

Silicon Diode

1N4305

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

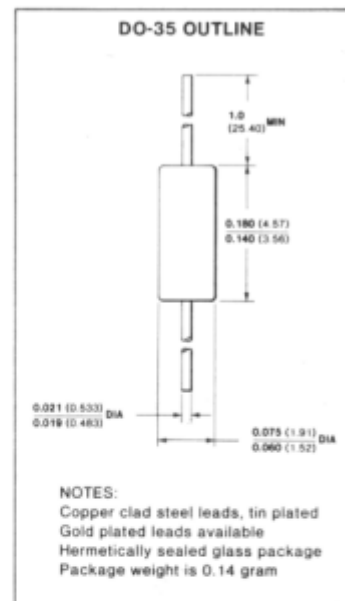
Storage Temperature Range	-65°C to +200°C
Max Junction Operating Temperature	+175°C
Lead Temperature	+260°C

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

V_{IV}	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 μ 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	$I_F = 250$ μ A
			1.0	V	$I_F = 10$ mA
		0.70	0.85	V	$I_F = 10$ mA
I_R	Reverse Current		0.1 100	μ A μ A	$V_R = 50$ V $V_R = 50$ V, $T_A = 150^\circ$ C
BV	Breakdown Voltage	75		V	$I_R = 5.0$ μ A
t_{rr}	Reverse Recovery Time (Note 3)	1N4305	2.0	ns	$I_f = 10$ mA, $V_r = 6.0$ V, $R_L = 100$ Ω
		1N3064 1N4305 1N4454	4.0	ns	$I_f = I_r = 10$ mA, $R_L = 100$ Ω , $V_r = 1.0$ V
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 Ω , 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

