

# Silicon Diode

## **1N659**

50V/500mA

# DATASHEET

OEM – Fairchild

Source: Fairchild Databook 1978

# 1N659 • 1N660 • 1N661

## GENERAL PURPOSE DIODES

DIFFUSED SILICON PLANAR

- $V_F \dots 1.0 \text{ V (MAX) @ } 6.0 \text{ mA}$
- $t_{rr} \dots 300 \text{ ns (MAX)}$

### ABSOLUTE MAXIMUM RATINGS (Note 1)

#### Temperatures

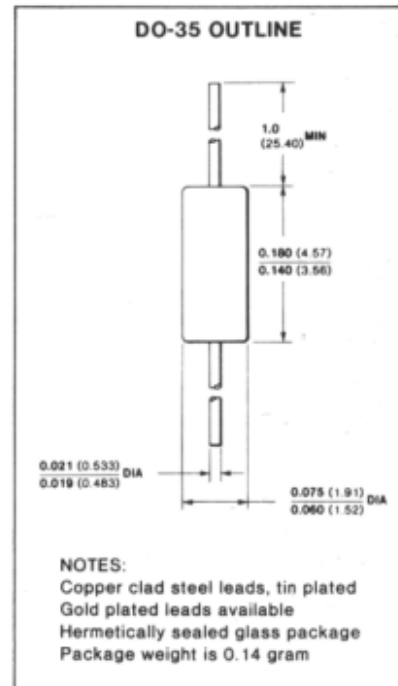
Storage Temperature Range	-65°C to +200°C
Maximum Operating Junction Temperature	+175°C
Lead Temperature	+260°C

#### Power Dissipation (Notes 2)

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

#### Maximum Voltage and Currents

		1N659	1N660	1N661
WIV	Working Inverse Voltage	50 V	100 V	200 V
$I_O$	Average Rectified Current	200 mA	200 mA	200 mA
$I_F$	Forward Current Steady State	500 mA	500 mA	500 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 $\mu\text{s}$	4.0 A	4.0 A	4.0 A



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

SYMBOL	CHARACTERISTIC	1N659		1N660		1N661		UNITS	TEST CONDITIONS
		MIN	MAX	MIN	MAX	MIN	MAX		
$V_F$	Forward Voltage		1.0		1.0		1.0	V	$I_F = 6.0 \text{ mA}$
$I_R$	Reverse Current		5.0		5.0		10	$\mu\text{A}$	$V_R = 50 \text{ V}$
			25		50		100	$\mu\text{A}$	$V_R = 100 \text{ V}$
								$\mu\text{A}$	$V_R = 200 \text{ V}$
								$\mu\text{A}$	$V_R = 50 \text{ V}, T_A = 100^\circ\text{C}$
								$\mu\text{A}$	$V_R = 100 \text{ V}, T_A = 100^\circ\text{C}$
								$\mu\text{A}$	$V_R = 200 \text{ V}, T_A = 100^\circ\text{C}$
BV	Breakdown Voltage	60		120		240		V	$I_R = 100 \mu\text{A}$
$t_{rr}$	Reverse Recovery Time		300		300		300	ns	$V_r = 35 \text{ V}, I_f = 30 \text{ mA}, R_L = 2.0 \text{ k}\Omega,$ $C_L = 10 \text{ pF}, \text{Recovery to } 400 \text{ k}\Omega$

#### NOTES:

1. The 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 operations.
3. For product family characteristic curves, refer to Chapter 4, D4 for 1N659, 4, D1 for 1N660 and 1N661.

**CURVE SET NUMBER D4**

HIGH SPEED GENERAL PURPOSE SMALL SIGNAL DIODE

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

