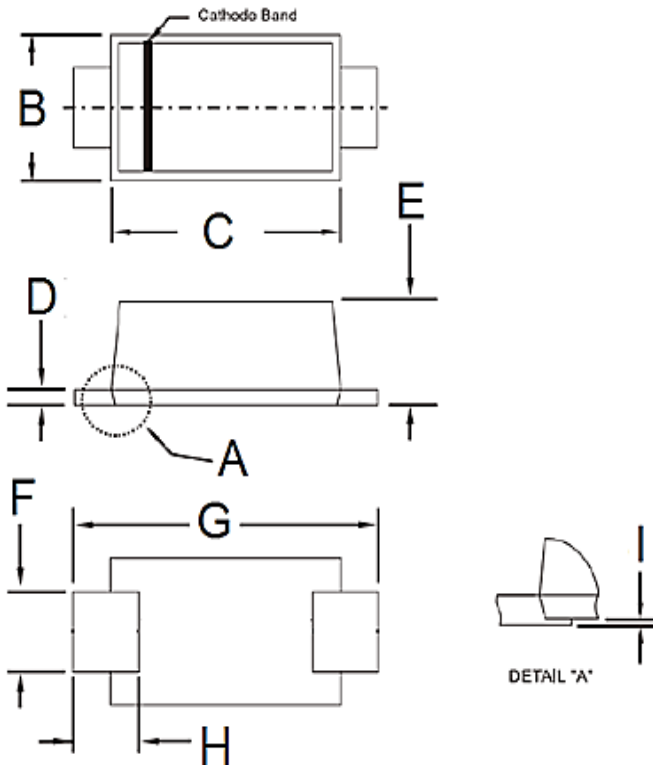


Fig.4 Typical Forward Characteristics



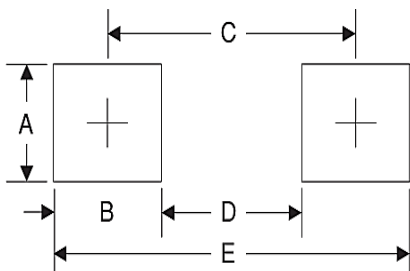
PACKAGE OUTLINE DIMENSIONS

SOD-123W



| DIM. | Unit (mm) | | Unit (inch) | |
|------|-----------|------|-------------|-------|
| | Min | Max | Min | Max |
| B | 1.70 | 1.90 | 0.067 | 0.075 |
| C | 2.60 | 2.90 | 0.102 | 0.114 |
| D | 0.10 | 0.22 | 0.004 | 0.009 |
| E | 0.90 | 1.02 | 0.035 | 0.040 |
| F | 0.90 | 1.05 | 0.035 | 0.041 |
| G | 3.60 | 3.80 | 0.142 | 0.150 |
| H | 0.50 | 0.85 | 0.020 | 0.033 |
| I | 0.00 | 0.10 | 0.000 | 0.004 |

SUGGESTED PAD LAYOUT



| Symbol | Unit (mm) | Unit (inch) |
|--------|-----------|-------------|
| A | 1.4 | 0.055 |
| B | 1.2 | 0.047 |
| C | 3.1 | 0.122 |
| D | 1.9 | 0.075 |
| E | 4.3 | 0.169 |

MARKING DIAGRAM



- P/N = Marking Code
- YW = Date Code
- F = Factory Code

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