# Silicon Diode Array

# 1N5768

60V/300mA

# DATASHEET

OEM – Fairchild

Source: Fairchild Databook 1978

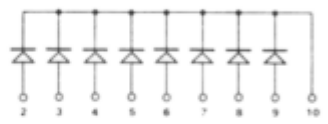
*Datasheet Rev. 1.3 – 02/19 – data without warranty / liability*

# 1N5768 · 1N5770 · 1N5772 · 1N5774

## MONOLITHIC AIR ISOLATED DIODE ARRAYS

- **BV**...60 V @ 10 μA
- **$I_R$**...100 nA @ 40 V
- **$V_R$**...1 V @ 100 mA

**CONNECTION DIAGRAMS**




**1N5768**
**Package Outline To-85**

**ABSOLUTE MAXIMUM RATINGS** (Note 1)

**Temperatures**

| | |
|---|---|
| Storage Temperature Range | −65°C to +200°C |
| Junction Operating Temperature Range | −65°C to +200°C |

**Maximum Power Dissipation**

| | |
|---|---|
| Maximum Total Dissipation at $T_A$ = 25°C | 500 mW |
| Linear Derating Factor | 4.0 mW / °C above 25°C |

**Maximum Currents**

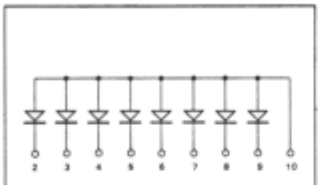
| | | |
|---|---|---|
| $I_O$ | Average Rectified Current (each diode) | 300 mA |
| | Linear Derating Factor | 2.4 mA / °C above 25°C |
| $I_{FSM}$ | Peak Forward Surge Current<br>Pulse Width = 8.3 ms | 500 mA |

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

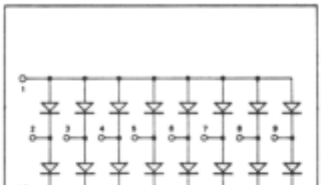
| SYMBOL | CHARACTERISTIC | MIN | MAX | UNITS | TEST CONDITIONS |
|---|---|---|---|---|---|
| BV | Breakdown Voltage | 60 | | V | $I_R$ = 10 μA, Pulse Width = 100 μs, Duty Cycle ≤ 20% |
| $V_F$ | Forward Voltage | | 1.0<br>1.5 | V<br>V | $I_F$ = 100 mA<br>$I_F$ = 500 mA, Pulse Width = 300 ns, Duty Cycle = 2% |
| $V_{FX}$ | Forward Voltage | | 1.0 | V | $I_F$ = 25 mA; $I_F$ = 25 mA for each of the other Diodes in the Test Section (Note 3) |
| $V_{FM}$ | Peak Forward Voltage | | 5.0 | V | $I_F$ = 500 mA, Pulse Width = 150 ns, Duty Cycle ≤2% |
| $I_R$ | Reverse Current | | 100<br>50 | nA<br>μA | $V_R$ = 40 V<br>$V_R$ = 40 V, $T_A$ = +150°C |
| $I_{RX}$ | Reverse Current | | 10 | μA | $V_R$ = 40 V, $I_F$ = 25 mA for each of the other Diodes in the Test Section (Note 3) |
| $I_{Ri}$ | Isolation Current 1N5772, 1N5774 | | 0.8 | μA | $V_R$ = 40 V (Note 4) |
| C | Pin-to-Pin Capacitance (Note 2)<br>1N5768<br>1N5770, 1N5772, 1N5774 | | <br>4.0<br>8.0 | <br>pF<br>pF | <br>$V_R$ = 0 V, f = 1.0 MHz<br>$V_R$ = 0 V, f = 1.0 MHz |
| $t_{fr}$ | Forward Recovery Time (Note 5) | | 40 | ns | $I_f$ = 500 mA, $R_S$ = 10 Ω, $V_{fr}$ = 1.8 V, $t_r$ = 15 ns Max |
| $t_{rr}$ | Reverse Recovery Time (Note 5) | | 20 | ns | $I_f$ = 200 mA, $I_r$ = 200 mA, $R_L$ = 100 Ω, $I_{rr}$ = 20 mA |

NOTES:
1. The maximum ratings are limiting values above which life or satisfactory performance may be impaired.
2. This parameter is the total pin-to-pin capacitance measured across each diode. This does not necessarily represent actual diode capacitance since other diode interconnections can contribute additional capacitance.
3. Each common anode section and / or common cathode section tested separately.
4. The isolation current shall be measured between any two interconnect pins of adjacent parallel sets of diodes with all other pins open circuited.
5. For Product Family characteristic curves and Test Circuits, refer to Chapter 4, D15.

