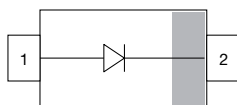


Small Signal Fast Switching Diode



FEATURES

- Silicon epitaxial planar diode
- Fast switching diodes ($t_{rr} \leq 4\text{ns}$)
- AEC-Q101 qualified available
- Molding compound meets UL 94 V-0 flammability rating
- Moisture sensitivity level (MSL) 1
- Base P/N-E3 - RoHS-compliant, commercial grade
- Base P/N-HE3_A - RoHS-compliant, AEC-Q101 qualified
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

AUTOMOTIVE
GRADE
Available



RoHS
COMPLIANT

LINKS TO ADDITIONAL RESOURCES



3D Models



Models



Marking



Parametric Search



Order Samples

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

PARTS TABLE

| PART | ORDERING CODE | AEC-Q101 QUALIFIED | TYPE MARKING | CIRCUIT CONFIGURATION | TAPED UNITS PER REEL | MINIMUM ORDER QUANTITY |
|---------|------------------|--------------------|--------------|-----------------------|-----------------------------------|------------------------|
| 1N4148W | 1N4148W-E3-08 | no | AH | Single | 3 000 (8 mm tape on 7" reel) | 15 000 |
| | 1N4148W-HE3_A-08 | yes | | | | |
| | 1N4148W-E3-18 | no | | | 10 000 (8 mm tape on 13" reel) | 10 000 |
| | 1N4148W-HE3_A-18 | yes | | | | |

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 ($T_{amb} = 25^\circ\text{C}$, 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 ⁽¹⁾ | $f \geq 50\text{ Hz}$ | $I_{F(AV)}$ | 250 | mA |
| Continuous forward current ⁽¹⁾ | | I_F | 300 | mA |
| Surge forward current ⁽¹⁾ | $t_p < 1\text{ s}$ | I_{FSM} | 500 | mA |
| | $t_p = 1\text{ }\mu\text{s}$ | I_{FSM} | 2 | A |
| Power dissipation | On FR-4 board with recommended soldering footprint | P_{tot} | 280 | mW |
| | Infinite heatsink | | 380 | mW |

Note

⁽¹⁾ Infinite heatsink



| THERMAL CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, 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 | $^{\circ}\text{C}$ |
| Storage temperature range | | T_{stg} | -65 to +150 | $^{\circ}\text{C}$ |
| Operating temperature range | | T_{op} | -55 to +150 | $^{\circ}\text{C}$ |

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

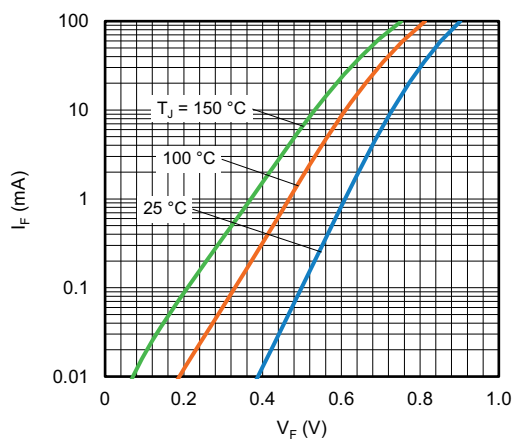
TYPICAL CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)


Fig. 1 - Typical Forward Current vs. Forward Voltage

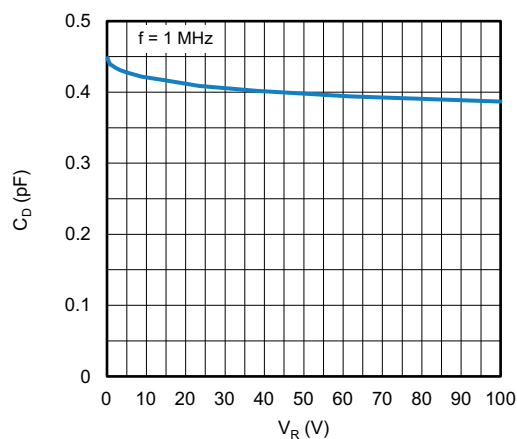


Fig. 3 - Typical Capacitance vs. Reverse Voltage

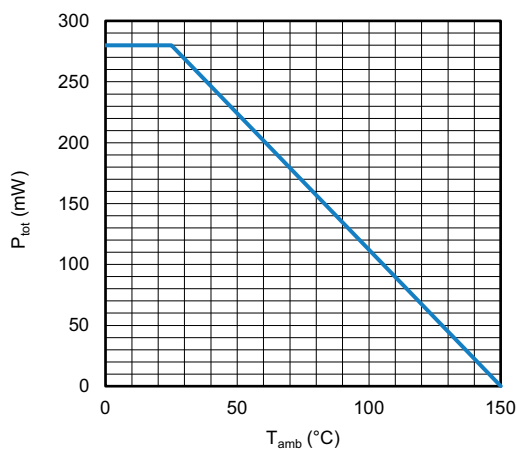


Fig. 2 - Admissible Power Dissipation vs. Ambient Temperature

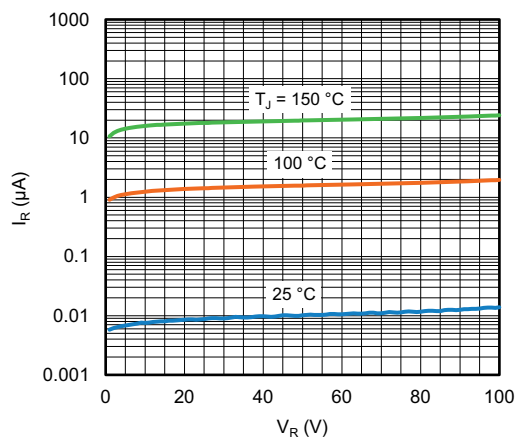
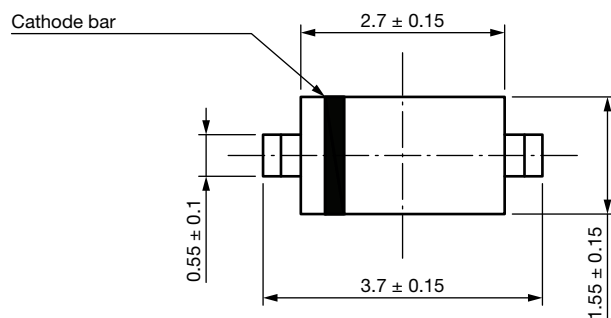
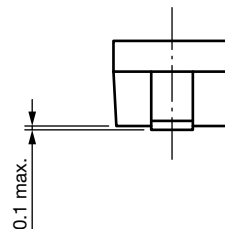


Fig. 4 - Typical Reverse Leakage Current vs. Reverse Voltage



PACKAGE DIMENSIONS in millimeters (inches): **SOD-123**



Foot print recommendation



Rev. 01 - Date: 18. Jan. 2022

Document no.: S8-V-3910.01-003 (4)

23223



CARRIER TAPE SOD-123



Rev. 02 - Date: 21. Jan. 2014
Document no.: S8-V-3717.10-002 (4)

23224

ORIENTATION IN CARRIER TAPE SOD-123



Rev. 02 - Date: 07. Nov. 2022
Document no.: S8-V-3717.10-003 (4)

23225



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