

Small Signal Fast Switching Diode





LINKS TO ADDITIONAL RESOURCES











MECHANICAL DATA

Case: SOD-123

Weight: approx. 10.6 mg
Packaging codes / options:

18/10K per 13" reel (8 mm tape), 10K/box 08/3K per 7" reel (8 mm tape), 15K/box

FEATURES

- · Silicon epitaxial planar diode
- Fast switching diodes (t_{rr} ≤ 4ns)
- AEC-Q101 qualified available
- Molding compound meets UL 94 V-0 flammability rating
- Moisture sensitivity level (MSL) 1
- Base P/N-G3-green, commercial grade
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912









| PARTS TABLE | | | | | | | |
|-------------|------------------|-----------------------|-----------------|-----------------------|-------------------------|---------------------------|--|
| PART | ORDERING CODE | AEC-Q101 QUALIFIED | TYPE MARKING | CIRCUIT CONFIGURATION | TAPED UNITS PER REEL | MINIMUM ORDER QUANTITY | |
| | 1N4148W-G3-08 | No | | | 3 000 | 15 000 | |
| 1N4148W-G | 1N4148W-HG3_A-08 | Yes | AH | Single | (8 mm tape on 7" reel) | 13 000 | |
| 11N4146VV-G | 1N4148W-G3-18 | No | АΠ | Single | 10 000 | 10 000 | |
| | 1N4148W-HG3_A-18 | Yes | | | (8 mm tape on 13" reel) | 10 000 | |

| PACKAGE | | | | |
|--------------|---------|------------------|--------------------------------|--------------------------------|
| PACKAGE NAME | WEIGHT | MOLDING COMPOUND | MOISTURE SENSITIVITY | SOLDERING CONDITIONS |
| SOD-123 | 10.6 mg | UL 94 V-0 | MSL 1 (according J-STD-020) | Peak temperature max. 260°C |

| ABSOLUTE MAXIMUM RATINGS (T _{amb} = 25 °C, unless otherwise specified) | | | | | |
|--|--|--------------------|-------|------|--|
| PARAMETER | TEST CONDITION | SYMBOL | VALUE | UNIT | |
| Reverse voltage | | V_R | 75 | V | |
| Repetitive peak reverse voltage | | V_{RRM} | 100 | V | |
| Average rectified current half wave rectification with resistive load | f ≥ 50 Hz | I _{F(AV)} | 250 | mA | |
| Continuous froward current (1) | | I _F | 300 | mA | |
| Surge forward current | t _p < 1 s | I _{FSM} | 500 | mA | |
| | t _p = 1 μs | I _{FSM} | 2 | А | |
| Power dissipation | On FR-4 board with recommended soldering footprint | P _{tot} | 280 | mW | |
| · | Infinite heat sink | | 380 | mW | |

Note

(1) Infinite heatsink



| THERMAL CHARACTERISTICS (T _{amb} = 25 °C, unless otherwise specified) | | | | |
|---|---|-------------------|-------------|------|
| PARAMETER | TEST CONDITION | SYMBOL | VALUE | UNIT |
| Thermal resistance junction to ambient air | According to JEDEC® 51-3 on FR-4 board with recommended soldering footprint | R _{thJA} | 440 | K/W |
| Thermal resistance junction to lead | Infinite heat sink | R _{thJL} | 330 | K/W |
| Junction temperature | | T _j | 150 | °C |
| Storage temperature range | | T _{stg} | -65 to +150 | °C |
| Operating temperature range | | T _{op} | -55 to +150 | °C |

| ELECTRICAL CHARACTERISTICS (T _{amb} = 25 °C, unless otherwise specified) | | | | |
|--|--|-----------------|------|------|
| PARAMETER | TEST CONDITION | SYMBOL | MAX. | UNIT |
| Forward voltage | I _F = 10 mA | V _F | 1 | V |
| | I _F = 100 mA | V _F | 1.2 | V |
| | V _R = 20 V | I _R | 25 | nA |
| Leakage current | $V_R = 75 \text{ V}$ | I _R | 1 | μΑ |
| | V _R = 100 V | I _R | 100 | μΑ |
| | V _R = 20 V, T _J = 150 °C | I _R | 50 | μA |
| Diode capacitance | $V_F = V_R = 0 V$ | C _D | 1.5 | pF |
| Voltage rise when switching ON | Tested with 50 mA pulses, $t_p = 0.1 \mu s$, rise time < 30 ns, $f_p = (5 \text{ to } 100) \text{ kHz}$ | V _{fr} | 2.5 | V |
| Reverse recovery time | $I_F = 10 \text{ mA}, i_R = 1 \text{ mA}, V_R = 6 \text{ V}, R_L = 100 \Omega$ | t _{rr} | 4 | ns |

TYPICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)

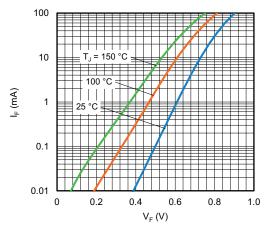


Fig. 1 - Typical Forward Current vs. Forward Voltage

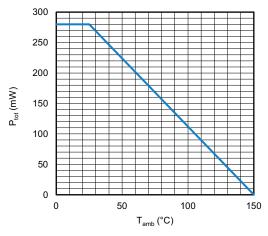


Fig. 2 - Admissible Power Dissipation vs. Ambient Temperature

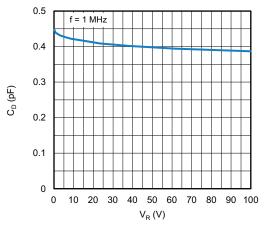


Fig. 3 - Typical Capacitance vs. Reverse Voltage

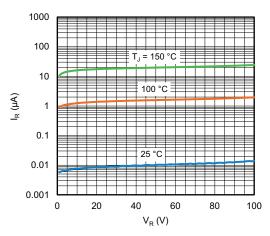
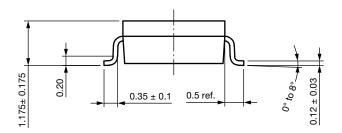
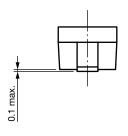


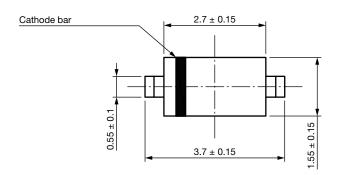
Fig. 4 - Typical Reverse Leakage Current vs. Reverse Voltage

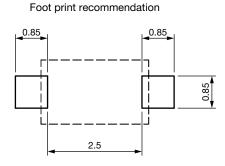


PACKAGE DIMENSIONS in millimeters (inches): SOD-123









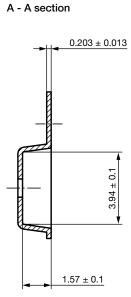
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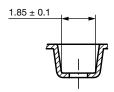


CARRIER TAPE SOD-123

Ø1.55 ± 0.05 Ø1 *0.25 Ø1 *0.25 B B A 4 ± 0.1



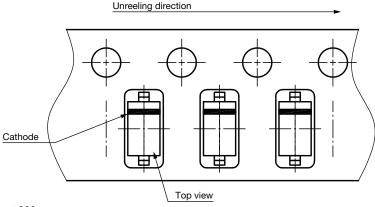
B - B section



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ORIENTATION IN CARRIER TAPE SOD-123



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