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Vishay Semiconductors

Small Signal Fast Switching Diodes



FEATURES

- Silicon epitaxial planar diode
- AEC-Q101 qualified
- Material categorization: For definitions of compliance please see <u>www.vishay.com/doc?99912</u>

APPLICATIONS



• Extreme fast switches

MECHANICAL DATA

Case: DO-35 Weight: approx. 125 mg Cathode band color: black

Packaging codes/options:

TR/10K per 13" reel (52 mm tape), 50K/box TAP/10K per ammopack (52 mm tape), 50K/box

PARTS TABLE						
PART	ORDERING CODE	TYPE MARKING	INTERNAL CONSTRUCTION	REMARKS		
1N4151	1N4151TR or 1N4151TAP	1N4151	Single diode	Tape and reel/ammopack		

ABSOLUTE MAXIMUM RATINGS (T _{amb} = 25 °C, unless otherwise specified)					
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT	
Repetitive peak reverse voltage		V _{RRM}	75	V	
Reverse voltage		V _R	50	V	
Peak forward surge current	t _p = 1 μs	I _{FSM}	2	A	
Repetitive peak forward current		I _{FRM}	500	mA	
Forward continuous current		I _F	300	mA	
Average forward current	V _R = 0	I _{F(AV)}	150	mA	
Dower discinction	l = 4 mm, T _L = 45 °C	P _{tot}	440	mW	
Power dissipation	l = 4 mm, T _L ≤ 25 °C	P _{tot}	500	mW	

THERMAL CHARACTERISTICS (T _{amb} = 25 °C, unless otherwise specified)						
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT		
Thermal resistance junction to ambient air	$I = 4 \text{ mm}, T_L = \text{constant}$	R _{thJA}	350	K/W		
Junction temperature		Tj	175	°C		
Storage temperature range		T _{stg}	- 65 to + 175	°C		

Rev. 1.8, 06-Dec-13 For technical questions within your region: www.vishay.com

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1N4151

ELECTRICAL CHARACTERISTICS (T _{amb} = 25 °C, unless otherwise specified)							
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT	
Forward voltage	I _F = 50 mA	V _F		0.880	1	V	
Reverse current	$V_R = 50 V$	I _R		14	50	nA	
neverse current	$V_R = 50 \text{ V}, \text{ T}_j = 150 ^\circ\text{C}$	I _R			50	μA	
Breakdown voltage	I _R = 5 μΑ	V _(BR)	75			V	
Diode capacitance	V_R = 0 V, f = 1 MHz, V_{HF} = 50 mV	CD			2	pF	
Reverse recovery time	I _F = I _R = 10 mA, i _R = 1 mA	t _{rr}			4	ns	
neverse recovery time	$I_{F} = 10 \text{ mA}, \text{V}_{\text{R}} = 6 \text{V}, \\ i_{\text{R}} = 0.1 \text{ x } \text{I}_{\text{R}}, \text{R}_{\text{L}} = 100 \Omega$	t _{rr}			2	ns	

TYPICAL CHARACTERISTICS (Tamb = 25 °C, unless otherwise specified)

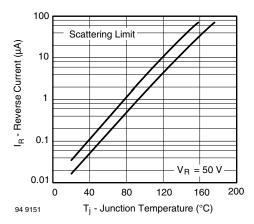


Fig. 1 - Reverse Current vs. Junction Temperature

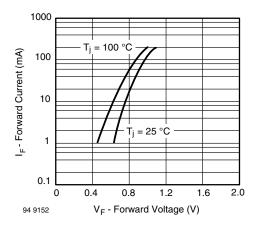


Fig. 2 - Forward Current vs. Forward Voltage

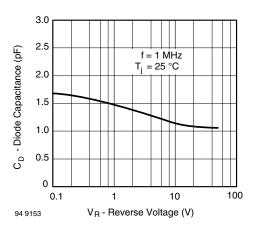


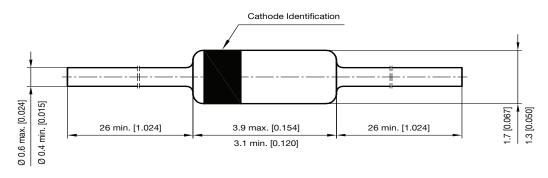
Fig. 3 - Diode Capacitance vs. Reverse Voltage

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PACKAGE DIMENSIONS in millimeters (inches): DO-35



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