

### Vishay Semiconductors

# **Small Signal Fast Switching Diodes**



#### **FEATURES**

- · Silicon epitaxial planar diode
- Electrically equivalent diodes: 1N4148 - 1N914
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912





FREE

#### **APPLICATIONS**

• Extreme fast switches

# **DESIGN SUPPORT TOOLS** click logo to get started



#### **MECHANICAL DATA**

Case: DO-35 (DO-204AH)
Weight: approx. 105 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	CIRCUIT CONFIGURATION	REMARKS		
1N4148	1N4148-TAP or 1N4148TR	V4148	Single	Tape and reel / ammopack		

ABSOLUTE MAXIMUM RATINGS (T <sub>amb</sub> = 25 °C, unless otherwise specified)					
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT	
Repetitive peak reverse voltage		$V_{RRM}$	100	V	
Reverse voltage		V <sub>R</sub>	75	V	
Peak forward surge current	t <sub>p</sub> = 1 μs	I <sub>FSM</sub>	2	Α	
Repetitive peak forward current		I <sub>FRM</sub>	500	mA	
Forward continuous current		I <sub>F</sub>	300	mA	
Average forward current	V <sub>R</sub> = 0	I <sub>F(AV)</sub>	150	mA	
Dower discipation	I = 4 mm, T <sub>L</sub> = 45 °C	P <sub>tot</sub>	440	mW	
Power dissipation	I = 4 mm, T <sub>L</sub> ≤ 25 °C	P <sub>tot</sub>	500	mW	

THERMAL CHARACTERISTICS (T <sub>amb</sub> = 25 °C, unless otherwise specified)					
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT	
Thermal resistance junction to ambient air	I = 4 mm, T <sub>L</sub> = constant	R <sub>thJA</sub>	350	K/W	
Junction temperature		T <sub>j</sub>	175	°C	
Storage temperature range		T <sub>stg</sub>	-65 to +150	°C	



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<b>ELECTRICAL CHARACTERISTICS</b> (T <sub>amb</sub> = 25 °C, unless otherwise specified)						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Forward voltage	I <sub>F</sub> = 10 mA	V <sub>F</sub>			1	V
	V <sub>R</sub> = 20 V	I <sub>R</sub>			25	nA
Reverse current	V <sub>R</sub> = 20 V, T <sub>j</sub> = 150 °C	I <sub>R</sub>			50	μA
	V <sub>R</sub> = 75 V	I <sub>R</sub>			5	μA
Breakdown voltage	$I_R = 100 \mu A, t_p/T = 0.01,$ $t_p = 0.3 \text{ ms}$	V <sub>(BR)</sub>	100			V
Diode capacitance	$V_R = 0 \text{ V, f} = 1 \text{ MHz,} $ $V_{HF} = 50 \text{ mV}$	C <sub>D</sub>			4	pF
Rectification efficiency	V <sub>HF</sub> = 2 V, f = 100 MHz	$\eta_r$	45			%
Payarca racayary tima	$I_F = I_R = 10 \text{ mA},$ $I_R = 1 \text{ mA}$	t <sub>rr</sub>			8	ns
Reverse recovery time	$I_F = 10 \text{ mA}, V_R = 6 \text{ V},$ $I_R = 0.1 \text{ x } I_R, R_L = 100 \Omega$	t <sub>rr</sub>			4	ns

### TYPICAL CHARACTERISTICS (T<sub>amb</sub> = 25 °C, unless otherwise specified)

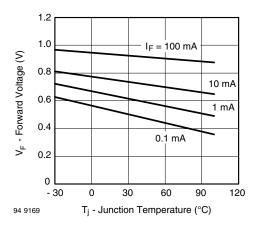


Fig. 1 - Forward Voltage vs. Junction Temperature

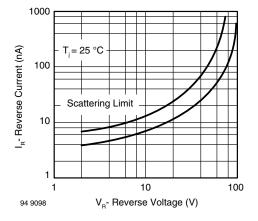


Fig. 3 - Reverse Current vs. Reverse Voltage

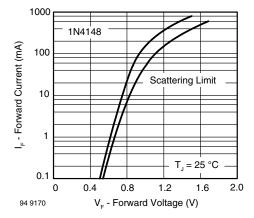
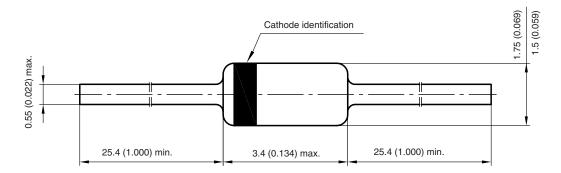


Fig. 2 - Forward Current vs. Forward Voltage

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### PACKAGE DIMENSIONS in millimeters (inches): DO-35 (DO-204AH)



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