

Silicon – Diode Array

FSA1411M

8 Diode Array

60V/350mA

DATASHEET

OEM – Fairchild

Source: Fairchild Databook 1978

FSA1410M • FSA1411M • FSA2002M • FSA2003M

PLANAR AIR-ISOLATED MONOLITHIC DIODE ARRAYS*

- C... 5.0 pF (MAX)
- ΔV_F ... 15 mV (MAX) @ 10 mA

ABSOLUTE MAXIMUM RATINGS (Note 1)

Temperatures

Storage Temperature Range
Maximum Junction Operating Temperature
Lead Temperature

-55°C to +200°C
+150°C
+260°C

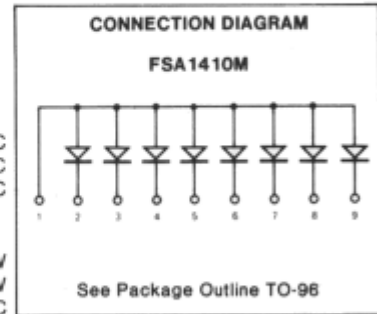
Power Dissipation (Note 2)

Maximum Dissipation per Junction at 25°C Ambient
per Package at 25°C Ambient
Linear Derating Factor (from 25°C) Junction
Package

400 mW
600 mW
3.2 mW/°C
-4.8 mW/°C

Maximum Voltage and Currents

WIV	Working Inverse Voltage	55 V
I _F	Continuous Forward Current	350 mA
I _F (surge)	Peak Forward Surge Current	
	Pulse Width=1.0 s	1.0 A
	Pulse Width=1.0 μs	2.0 A



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

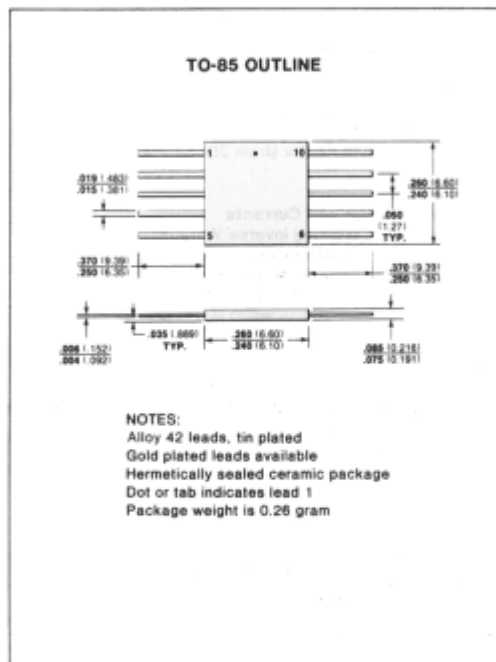
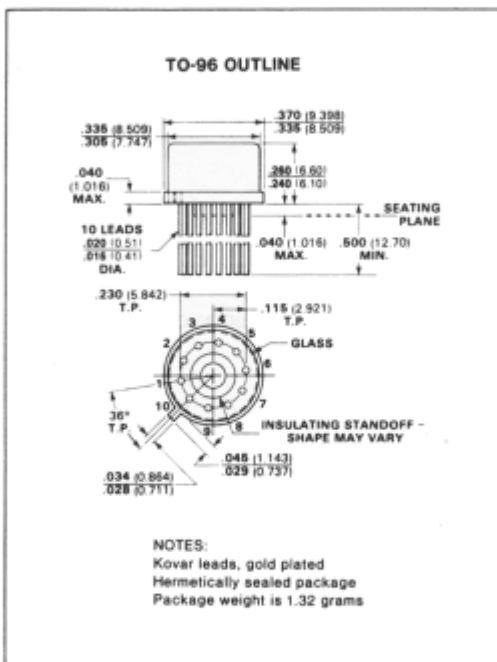
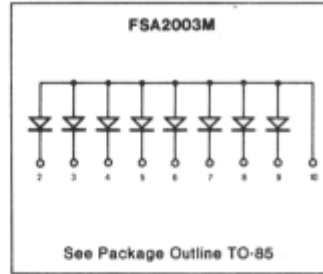
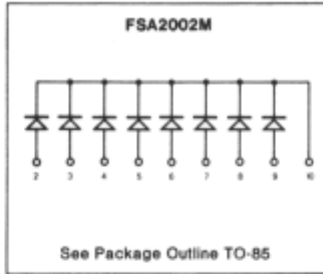
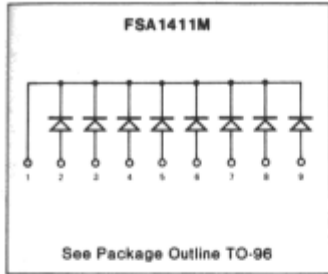
SYMBOL	CHARACTERISTIC	MIN	MAX	UNITS	TEST CONDITIONS
B _V	Breakdown Voltage	60		V	I _R = 10 μA
V _F	Forward Voltage (Note 3)		1.5 1.1 1.0	V V V	I _F = 500 mA I _F = 200 mA I _F = 100 mA
I _R	Reverse Current Reverse Current (T _A = 150°C)		100 100	nA μA	V _R = 40 V V _R = 40 V
C	Capacitance		5.0	pF	V _R = 0, f = 1 MHz
V _{FM}	Peak Forward Voltage		4.0	V	I _F = 500 mA, t _r < 10 ns
t _{fr}	Forward Recovery Time		40	ns	I _F = 500 mA, t _r < 10 ns
t _{rr}	Reverse Recovery Time		10 50	ns ns	I _F = I _r = 10–200 mA R _L = 100 Ω, Rec. to 0.1 I _r I _F = 500 mA, I _r = 50 mA R _L = 100 Ω, Rec. to 5 mA
ΔV _F	Forward Voltage Match		15	mV	I _F = 10 mA

NOTES:

- These 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.
- V_F is measured using an 8 ms pulse.
- For product family characteristic curves and test circuits, refer to Chapter 4, D15.

