

High-speed switching diode

Features

1. High reliability
2. High speed ($t_{rr} \leq 4$ 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 current			I_{FRM}	500	mA
Forward current			I_F	300	mA
Average forward current	$V_R = 0$		I_{FAV}	150	mA
Power dissipation	$l = 4\text{mm } T_L \leq 25^\circ\text{C}$		P_V	500	mW
Junction temperature			T_j	175	$^\circ\text{C}$
Storage temperature range			T_{stg}	-65~+175	$^\circ\text{C}$

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

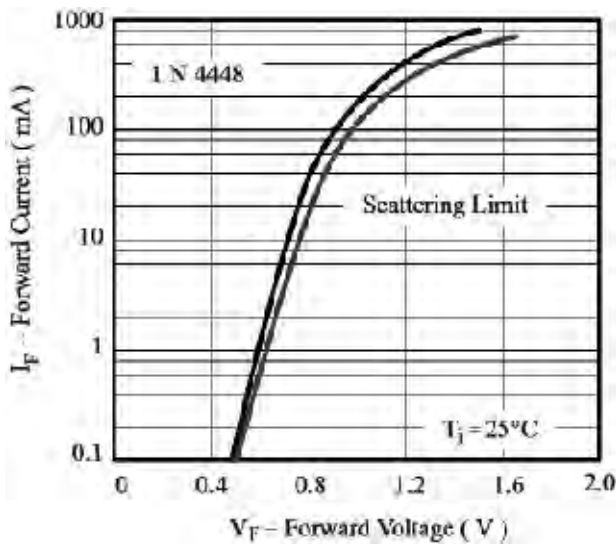


Figure 3. Forward current vs. forward voltage

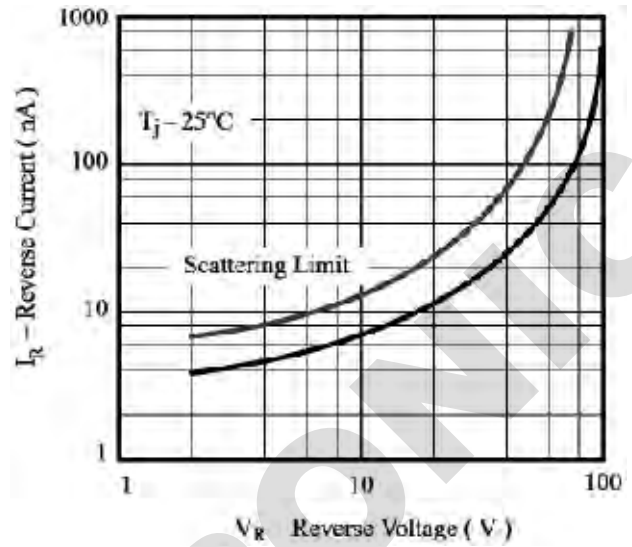
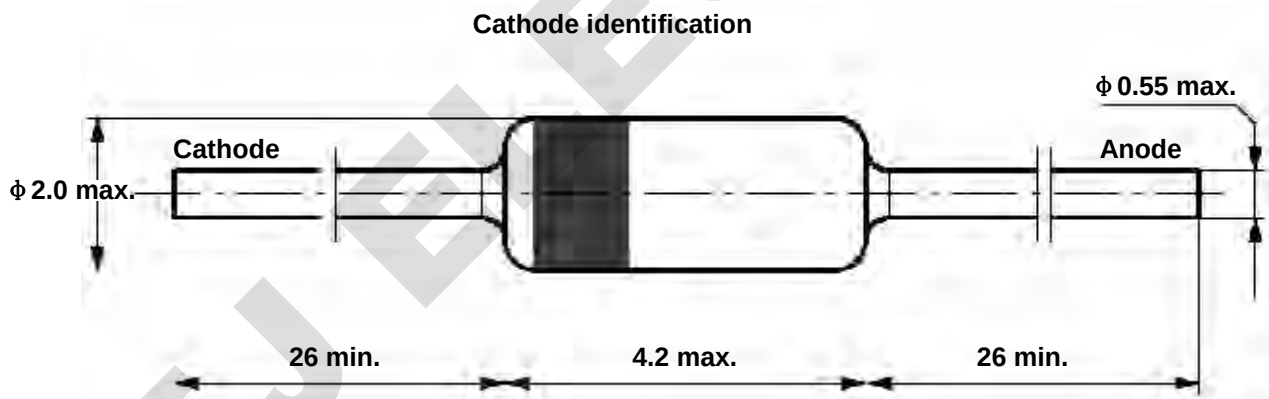


