Silicon Diode

1N4148

75V/300mA

DATASHEET

OEM – Fairchild

Source: Fairchild Databook 1978

Datasheet Rev. 1.3 – 02/19 – data without warranty / liability

1N914/A/B· 1N916/A/B· 1N4148/9· 1N4446-1N4449

HIGH CONDUCTANCE ULTRA FAST SWITCHING DIODES

DIFFUSED SILICON PLANAR

- t_{rr} . . . 4.0 ns (MAX)
- BV . . . 100 V (MIN)

ABSOLUTE MAXIMUM RATINGS (Note 1)

Temperatures

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

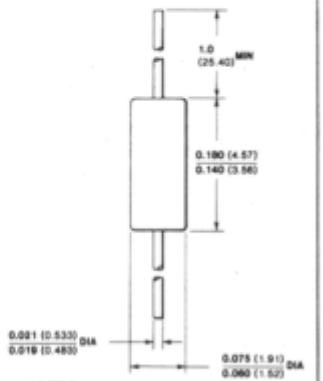
Power Dissipation (Note 2)

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

Maximum Voltage and Currents

WIV	Working Inverse Voltage	75 V
I_O	Average Rectified Current	200 mA
I_f	DC Forward Current	300 mA
i_f	Recurrent Peak Forward Current	400 mA
i_f(surge)	Peak Forward Surge Current	
	Pulse Width = 1.0 s	1.0 A
	Pulse Width = 1.0 μs	4.0 A

DO-35 OUTLINE



NOTES:
Copper clad steel leads, tin plated
Gold plated leads available
Hermetically sealed glass package
Package weight is 0.14 gram

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

SYMBOL	CHARACTERISTIC		MIN	MAX	UNITS	TEST CONDITIONS
BV	Breakdown Voltage		100 75		V V	I_R = 100 μA I_R = 5.0 μA
I_R	Reverse Current			25 50 5.0	nA μA μA	V_R = 20 V V_R = 20 V, T_A = 150°C V_R = 75 V
V_F	Forward Voltage	1N914B, 1N4448	0.62	0.72	V	I_F = 5.0 mA
		1N916B, 1N4449	0.63	0.73	V	I_F = 5.0 mA
		1N914, 1N916 1N4148, 1N4149		1.0	V	I_F = 10 mA
		1N914A, 1N916A 1N4446, 1N4447		1.0	V	I_F = 20 mA
		1N916B, 1N4449		1.0	V	I_F = 30 mA
		1N914B, 1N4448		1.0	V	I_F = 100 mA
t_{rr}	Reverse Recovery Time			4.0	ns	I_f = 10 mA, V_r = 6.0 V, R_L = 100 Ω Rec. to 1.0 mA
C	Capacitance	1N914, 1N914A 1N914B, 1N4148 1N4446, 1N4447		4.0	pF	V_R = 0, f = 1 MHz
		1N916, 1N916A 1N916B, 1N4149 1N4448, 1N4449		2.0	pF	V_R = 0, f = 1 MHz
V_{fr}	Peak Forward Recovery Voltage	1N914, 1N916 1N914B, 1N916B 1N4448, 1N4449		2.5	V	50 mA Peak Square Wave, 0.1 μs pulse width, 5 kHz - 100 kHz rep. rate
RE	Rectification Efficiency	1N914A, 1N914B 1N916A, 1N916B	45		%	2.0 V rms, f = 100 MHz

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. For family characteristic curves, refer to Chapter 4, D4.

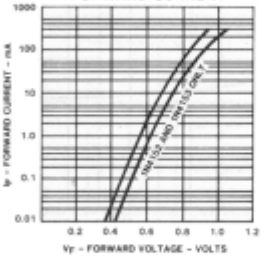
CURVE SET NUMBER D4

HIGH SPEED GENERAL PURPOSE SMALL SIGNAL DIODE

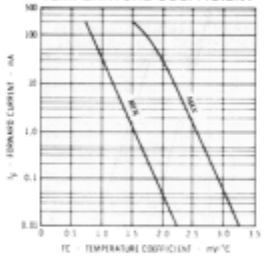
TYPICAL ELECTRICAL CHARACTERISTIC CURVES

AT 25°C AMBIENT TEMPERATURE UNLESS OTHERWISE NOTED

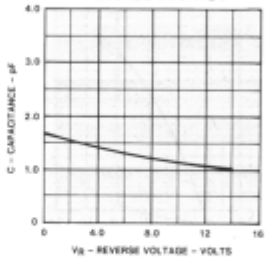
FORWARD VOLTAGE VERSUS FORWARD CURRENT



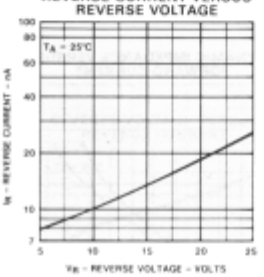
FORWARD CURRENT VERSUS TEMPERATURE COEFFICIENT



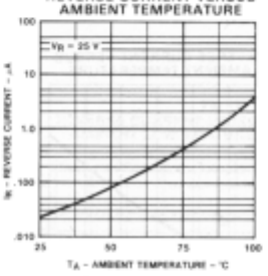
CAPACITANCE VERSUS REVERSE VOLTAGE



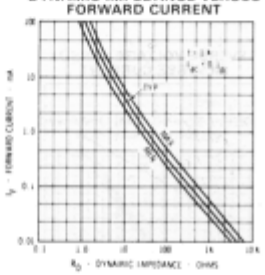
REVERSE CURRENT VERSUS REVERSE VOLTAGE



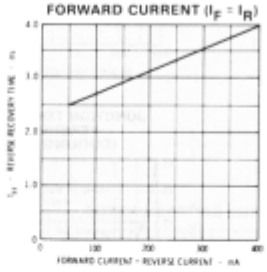
REVERSE CURRENT VERSUS AMBIENT TEMPERATURE



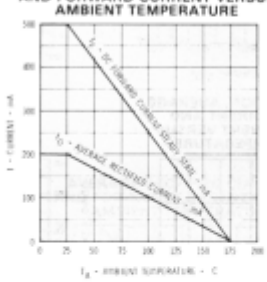
DYNAMIC IMPEDANCE VERSUS FORWARD CURRENT



REVERSE RECOVERY TIME VERSUS FORWARD CURRENT ($I_F = I_R$)



AVERAGE RECTIFIED CURRENT AND FORWARD CURRENT VERSUS AMBIENT TEMPERATURE



POWER DERATING CURVE