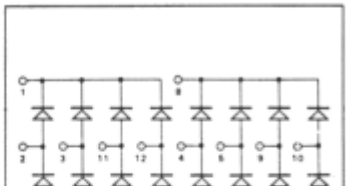
## FAIRCHILD • DIODE ARRAYS



**1N5770**
**Package Outline To-85**

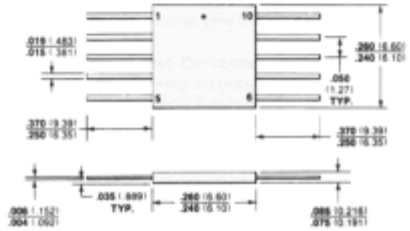


**1N5772**
**Package Outline To-85**



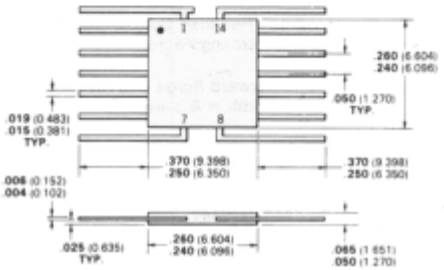
**1N5774**
**Package Outline To-86**

### TO-85 OUTLINE



NOTES:
Alloy 42 leads, tin plated
Gold plated leads available
Hermetically sealed ceramic package
Dot or tab indicates lead 1
Package weight is 0.26 gram

### TO-86 OUTLINE



NOTES:
Alloy 42 leads, tin plated
Gold plated leads available
Hermetically sealed ceramic package
Dot or tab indicates lead 1
Package weight is 0.27 gram

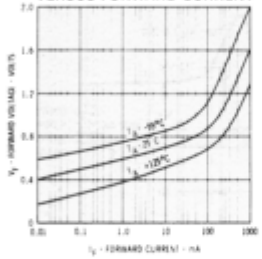
## CURVE SET NUMBER D15

AIR-ISOLATED MONOLITHIC DIODE ARRAY

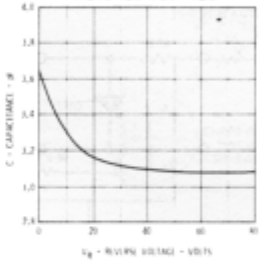
### TYPICAL ELECTRICAL CHARACTERISTIC CURVES

AT 25°C AMBIENT TEMPERATURE UNLESS OTHERWISE NOTED

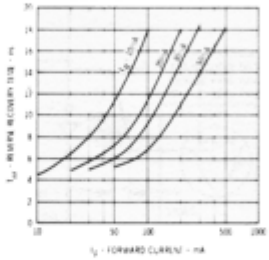
FORWARD VOLTAGE VERSUS FORWARD CURRENT



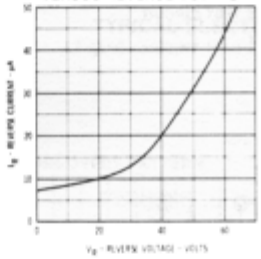
CAPACITANCE VERSUS REVERSE VOLTAGE



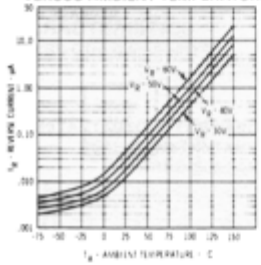
REVERSE RECOVER TIME VERSUS FORWARD CURRENT



REVERSE CURRENT VERSUS REVERSE VOLTAGE



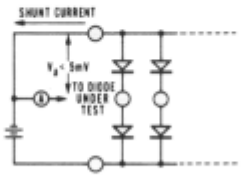
REVERSE CURRENT VERSUS AMBIENT TEMPERATURE



### TEST CIRCUITS

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

COMMON CATHODE DIODES




COMMON ANODE DIODES