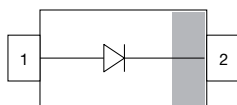


Small Signal Fast Switching Diode



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 ($T_{amb} = 25\text{ }^{\circ}\text{C}$, 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

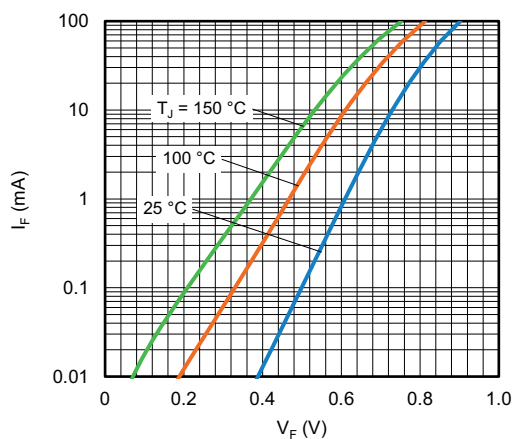
TYPICAL CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)


Fig. 1 - Typical Forward Current vs. Forward Voltage

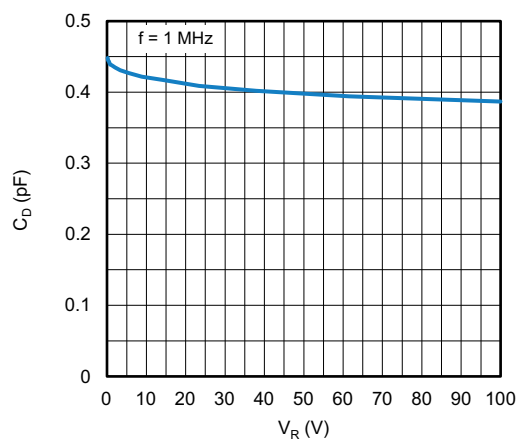


Fig. 3 - Typical Capacitance vs. Reverse Voltage

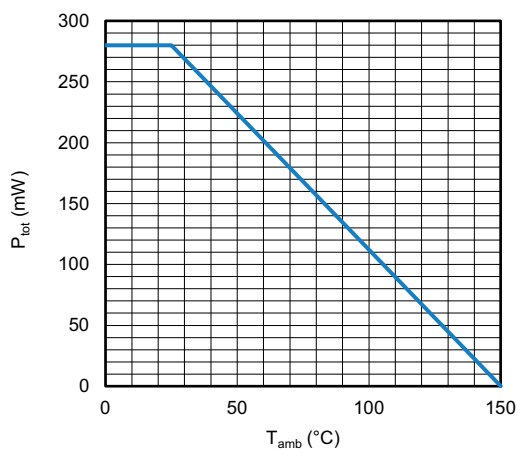


Fig. 2 - Admissible Power Dissipation vs. Ambient Temperature

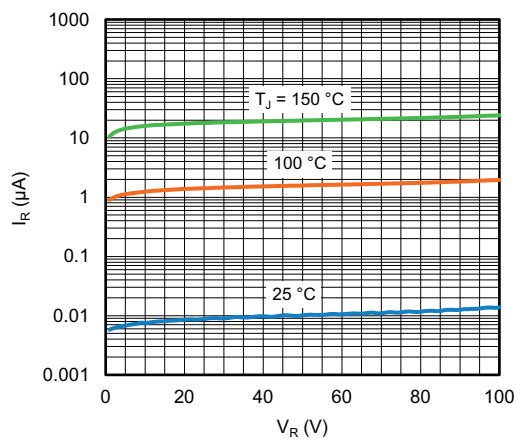
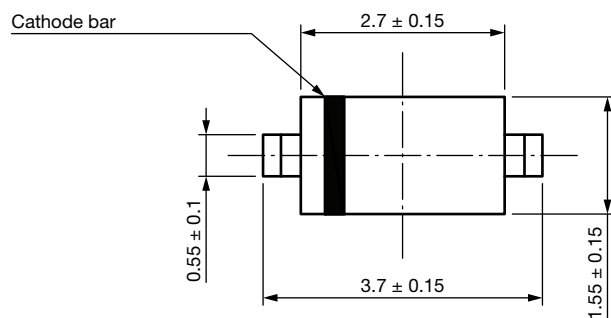
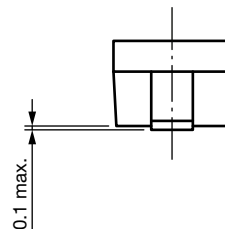


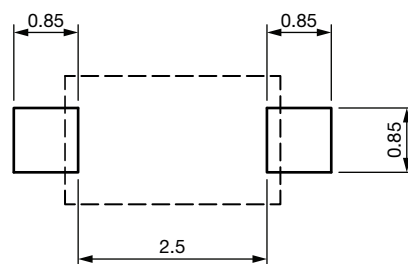
Fig. 4 - Typical Reverse Leakage Current vs. Reverse Voltage



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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