

Silicon Diode

1N3600

50V/500mA

DATASHEET

OEM – Fairchild

Source: Fairchild Databook 1978

1N3600 • 1N4150 • 1N4450

HIGH CONDUCTANCE ULTRA FAST DIODES

DIFFUSED SILICON PLANAR EPITAXIAL

- t_{rr} ... 4.0 ns (MAX)
- V_F ... 1.0 V (MAX) @ 200 mA

ABSOLUTE MAXIMUM RATINGS (Note 1)

Temperatures

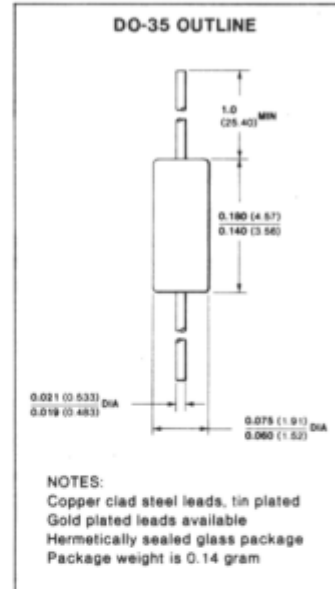
| | |
|------------------------------------|-----------------|
| Storage Temperature Range | -65°C to +200°C |
| Max Junction Operating Temperature | +175°C |
| Lead Temperature | +260°C |

Power Dissipation (Note 2)

| | |
|---|------------|
| Max Total Power Dissipation at 25°C Ambient | 500 mW |
| Linear Derating Factor (from 25°C) | 3.33 mW/°C |

Maximum Voltages and Currents

| | 1N3600 | 1N4150 | 1N4450 |
|--|--------|--------|--------|
| WIV Working Inverse Voltage | 50 V | 50 V | 30 V |
| I_O Average Rectified Current | 200 mA | 200 mA | 200 mA |
| I_F DC Forward Current | 400 mA | 400 mA | 400 mA |
| i_f Recurrent Peak Forward Current | 600 mA | 600 mA | 600 mA |
| $i_f(\text{surge})$ Peak Forward Surge Current | | | |
| Pulse Width = 1.0 s | 1.0 A | 1.0 A | 1.0 A |
| Pulse Width = 1.0 μ s | 4.0 A | 4.0 A | 4.0 A |



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

| SYMBOL | CHARACTERISTIC | 1N3600 1N4150 | | 1N4450 | | UNITS | TEST CONDITIONS |
|----------|-----------------------------------|--------------------------------------|-------------------------------------|------------------------------|-------------------------------------|--|--|
| | | MIN | MAX | MIN | MAX | | |
| BV | Breakdown Voltage | 75 | | 40 | | V | $I_R = 5.0 \mu\text{A}$ $I_R = 5.0 \mu\text{A}$ |
| I_R | Reverse Current | | 100 | | 50 | nA nA μA μA | $V_R = 50 \text{ V}$ $V_R = 30 \text{ V}$ $V_R = 50 \text{ V}, T_A = 150^\circ\text{C}$ $V_R = 30 \text{ V}, T_A = 150^\circ\text{C}$ |
| V_F | Forward Voltage | 0.54 0.66 0.76 0.82 0.87 | 0.62 0.74 0.86 0.92 1.0 | 0.42 0.52 0.64 0.80 | 0.54 0.64 0.76 0.92 1.0 | V V V V V | $I_F = 0.1 \text{ mA}$ $I_F = 1.0 \text{ mA}$ $I_F = 10 \text{ mA}$ $I_F = 50 \text{ mA}$ $I_F = 100 \text{ mA}$ $I_F = 200 \text{ mA}$ |
| C | Capacitance | | 2.5 | | 4.0 | pF | $V_R = 0, f = 1.0 \text{ MHz}$ |
| t_{rr} | Reverse Recovery Time (Note 3) | | 4.0 6.0 | | 4.0 | ns ns ns | $I_f = I_r = 10 \text{ mA to } 200 \text{ mA}, R_L = 100 \Omega$ $I_f = I_r = 10 \text{ mA}, R_L = 100 \Omega$ $I_f = I_r = 200 \text{ mA to } 400 \text{ mA}, R_L = 100 \Omega$ |
| t_{fr} | Forward Recovery Time | | 10 | | | ns | $I_f = 200 \text{ mA}, t_r = 0.4 \text{ ns}, V_{fr} = 1.0 \text{ V}$ |

NOTES:

- Maximum 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.
- Recovery to 0.1 I_f .
- For 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

