

High-speed switching diode

Features

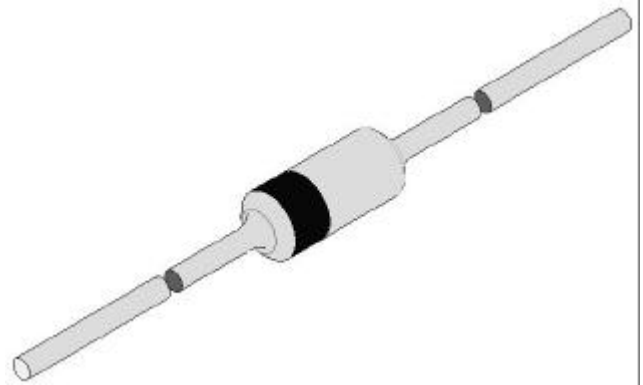
1. High reliability
2. High speed ($t_{rr}= 4 \text{ ns}$)

Applications

Extreme fast switches

Construction

Silicon epitaxial planar



Absolute Maximum Ratings

$T_j=25^\circ\text{C}$

Parameter	Test Conditions	Type	Symbol	Value	Unit
Repetitive peak reverse voltage			V_{RRM}	100	V
Reverse voltage			V_R	75	V
Peak forward surge current	$t_p=1\mu \text{ s}$		I_{FSM}	2	A
Repetitive peak forward voltage			I_{FRM}	500	mA
Forward current			I_F	300	mA
Average forward current	$V_R=0$		I_{FAV}	150	mA
Power dissipation	$l=4\text{mm } T_L= 25^\circ\text{C}$		P_V	500	mW
Junction temperature			T_j	175	?
Storage temperature range			T_{stg}	-65~+175	?

Maximum Thermal Resistance

$T_j=25^\circ\text{C}$

Parameter	Test Conditions	Symbol	Value	Unit
Junction ambient	$l=4\text{mm } T_L=\text{constant}$	R_{thJA}	350	K/W

Electrical Characteristics

$T_j=25^\circ$

Parameter	Test Conditions	Type	Symbol	Min	Typ	Max	Unit
Forward voltage	$I_F=5\text{mA}$	1N4448	V_F	0.62		0.72	V
	$I_F=10\text{mA}$	1N4148	V_F		0.86	1	V
	$I_F=100\text{mA}$	1N4448	V_F		0.93	1	V
Reverse current	$V_R=20\text{V}$		I_R			25	nA
	$V_R=20\text{V}, T_j=150^\circ$		I_R			50	μA
	$V_R=75\text{V}$		I_R			5	μA
Breakdown current	$I_R=100\mu\text{A}, t_p/T=0.01, t_p=0.3\text{ms}$		$V_{(BR)}$	100			V
Diode capacitance	$V_R=0, f=1\text{MHz}, V_{HF}=50\text{mV}$		C_D			4	pF
Rectification efficiency	$V_{HF}=2\text{V}, f=100\text{MHz}$		η_R	45			%
Reverse recovery time	$I_F=I_R=10\text{mA}, i_R=1\text{mA}$		t_{rr}			8	ns
	$I_F=10\text{mA}, V_R=6\text{V}, i_R=0.1 \times I_R, R_L=1000$		t_{rr}			4	ns

Characteristics ($T_j=25^\circ$ unless otherwise specified)

