

1A, 200V - 1000V Fast Recovery Surface Mount Rectifier

FEATURES

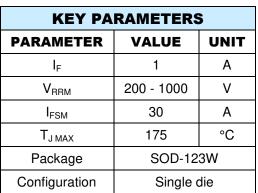
- AEC-Q101 qualified
- Glass passivated chip junction
- Ideal for automated placement
- Low profile package
- Low power loss, high efficiency
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

APPLICATIONS

- DC to DC converter
- Automotive application
- Car lighting
- Snubber
- General purpose

MECHANICAL DATA

- Case: SOD-123W
- 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: 0.016g (approximately)











SOD-123W



| PARAMETER | SYMBOL | RS1D | RS1G | RS1J | RS1K | RS1M | UNIT |
|--|------------------|--------------|------|------|------|------|------|
| PARAMETER | | LWH | LWH | LWH | LWH | LWH | ONI |
| Marking code on the device | | RDLW | RGLW | RJLW | RKLW | RMLW | |
| 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 | 1 | | | Α | | |
| Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load | I _{FSM} | 30 | | | А | | |
| Junction temperature | T_J | - 55 to +175 | | | °C | | |
| Storage temperature | T _{STG} | - 55 to +175 | | | °C | | |

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| THERMAL PERFORMANCE | | | | | |
|--|------------------|-----|------|--|--|
| PARAMETER | SYMBOL | TYP | UNIT | | |
| Junction-to-lead thermal resistance | R _{⊖JL} | 25 | °C/W | | |
| Junction-to-ambient thermal resistance | R _{OJA} | 80 | °C/W | | |

| ELECTRICAL SPECIFICATIONS (T _A = 25°C unless otherwise noted) | | | | | | |
|--|-------------------------------|-------------------------------|-----------------|-----|-----|------|
| PARAMETER | | CONDITIONS | SYMBOL | TYP | MAX | UNIT |
| Forward voltage ⁽¹⁾ | | $I_F = 1A, T_J = 25^{\circ}C$ | V _F | - | 1.3 | V |
| Reverse current @ rated V _R ⁽²⁾ | | T _J = 25°C | I _R | - | 5 | μΑ |
| | | T _J = 125°C | | - | 150 | μΑ |
| Reverse recovery time | RS1DLWH RS1GLWH RS1JLWH | $I_F = 0.5A, I_R = 1.0A,$ | t _{rr} | 1 | 150 | ns |
| | RS1KLWH RS1MLWH | I _{rr} = 0.23A | | - | 250 | ns |

Notes:

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

| ORDERING INFORMATION | | | | |
|------------------------------|----------|----------------------|--|--|
| ORDERING CODE ⁽¹⁾ | PACKAGE | PACKING | | |
| RS1xLWH | SOD-123W | 10,000 / Tape & Reel | | |

Notes:

1. "x" defines voltage from 200V(RS1DLWH) to 1000V(RS1MLWH)



CHARACTERISTICS CURVES

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

Fig.1 Forward Current Derating Curve

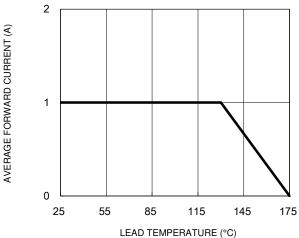


Fig.3 Typical Reverse Characteristics



Fig.2 Typical Junction Capacitance

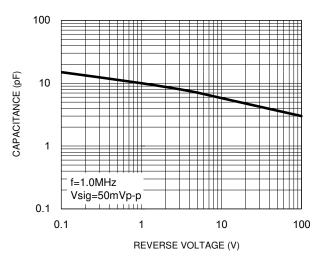
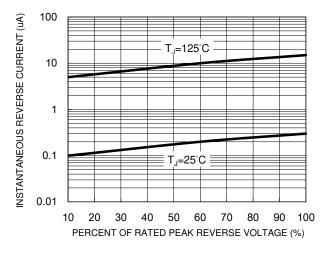


Fig.4 Typical Forward Characteristics



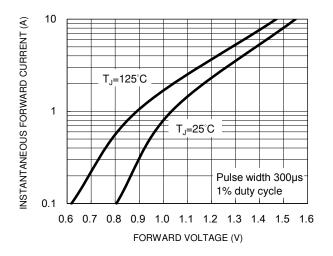
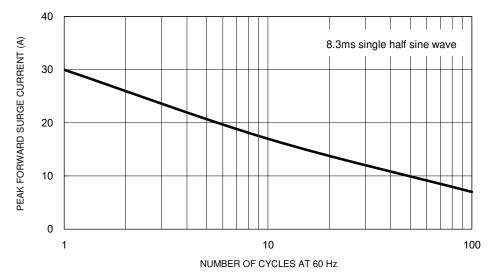


Fig.5 Maximum Non-Repetitive Forward Surge Current

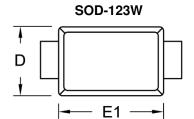


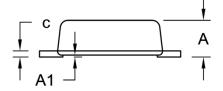
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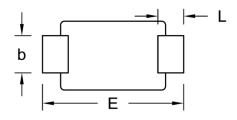


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PACKAGE OUTLINE DIMENSIONS

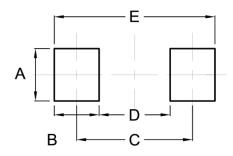






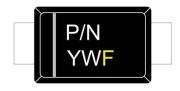
| DIM. | Unit | (mm) | Unit (inch) | | |
|------|------|------|-------------|-------|--|
| DIW. | Min. | Max. | Min. | Max. | |
| Α | 0.90 | 1.02 | 0.035 | 0.040 | |
| A1 | 0.00 | 0.10 | 0.000 | 0.004 | |
| b | 0.90 | 1.05 | 0.035 | 0.041 | |
| С | 0.10 | 0.22 | 0.004 | 0.009 | |
| D | 1.70 | 1.90 | 0.067 | 0.075 | |
| E | 3.60 | 3.80 | 0.142 | 0.150 | |
| E1 | 2.60 | 2.90 | 0.102 | 0.114 | |
| L | 0.50 | 0.85 | 0.020 | 0.033 | |

SUGGESTED PAD LAYOUT



| Symbol | Unit (mm) | Unit (inch) |
|--------|-----------|-------------|
| А | 1.40 | 0.055 |
| В | 1.20 | 0.047 |
| С | 3.10 | 0.122 |
| D | 1.90 | 0.075 |
| E | 4.30 | 0.169 |

MARKING DIAGRAM



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



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