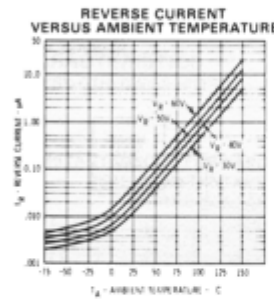
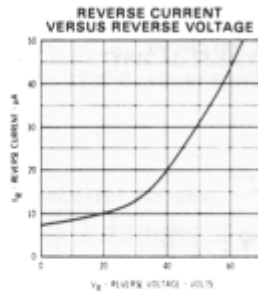
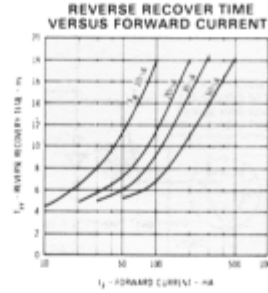
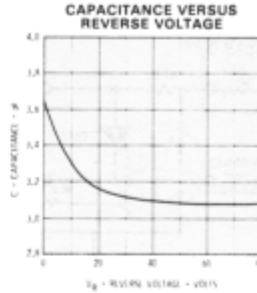
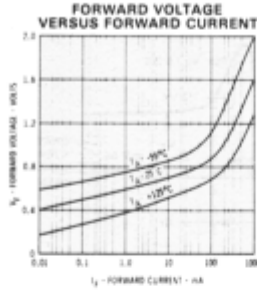
*8 COMMON CATHODE, 8 COMMON ANODE

FAIRCHILD • DIODE ARRAYS



CURVE SET NUMBER D15
AIR-ISOLATED MONOLITHIC DIODE ARRAY

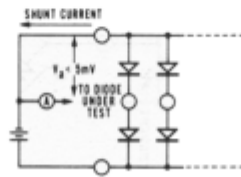
TYPICAL ELECTRICAL CHARACTERISTIC CURVES
 AT 25°C AMBIENT TEMPERATURE UNLESS OTHERWISE NOTED



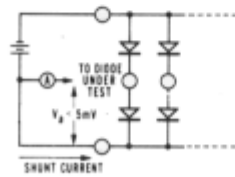
TEST CIRCUITS

To measure reverse current of an individual diode, the following test circuits are used:

COMMON CATHODE DIODES



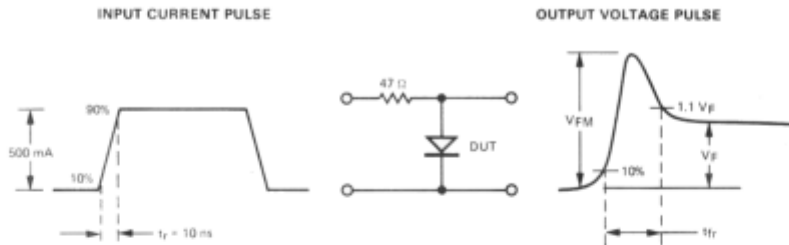
COMMON ANODE DIODES



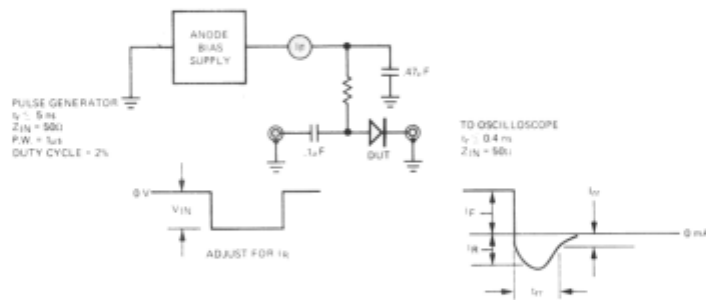
CURVE SET NUMBER D15
AIR-ISOLATED MONOLITHIC DIODE ARRAY

TEST CIRCUITS

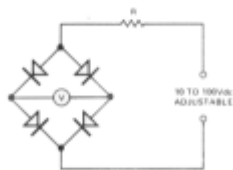
Test requirement for V_{FM} and t_{rr} is as shown below; all leads should be as short as possible.



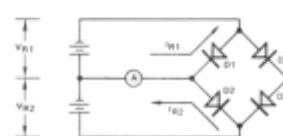
t_{rr} - REVERSE RECOVERY TIME TEST CIRCUIT
 $I_f = I_r, I_{rr} = 0.1 I_r$



ΔV_F BRIDGE MATCHING CIRCUIT



ΔI_R BRIDGE MATCHING CIRCUIT



NOTES:

1. R Varies depending on the current range. For the most often used current ranges, R is as follows:

Current Range (amperes)	R (ohms)
10^{-5} to 10^{-4}	10^6
10^{-4} to 10^{-3}	10^5
10^{-3} to 10^{-2}	10^4
or 10^{-n} to 10^{-n+1}	10^{n+1}

2. V indicates mismatch of assembly.

NOTES:

- $V_{R2} = V_{R1} \pm 1\%$.
- $I_{R2} - I_{R1} = \Delta I_R$ (difference in I_R between diodes D1 & D2). To measure diodes D3 & D4, reverse cathode-anodeterminial connections.
- A is a center reading pico ammeter. ΔI_R indicated directly as A.