

Vishay Semiconductors

Small Signal Fast Switching Diode



FEATURES

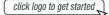
- Silicon epitaxial planar diode
- Fast switching diodes
- AEC-Q101 qualified available
- Base P/N-E3 RoHS-compliant, commercial grade



ROHS

- Base P/N-HE3 RoHS-compliant, AEC-Q101 qualified
- Material categorization: for definitions of compliance please see www.vishav.com/doc?99912

DESIGN SUPPORT TOOLS





MECHANICAL DATA

Case: SOD-123

Weight: approx. 10.3 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 TYPE MARKING CIRCUIT CONFIGURATION		REMARKS		
1N4148W	1N4148W-E3-08 or 1N4148W-E3-18	A2	Cinalo	Tape and reel	
	1N4148W-HE3-08 or 1N4148W-HE3-18	AZ	Single	rape and reei	

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 ⁽¹⁾	f ≥ 50 Hz	I _{F(AV)}	150	mA	
Curae femaced current	t _p < 1 s	I _{FSM}	500	mA	
Surge forward current	t _p = 1 μs	I _{FSM}	2	А	
Power dissipation (1)		P _{tot}	350	mW	

THERMAL CHARACTERISTICS (T _{amb} = 25 °C, unless otherwise specified)					
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT	
Thermal resistance junction to ambient air (1)		R_{thJA}	357	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	

Note

⁽¹⁾ Valid provided that electrodes are kept at ambient temperature.



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ELECTRICAL CHARACTERISTICS (T _{amb} = 25 °C, unless otherwise specified)							
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT	
Forward voltage	$I_F = 10 \text{ mA}$	V _F			1	V	
Forward voltage	I _F = 100 mA	V _F			1.2	V	
	V _R = 20 V	I _R			25	nA	
Leakage current	V _R = 75 V	I _R			5	μΑ	
Leakage current	V _R = 100 V	I _R			100	μΑ	
	$V_R = 20 \text{ V}, T_J = 150 ^{\circ}\text{C}$	I _R			50	μΑ	
Diode capacitance	$V_F = V_R = 0 V$	C _D			4	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 mA, i_R = 1 mA, V_R = 6 V, R_L = 100 Ω	t _{rr}			4	ns	

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

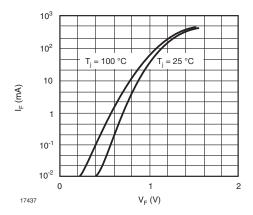


Fig. 1 - Forward Characteristics

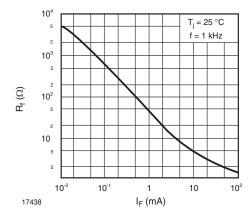


Fig. 2 - Dynamic Forward Resistance vs. Forward Current

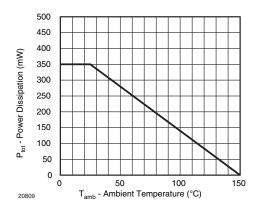


Fig. 3 - Admissible Power Dissipation vs. Ambient Temperature

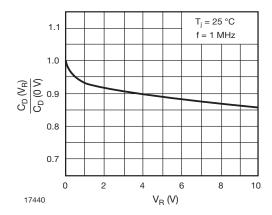


Fig. 4 - Relative Capacitance vs. Reverse Voltage



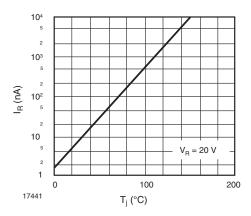


Fig. 5 - Leakage Current vs. Junction Temperature

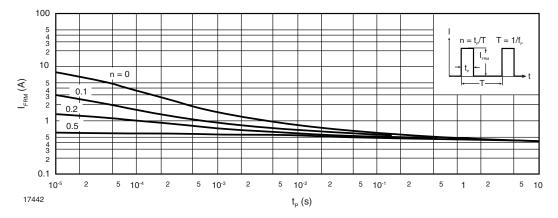
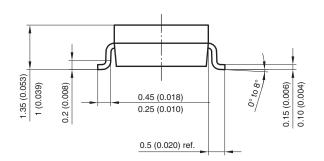


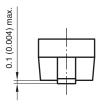
Fig. 6 - Admissible Repetitive Peak Forward Current vs. Pulse Duration



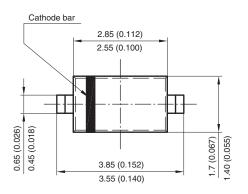
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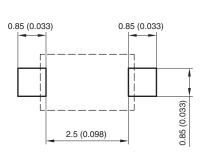
PACKAGE DIMENSIONS in millimeters (inches): SOD-123





Mounting Pad Layout





Rev. 4 - Date: 24. Sep. 2009 Document no.: S8-V-3910.01-001 (4) 17432



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