

Silicon – Diode Array

FSA2002M

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

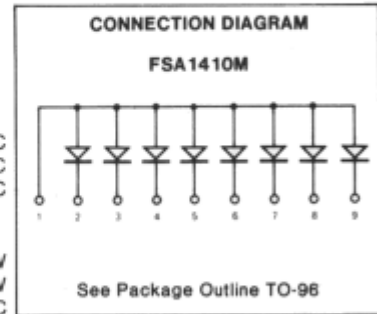
Power Dissipation (Note 2)

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)

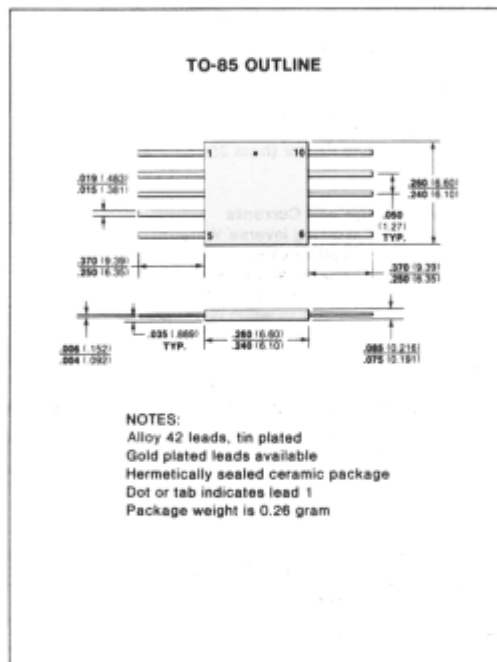
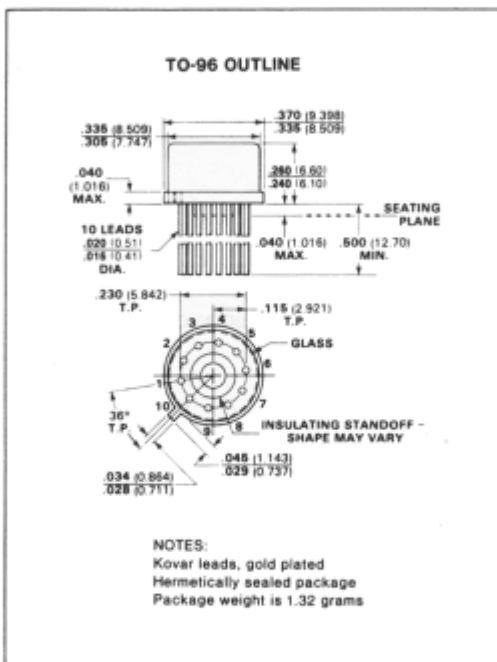
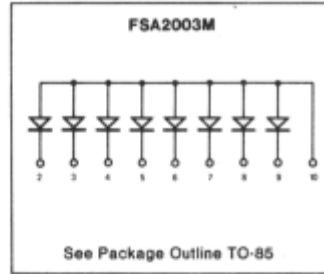
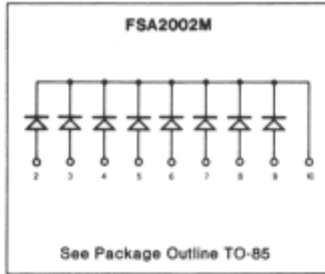
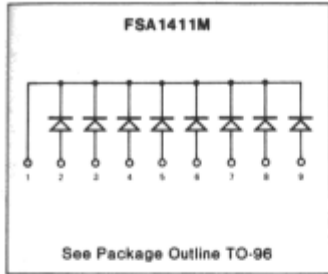
SYMBOL	CHARACTERISTIC	MIN	MAX	UNITS	TEST CONDITIONS
B _V	Breakdown Voltage	60		V	I _R = 10 μA
V _F	Forward Voltage (Note 3)		1.5 1.1 1.0	V V V	I _F = 500 mA I _F = 200 mA I _F = 100 mA
I _R	Reverse Current Reverse Current (T _A = 150°C)		100 100	nA μA	V _R = 40 V V _R = 40 V
C	Capacitance		5.0	pF	V _R = 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:

