

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

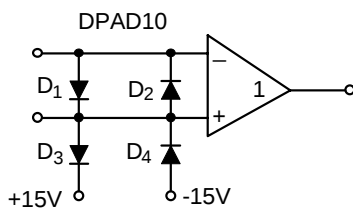
C
A

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

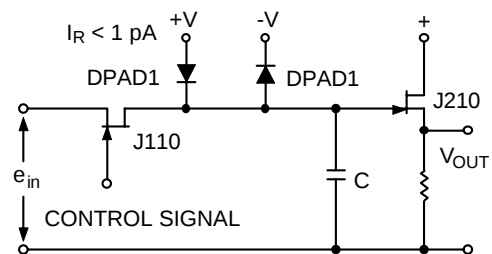
ELECTRICAL CHARACTERISTICS (25°C unless otherwise noted)

SYMBOL	CHARACTERISTICS	MIN	TYP	MAX	UNIT	TEST CONDITIONS	
STATIC							
I _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			
-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 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.