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## **Small Signal Fast Switching Diodes**



# FEATURESSilicon epitaxial planar diodes

- AEC-Q101 qualified
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

#### **APPLICATIONS**

• Extreme fast switches



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



#### MECHANICAL DATA

Case: DO-35 (DO-204AH)

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	CIRCUIT CONFIGURATION	REMARKS	
1N4448	1N4448TAP or 1N4448TR	V4448	Single	Tape and reel / ammopack	

<b>ABSOLUTE MAXIMUM RATINGS</b> (T <sub>amb</sub> = 25 °C, unless otherwise specified)						
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT		
Repetitive peak reverse voltage		V <sub>RRM</sub>	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	A		
Repetitive peak forward current		I <sub>FRM</sub>	500	mA		
Forward continuous current		١ <sub>F</sub>	300	mA		
Average forward current	V <sub>R</sub> = 0	I <sub>F(AV)</sub>	150	mA		
Power dissipation	l = 4 mm, T <sub>L</sub> = 45 °C	P <sub>tot</sub>	440	mW		
Fower dissipation	$I = 4 \text{ mm},  \text{T}_{L} \leq 25 ^{\circ}\text{C}$	P <sub>tot</sub>	500	mW		

<b>THERMAL CHARACTERISTICS</b> (T <sub>amb</sub> = 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 <sub>thJA</sub>	350	K/W	
Junction temperature		Tj	175	°C	
Storage temperature range		T <sub>stg</sub>	-65 to +150	°C	

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1N4448

ELECTRICAL CHARACTERISTICS (T <sub>amb</sub> = 25 °C, unless otherwise specified)						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Forward voltage	I <sub>F</sub> = 5 mA	V <sub>F</sub>	0.620		0.720	V
Forward voltage	I <sub>F</sub> = 100 mA	VF			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	$\begin{split} I_{\rm R} &= 100 \; \mu \text{A},  t_{\rm p}/\text{T} = 0.01, \\ t_{\rm p} &= 0.3 \; \text{ms} \end{split}$	V <sub>(BR)</sub>	100			V
Diode capacitance	$V_{R} = 0, f = 1 \text{ MHz}, V_{HF} = 50 \text{ mV}$	CD			4	pF
Rectification efficiency	V <sub>HF</sub> = 2 V, f = 100 MHz	ηr	45			%
	I <sub>F</sub> = I <sub>R</sub> = 10 mA, i <sub>R</sub> = 1 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)

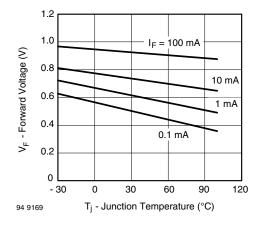


Fig. 1 - Forward Voltage vs. Junction Temperature

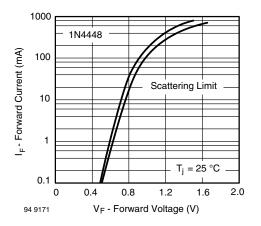


Fig. 2 - Forward Current vs. Forward Voltage

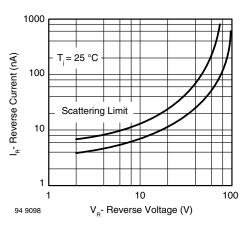


Fig. 3 - Reverse Current vs. Reverse Voltage

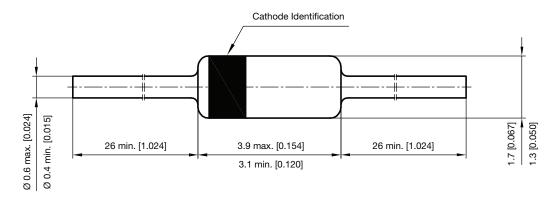
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#### PACKAGE DIMENSIONS in millimeters (inches): DO-35 (DO-204AH)



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