

# Silicon Diode

## **1N3064**

50V/300mA

# DATASHEET

OEM – Fairchild

Source: Fairchild Databook 1978

## 1N3064 • 1N4305 • 1N4454

### ULTRA FAST LOW CAPACITANCE DIODES

DIFFUSED SILICON PLANAR

- C... 2.0 pF @  $V_R = 0$ ,  $f = 1.0$  MHz
- $t_{rr}$ ... 4.0 ns @  $I_f = 10$  mA,  $I_r = 10$  mA,  $V_r = 1.0$  V
- BV... 75 V (MIN)

#### ABSOLUTE MAXIMUM RATINGS (Note 1)

##### Temperatures

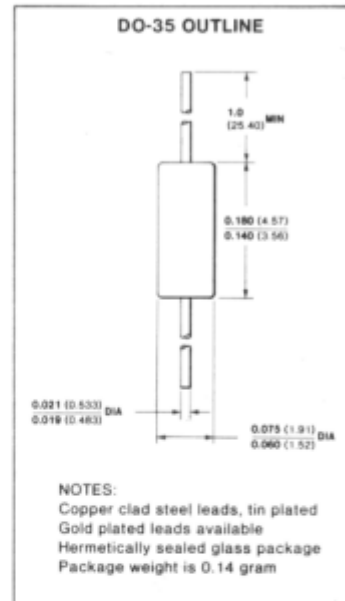
Storage Temperature Range	-65°C to +200°C
Max Junction Operating Temperature	+175°C
Lead Temperature	+260°C

##### Power Dissipation (Note 2)

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

##### Maximum Voltages and Currents

WIV	Working Inverse Voltage	50 V
$I_O$	Average Rectified Current	100 mA
$I_F$	Forward Current Steady State	300 mA
$i_f$	Recurrent Peak Forward Current	400 mA
$i_f$ (surge)	Peak Forward Surge Current	1.0 A
	Pulse Width = 1.0 s	4.0 A
	Pulse Width = 1.0 $\mu$ s	



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

SYMBOL	CHARACTERISTIC	MIN	MAX	UNITS	TEST CONDITIONS
$V_F$	Forward Voltage	0.610	0.710	V	$I_F = 2.0$ mA
		0.550	0.650	V	$I_F = 1.0$ mA
		0.505	0.575	V	$I_F = 250$ $\mu$ A
			1.0	V	$I_F = 10$ mA
		0.70	0.85	V	$I_F = 10$ mA
$I_R$	Reverse Current		0.1	$\mu$ A	$V_R = 50$ V
			100	$\mu$ A	$V_R = 50$ V, $T_A = 150^\circ$ C
BV	Breakdown Voltage	75		V	$I_R = 5.0$ $\mu$ A
$t_{rr}$	Reverse Recovery Time (Note 3)	1N4305	2.0	ns	$I_f = 10$ mA, $V_r = 6.0$ V, $R_L = 100$ $\Omega$
		1N3064			$I_f = I_r = 10$ mA, $R_L = 100$ $\Omega$ ,
		1N4305	4.0	ns	$V_r = 1.0$ V
		1N4454			
C	Capacitance		2.0	pF	$V_R = 0$ , $f = 1.0$ MHz
RE	Rectification Efficiency (Note 4)	45		%	$f = 1.0$ MHz
$\Delta V_F / ^\circ$ C	Forward Voltage Temperature Coefficient (Note 5)		3.0	mV / °C	

#### 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 operation.
3. Recovery to 1.0 mA.
4. 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  $\Omega$ , load capacitance 20 pF.
5. This value for  $\Delta V_F / ^\circ$ C is a typical value not a minimum or maximum.
6. For product 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

