Low Leakage Pico Amp Diodes

calogic CORPORATION

PAD1 / PAD2 / PAD5 / PAD10 / PAD20 / PAD50

FEATURES

- Low Leakage ..... 1 pA (PAD1)
- High Breakdown Range
  ..... -45 V min - 120 V max (PAD1, 2, 5)
  ..... -35V min (PAD10, 20, 50, 100)
- Low Capacitance ..... 0.8 pf (PAD1, 2, 5)
  ..... 2.0 pf (PAD10, 20, 50, 100)

APPLICATIONS

- High Impedance Protection Devices
- Fast Diode Switching
- Clipping Circuits

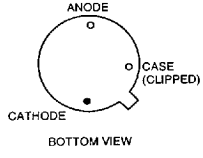
DESCRIPTION

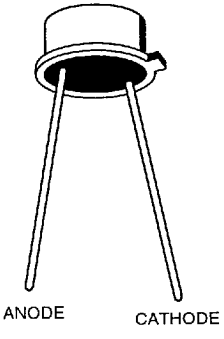
Calogic's series of Pico Amp Diodes are an excellent choice for protection devices where ultra low leakage is critical and must be at a minimal measurement. These devices have a wide operating voltage range and are low capacitance for high speed switching requirements. Housed in a hermetic TO-18 package the product line is also available in chip form for hybrid uses.

ORDERING INFORMATION

Part	Package	Temperature Range
PAD1-100	Hermetic TO-18	-55°C to +150°C
XPAD1-100	Sorted Chips in Carriers	-55°C to +150°C

PIN CONFIGURATION





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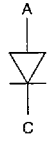
SCHEMATIC DIAGRAM

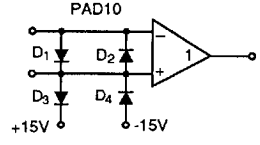


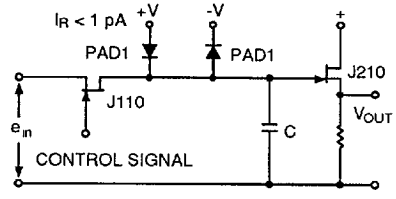
ABSOLUTE MAXIMUM RATINGS (25°C)

Forward Current . . . . . 50 mA
Total Device Dissipation . . . . . 300 mW
Storage Temperature Range . . . . . -55°C 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	VR = -20 V	PAD1
				-2			PAD2
				-5			PAD5
				-10			PAD10
				-20			PAD20
				-50			PAD50
				-100			PAD100
BV_R	Breakdown Voltage (Reverse)	-45		-120	V	I_R = -1μA	PAD1, 2, 5
		-35					PAD10, 20, 50, 100
V_F	Forward Voltage Drop		0.8	1.5		I_F = 5 mA	PAD1, 2, 5, 10, 20, 50, 100
DYNAMIC							
C_R	Capacitance			0.8	pF	V_R = -5 V, f = 1 MHz	PAD1, 2, 5
				2			PAD10, 20, 50, 100





APPLICATION

Operational Amplifier Protection. Input Differential Voltage limited to 0.8 V (typ) by PADS D_1 and D_2 Common mode input voltage limited by PADS D_3 and D_4 to ±15 V.

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