

# Silicon Diode

## **1N3070**

175V/500mA

# DATASHEET

OEM – Fairchild

Source: Fairchild Databook 1978

**1N3070 • 1N4938****HIGH SPEED HIGH CONDUCTANCE DIODES**

DIFFUSED SILICON PLANAR

- BV ... 200 V (MIN)
- I<sub>R</sub> ... 100 nA (MAX)

**ABSOLUTE MAXIMUM RATINGS (Note 1)****Temperatures**

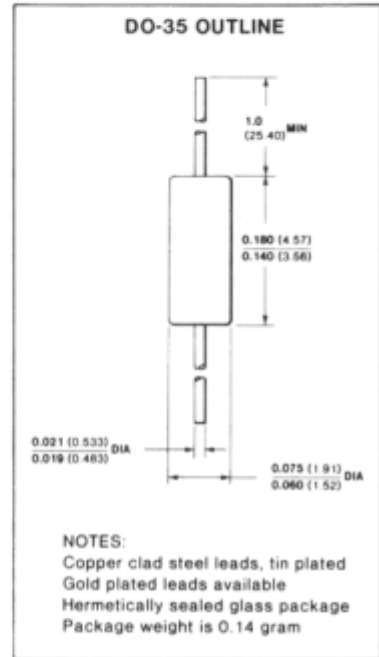
Storage Temperature Range	-65°C to +200°C
Max Junction Operating Temperature	+175°C
Lead Temperature	+260°C

**Power Dissipation (Note 2)**

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

**Maximum Voltage and Currents**

WIV	Working Inverse Voltage	175 V
I <sub>O</sub>	Average Rectified Current	200 mA
I <sub>F</sub>	Forward Current Steady State DC	500 mA
i <sub>f</sub>	Recurrent Peak Forward Current	600 mA
i <sub>f</sub> (surge)	Peak Forward Surge Current	
	Pulse Width = 1.0 s	1.0 A
	Pulse Width = 1.0 μs	4.0 A

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

SYMBOL	CHARACTERISTIC	MIN	MAX	UNITS	TEST CONDITIONS
I <sub>R</sub>	Reverse Current		100 100	nA μA	V <sub>R</sub> = 175 V V <sub>R</sub> = 175 V, T <sub>A</sub> = 150°C
BV	Breakdown Voltage	200		V	I <sub>R</sub> = 100 μA
V <sub>F</sub>	Forward Voltage		1.0	V	I <sub>F</sub> = 100 mA
C	Capacitance		5.0	pF	V <sub>R</sub> = 0, f = 1.0 MHz
t <sub>rr</sub>	Reverse Recovery Time (Note 3)		50	ns	I <sub>F</sub> = I <sub>R</sub> = 30 mA, R <sub>L</sub> = 100 Ω
RE	Rectification Efficiency (Note 4)	35		%	f = 100 MHz

**NOTES:**

- The maximum ratings are limiting values above which life or satisfactory performance may be impaired.
- These are steady state limits. The factory should be consulted on applications involving pulsed or low duty-cycle operation.
- Recovery to 1.0 mA.
- Rectification efficiency is defined as the ratio of dc load voltage to peak rf input voltage to the detector circuit, measured with 2.0 V rms input to the circuit. Load resistance: 5.0 kΩ, load capacitance 20 pF.
- 1N3070 and 1N4938 are electrically and mechanically identical.
- For product family characteristic curves, refer to Chapter 4, D1.

**CURVE SET NUMBER D1**  
**HIGH VOLTAGE SMALL SIGNAL DIODE**

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

