

Dual Pico Amp Diodes



DPAD1 / DPAD2 / DPAD5 / DPAD10 / DPAD20 / DPAD50 / DPAD100 SSTDPAD5 / SSTDPAD10 / SSTDPAD20 / SSTDPAD50 / SSTDPAD100

FEATURES

- High OFF Isolation. 1 pA max DPAD1
- Excellent Isolation between diodes. Typical 20 fA
- Matched Capacitance

APPLICATIONS

- Op Amp Protection Devices
- Diode Switching
- High Impedance Protection

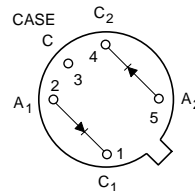
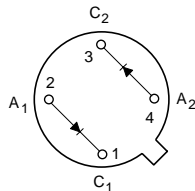
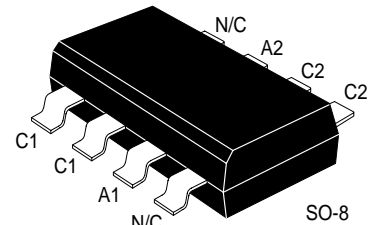
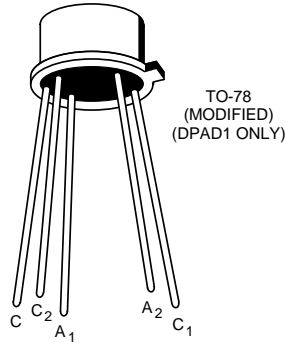
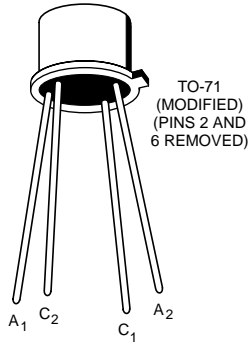
DESCRIPTION

Calogic's ultra low leakage dual pico amp diodes out perform conventional diodes for applications where reverse current (leakage) is critical and must be kept at a minimum. The devices have very low capacitance and are also fast switching. Housed in a compact dual hermetic package and a plastic surface mount SO-8 this product is also available in chip form for hybrid uses.

ORDERING INFORMATION

| Part | Package | Temperature Range |
|--------------|--------------------------|-------------------|
| DPAD1 | Hermetic TO-78 | -55 to +150°C |
| DPAD2/50 | Hermetic TO-71 | -55 to +150°C |
| SSTDPAD5/100 | Plastic SO-8 | -55 to +150°C |
| XDPAD5/100 | Sorted Chips in Carriers | -55 to +150°C |

PIN CONFIGURATION

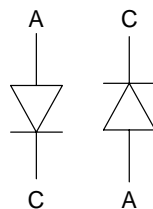


CJ1, CJ2, CJ4

BOTTOM VIEW
(ALTERNATE)

BOTTOM VIEW

SCHEMATIC DIAGRAM

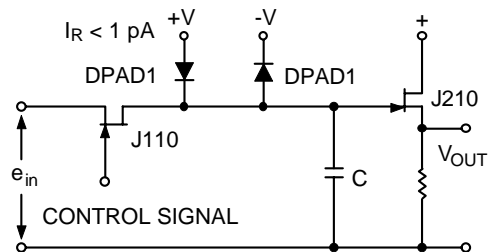
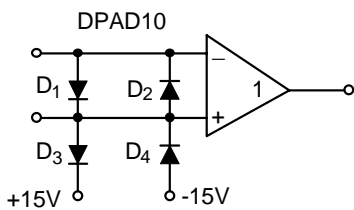


ABSOLUTE MAXIMUM RATINGS (25°C)

| | |
|---|---------------|
| Forward Gate Current, Each Side | 50 mA |
| Total Device Dissipation @ T _A = 25°C | |
| Derate 4.0 mW/°C to 125°C | 400 mW |
| Storage Temperature Range | -55 to +125°C |
| Lead Temperature (1/16" from case for 10 seconds) | 300°C |

ELECTRICAL CHARACTERISTICS (25°C unless otherwise noted)

| SYMBOL | CHARACTERISTICS | MIN | TYP | MAX | UNIT | TEST CONDITIONS | |
|-----------------|-----------------------------|-----|-----|------|------|---|------------------------------|
| STATIC | | | | | | | |
| I _R | Reverse Current | | | -1 | pA | V _R = -20 V | DPAD1 |
| | | | | -2 | | | DPAD2 |
| | | | | -5 | | | DPAD5 |
| | | | | -10 | | | DPAD10 |
| | | | | -20 | | | DPAD20 |
| | | | | -50 | | | DPAD50 |
| | | | | -100 | | | DPAD100 |
| BV _R | Breakdown Voltage (Reverse) | -45 | | -120 | V | I _R = -1 μA | DPAD1, 2, 5 |
| | | -35 | | | | | DPAD10, 20, 50, 100 |
| V _F | Forward Voltage Drop | | 0.8 | 1.5 | | I _F = 5 mA | DPAD1, 2, 5, 10, 20, 50, 100 |
| DYNAMIC | | | | | | | |
| C _R | Capacitance | | | 0.8 | pF | V _R = -5 V, f = 1 MHz | DPAD1, 2, 5 |
| | | | | 2.0 | | | DPAD10, 20, 50, 100 |
| CR1 - CR2 | Differential Capacitance | | 0.1 | 0.2 | pF | V _{R1} = V _{R2} = -5 V, f = 1 MHz | DPAD1, 2, 5, 10, 20, 50, 100 |



APPLICATION

Operational Amplifier Protection. Input Differential Voltage limited to 0.8 V (typ) by DPADS D₁ and D₂ Common mode input voltage limited by DPADS D₃ and D₄ to ±15V.

Typical sample and hold circuit with clipping, DPAD diodes reduce offset voltages fed capacitively from the FET switch gate.