

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



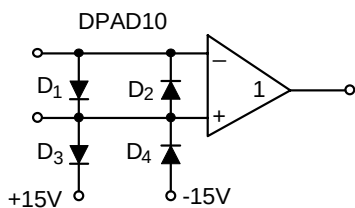
DPAD1 / DPAD2 / DPAD5 / DPAD10 / DPAD20 / DPAD50 / DPAD100
SSTD PAD5 / SSTD PAD10 / SSTD PAD20 / SSTD PAD50 / SSTD PAD100

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

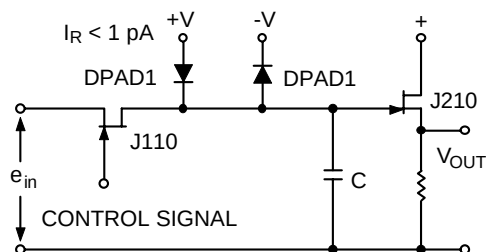
ELECTRICAL CHARACTERISTICS (25°C unless otherwise noted)

SYMBOL	CHARACTERISTICS	MIN	TYP	MAX	UNIT	TEST CONDITIONS
STATIC						
I_R	Reverse Current			-1	pA	DPAD1
				-2		DPAD2
				-5		DPAD5
				-10		DPAD10
				-20		DPAD20
				-50		DPAD50
				-100		DPAD100
BV_R	Breakdown Voltage (Reverse)	-45		-120	V	DPAD1, 2, 5
		-35				DPAD10, 20, 50, 100
V_F	Forward Voltage Drop		0.8	1.5		$I_R = -1\mu\text{A}$ $I_F = 5\text{ mA}$ DPAD1, 2, 5, 10, 20, 50, 100
DYNAMIC						
C_R	Capacitance			0.8	pF	DPAD1, 2, 5
				2.0		DPAD10, 20, 50, 100
CR1 - CR2	Differential Capacitance		0.1	0.2	pF	$V_{R1} = V_{R2} = -5\text{ V}$, $f = 1\text{ MHz}$ 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.