

# 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

TO-71 (MODIFIED)  
(PINS 2 AND 6 REMOVED)

TO-78 (MODIFIED)  
(DPAD1 ONLY)

SO-8

CJ1, CJ2, CJ4  
BOTTOM VIEW (ALTERNATE)

BOTTOM VIEW

### SCHEMATIC DIAGRAM

A  
C

C  
A



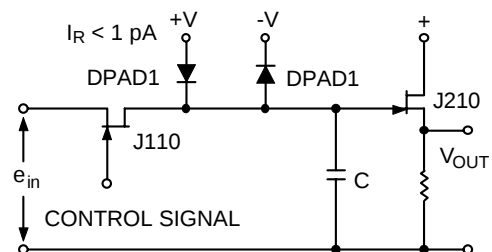
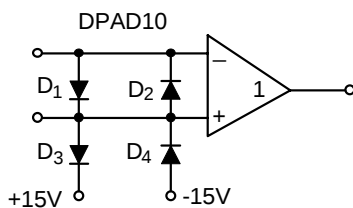
**DPAD1 / DPAD2 / DPAD5 / DPAD10 / DPAD20 / DPAD50 / DPAD100**  
**SSTDPAD5 / SSTDPAD10 / SSTDPAD20 / SSTDPAD50 / SSTDPAD100**

**ABSOLUTE MAXIMUM RATINGS (25°C)**

Forward Gate Current, Each Side . . . . . 50 mA  
Total Device Dissipation @  $T_A = 25^\circ\text{C}$   
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 <sub>R</sub> | Reverse Current          |                 |                             | -1   | pA                  | V <sub>R</sub> = -20 V                              | DPAD1                        |
|                |                          |                 |                             | -2   |                     |                                                     | DPAD2                        |
|                |                          |                 |                             | -5   |                     |                                                     | DPAD5                        |
|                |                          |                 |                             | -10  |                     |                                                     | DPAD10                       |
|                |                          |                 |                             | -20  |                     |                                                     | DPAD20                       |
|                |                          |                 |                             | -50  |                     |                                                     | DPAD50                       |
|                |                          |                 |                             | -100 |                     |                                                     | DPAD100                      |
|                |                          | BV <sub>R</sub> | Breakdown Voltage (Reverse) | -45  |                     |                                                     |                              |
| -35            |                          |                 |                             |      | DPAD10, 20, 50, 100 |                                                     |                              |
| V <sub>F</sub> | Forward Voltage Drop     |                 | 0.8                         | 1.5  |                     | I <sub>F</sub> = 5 mA                               | DPAD1, 2, 5, 10, 20, 50, 100 |
| DYNAMIC        |                          |                 |                             |      |                     |                                                     |                              |
| C <sub>R</sub> | Capacitance              |                 |                             | 0.8  | pF                  | V <sub>R</sub> = -5 V, f = 1 MHz                    | DPAD1, 2, 5                  |
|                |                          |                 |                             | 2.0  |                     |                                                     | DPAD10, 20, 50, 100          |
| CR1 - CR2      | Differential Capacitance |                 | 0.1                         | 0.2  | pF                  | V <sub>R1</sub> = V <sub>R2</sub> = -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  $D_1$  and  $D_2$  Common mode input voltage limited by DPADS  $D_3$  and  $D_4$  to  $\pm 15\text{V}$ .

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