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

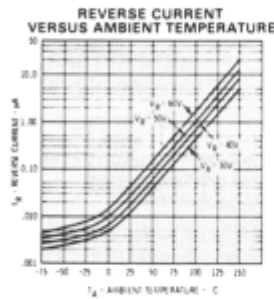
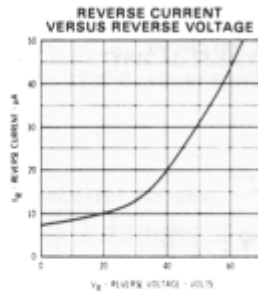
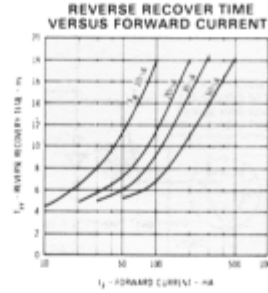
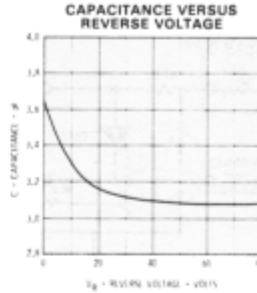
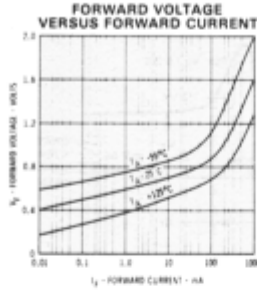
*8 COMMON CATHODE, 8 COMMON ANODE

FAIRCHILD • DIODE ARRAYS



CURVE SET NUMBER D15
AIR-ISOLATED MONOLITHIC DIODE ARRAY

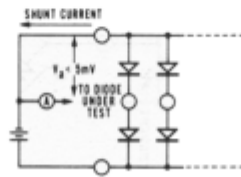
TYPICAL ELECTRICAL CHARACTERISTIC CURVES
 AT 25°C AMBIENT TEMPERATURE UNLESS OTHERWISE NOTED



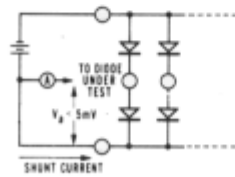
TEST CIRCUITS

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

COMMON CATHODE DIODES



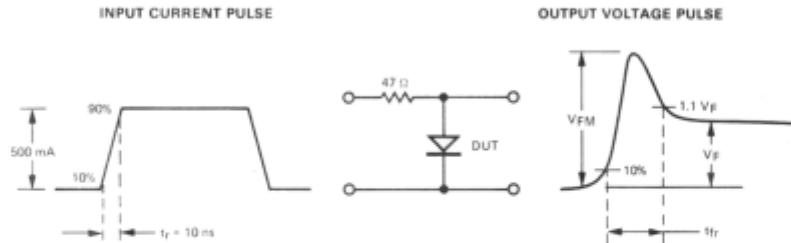
COMMON ANODE DIODES



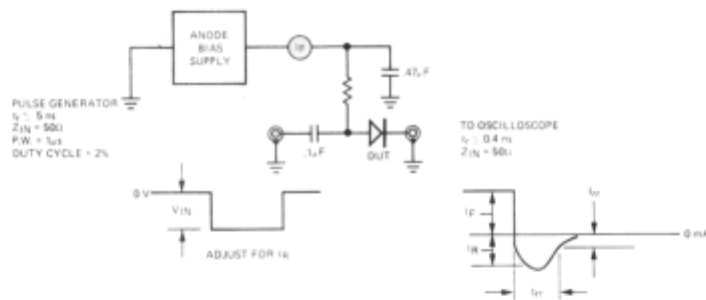
CURVE SET NUMBER D15
AIR-ISOLATED MONOLITHIC DIODE ARRAY

TEST CIRCUITS

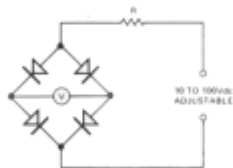
Test requirement for V_{FM} and t_{rr} is as shown below; all leads should be as short as possible.



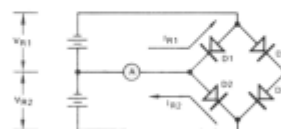
t_{rr} - REVERSE RECOVERY TIME TEST CIRCUIT
 $I_f = I_r, I_{rr} = 0.1 I_r$



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-anode terminal connections.
- A is a center reading pico ammeter. ΔI_R indicated directly as A.