

Silicon Diode

1N4450

30V/500mA

DATASHEET

OEM – Fairchild

Source: Fairchild Databook 1978

1N3600 • 1N4150 • 1N4450

HIGH CONDUCTANCE ULTRA FAST DIODES

DIFFUSED SILICON PLANAR EPITAXIAL

- t_{rr} ... 4.0 ns (MAX)
- V_F ... 1.0 V (MAX) @ 200 mA

ABSOLUTE MAXIMUM RATINGS (Note 1)

Temperatures

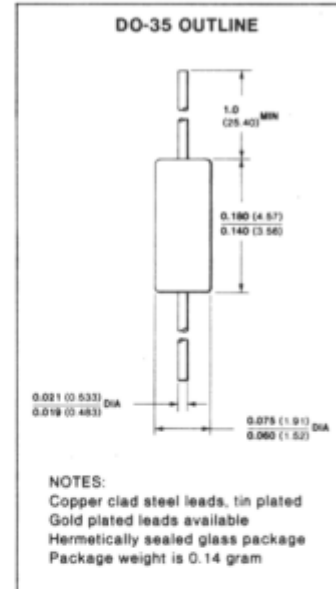
Storage Temperature Range	-65°C to +200°C
Max Junction Operating Temperature	+175°C
Lead Temperature	+260°C

Power Dissipation (Note 2)

Max Total Power Dissipation at 25°C Ambient	500 mW
Linear Derating Factor (from 25°C)	3.33 mW/°C

Maximum Voltages and Currents

	1N3600	1N4150	1N4450
WIV Working Inverse Voltage	50 V	50 V	30 V
I_O Average Rectified Current	200 mA	200 mA	200 mA
I_F DC Forward Current	400 mA	400 mA	400 mA
i_f Recurrent Peak Forward Current	600 mA	600 mA	600 mA
$i_f(\text{surge})$ Peak Forward Surge Current			
Pulse Width = 1.0 s	1.0 A	1.0 A	1.0 A
Pulse Width = 1.0 μ s	4.0 A	4.0 A	4.0 A



ELECTRICAL CHARACTERISTICS (25°C Ambient Temperature unless otherwise noted)

SYMBOL	CHARACTERISTIC	1N3600 1N4150		1N4450		UNITS	TEST CONDITIONS
		MIN	MAX	MIN	MAX		
BV	Breakdown Voltage	75		40		V	$I_R = 5.0 \mu\text{A}$ $I_R = 5.0 \mu\text{A}$
I_R	Reverse Current		100		50	nA nA μA μA	$V_R = 50 \text{ V}$ $V_R = 30 \text{ V}$ $V_R = 50 \text{ V}, T_A = 150^\circ\text{C}$ $V_R = 30 \text{ V}, T_A = 150^\circ\text{C}$
V_F	Forward Voltage	0.54 0.66 0.76 0.82 0.87	0.62 0.74 0.86 0.92 1.0	0.42 0.52 0.64 0.80	0.54 0.64 0.76 0.92 1.0	V V V V V	$I_F = 0.1 \text{ mA}$ $I_F = 1.0 \text{ mA}$ $I_F = 10 \text{ mA}$ $I_F = 50 \text{ mA}$ $I_F = 100 \text{ mA}$ $I_F = 200 \text{ mA}$
C	Capacitance		2.5		4.0	pF	$V_R = 0, f = 1.0 \text{ MHz}$
t_{rr}	Reverse Recovery Time (Note 3)		4.0 6.0		4.0	ns ns ns	$I_f = I_r = 10 \text{ mA to } 200 \text{ mA}, R_L = 100 \Omega$ $I_f = I_r = 10 \text{ mA}, R_L = 100 \Omega$ $I_f = I_r = 200 \text{ mA to } 400 \text{ mA}, R_L = 100 \Omega$
t_{fr}	Forward Recovery Time		10			ns	$I_f = 200 \text{ mA}, t_r = 0.4 \text{ ns}, V_{fr} = 1.0 \text{ V}$

NOTES:

1. Maximum ratings are limiting values above which life or satisfactory performance may be impaired.
2. These are steady state limits. The factory should be consulted on applications involving pulsed or low duty-cycle operation.
3. Recovery to 0.1 I_f .
4. For family characteristic curves, refer to Chapter 4, D4.

CURVE SET NUMBER D4

HIGH SPEED GENERAL PURPOSE SMALL SIGNAL DIODE

TYPICAL ELECTRICAL CHARACTERISTIC CURVES
AT 25°C AMBIENT TEMPERATURE UNLESS OTHERWISE NOTED