Figure 4. Reverse current vs. reverse voltage

Dimensions in mm



Standard Glass Case
JEDEC DO 35

Electrical Characteristics

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

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
	$V_R = 20\text{V}, T_j = 150^\circ\text{C}$		I_R			50	μA
	$V_R = 75\text{V}$		I_R			5	μA
Breakdown voltage	$I_R = 100\text{ }\mu\text{A}, t_p/T = 0.01, t_p = 0.3\text{ms}$		$V_{(BR)}$	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
	$I_F = 10\text{mA}, V_R = 6\text{V}, i_R = 0.1 \times I_R, R_L = 100\text{ }\Omega$		t_{rr}			4	ns

Characteristics ($T_j = 25^\circ\text{C}$ unless otherwise specified)

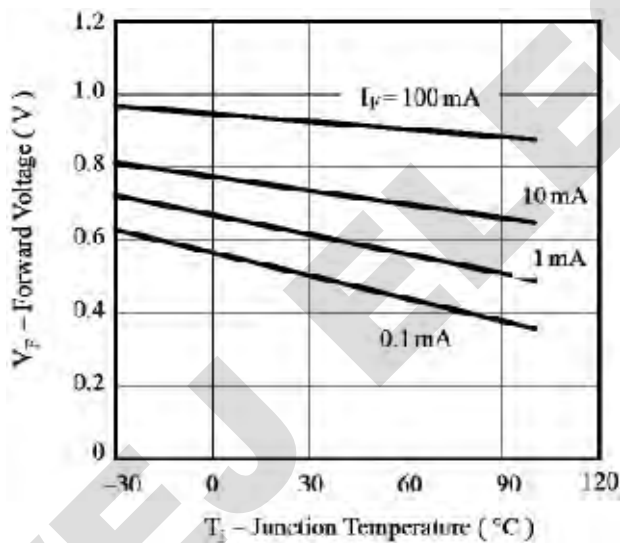


Figure 1. Forward voltage vs. junction temperature

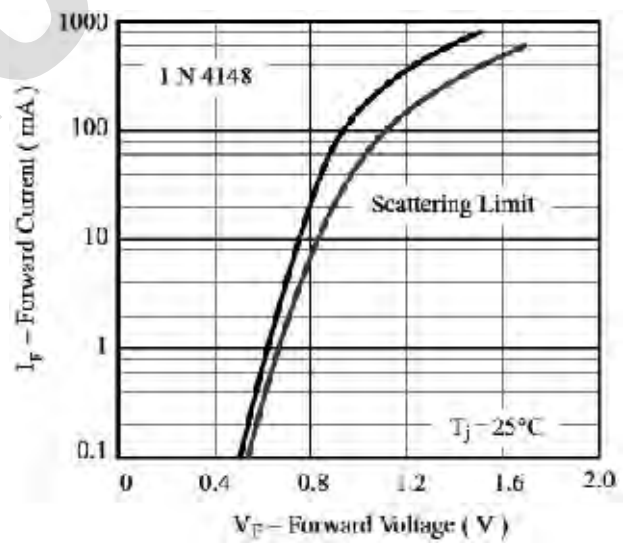


Figure 2. Forward current vs. forward voltage