Silicon - Diode

BAY71

35V / 300mA / 500mW

Fast Switching Diode

DATASHEET

OEM – Fairchild

Source: Fairchild Databook 1978

BAY71

FAST SWITCHING DIODE

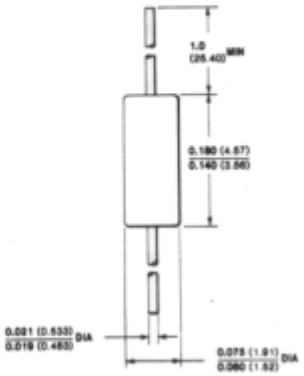
DIFFUSED SILICON PLANAR

- t_{rr} . . . 4.0 ns (MAX)
- C . . . 2.0 pF (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	35 V
I_O	Average Rectified Current	100 mA
I_F	Forward Current Steady State DC	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
V_F	Forward Voltage	0.76	1.00	V	I_F = 20 mA
		0.69	0.88	V	I_F = 10 mA
		0.57	0.69	V	I_F = 1.0 mA
		0.46	0.56	V	I_F = 0.1 mA
I_R	Reverse Current		100	nA	V_R = 35 V
			100	μA	V_R = 35 V, T_A = 125°C
BV	Breakdown Voltage	50		V	I_R = 5.0 μA
t_{rr}	Reverse Recovery Time (Note 5)		2.0	ns	I_F = 10 mA, I_R = 6.0 mA, R_L = 100 Ω, V_R = 6.0 V
V_{fr}	Forward Recovery Peak Voltage (Note 3)		3.0	V	I_F = 100 mA (pulsed)
t_{fr}	Forward Recovery Time (Note 3)		40	ns	I_F = 100 mA (pulsed)
Q_S	Stored Charge (Note 4)		65	pC	I_F = 20 mA, I_R = 2.0 mA
			50	pC	I_F = 10 mA, I_R = 1.0 mA
RE	Rectification Efficiency (Note 6)	45		%	f = 100 MHz
C	Capacitance		2.0	pF	V_R = 0, f = 1.0 MHz

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. The oscilloscope used as the response detector shall have a bandwidth of at least 10 MHz (3 dB down), and shall be calibrated using a deposited carbon resistor of 50 Ω in the diode test clips. t_{fr} is defined as the difference between the 10% point of the pulse and the point where V_F is to within 10% of the quiescent value.
4. Measured on the Tektronix "S" unit.
5. Recovery to 1.0 mA.
6. 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.
7. For product family curves, refer to Chapter 4, D4.