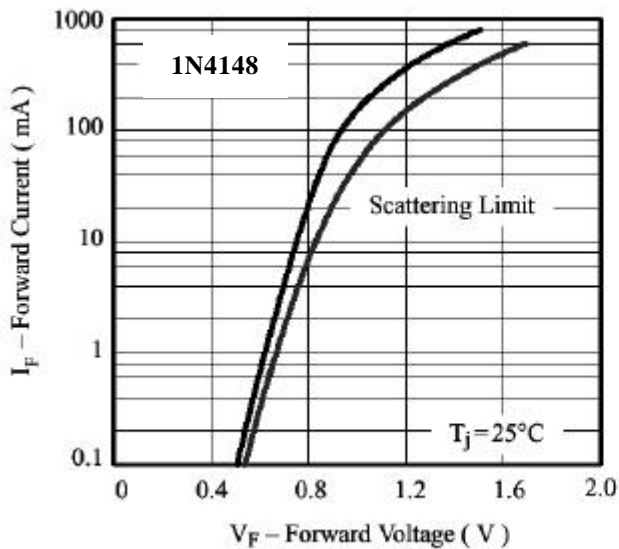


Figure 1. Forward Current vs. Forward Voltage

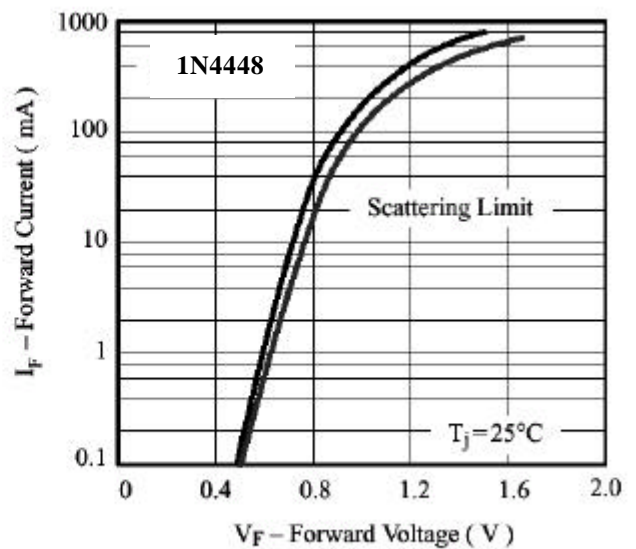


Figure 2. Forward Current vs. Forward Voltage

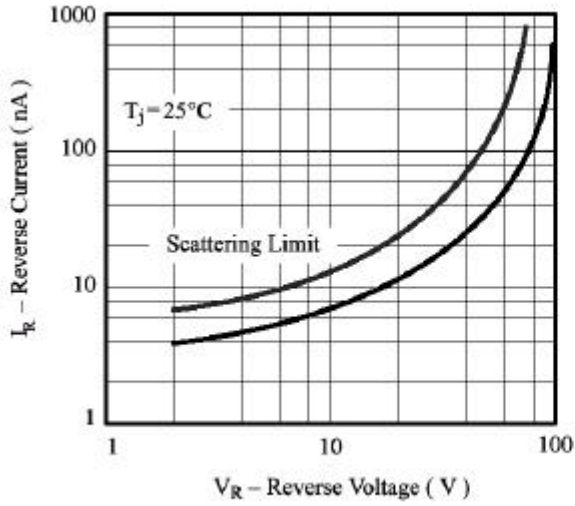


Figure 3. Reverse Current vs. Reverse Voltage

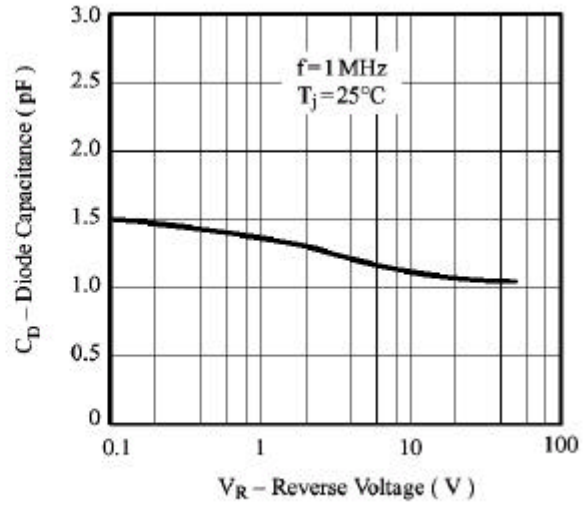
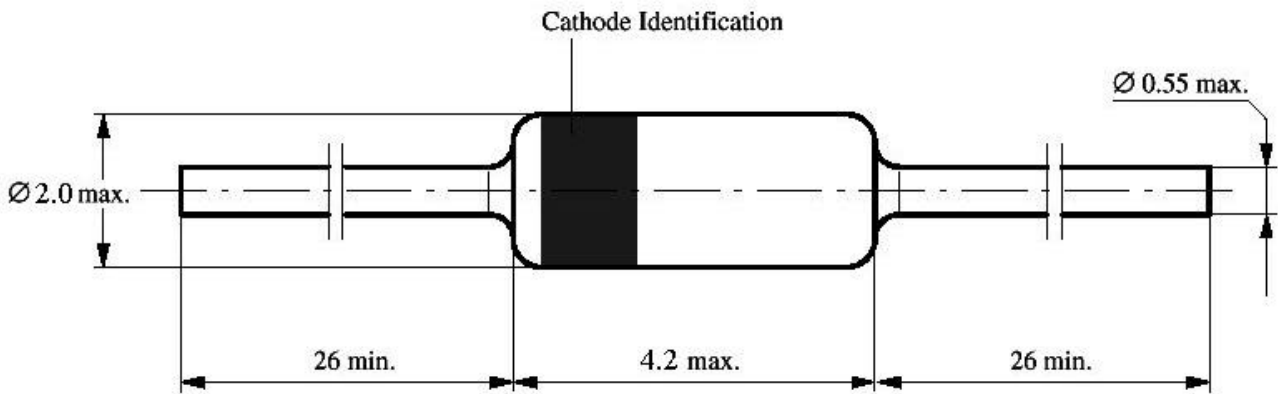


Figure 4. Diode Capacitance vs. Reverse Voltage

Dimensions in mm



Standard Glass Case
JEDEC DO 35