

**Low-Leakage Pico-Amp Diodes**

**PAD1                      JPAD5                      SSTPAD5**  
**PAD5                      JPAD50                      SSTPAD100**  
**PAD50**

**Product Summary**

Part Number	I <sub>R</sub> Max (pA)
PAD1	-1
PAD5/JPAD5/SSTPAD5	-5
PAD50/JPAD50	-50
SSTPAD100	-100

**Features**

- Ultralow Leakage: PAD1 <1 pA
- Ultralow Capacitance: PAD1 <0.8 pF
- Two-Leaded Package

**Benefits**

- Negligible Circuit Leakage Contribution
- Circuit “Transparent” Except to Shunt High-Frequency Spikes
- Simplicity of Operation

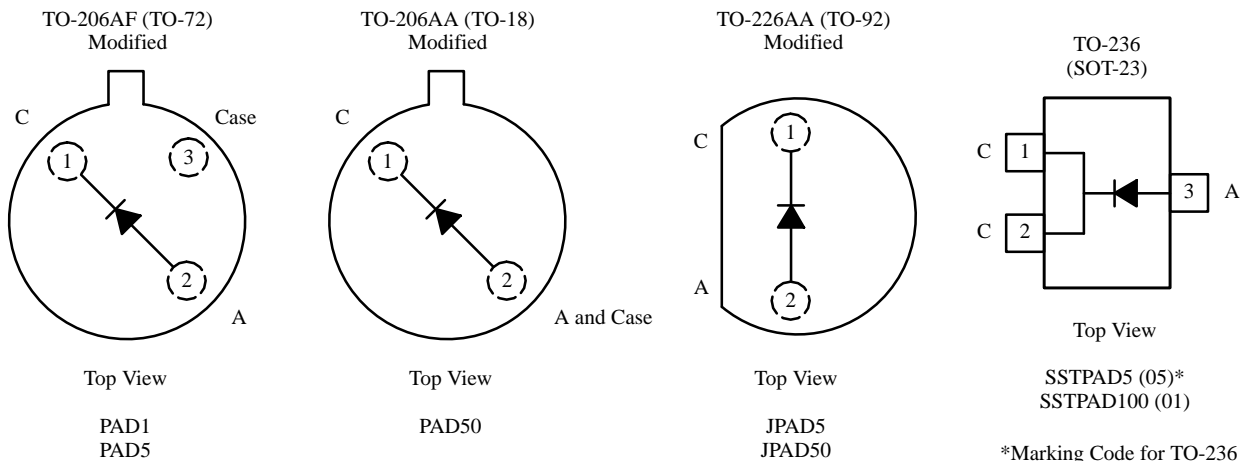
**Applications**

- Op Amp Input Protection
- Multiplexer Overvoltage Protection

**Description**

The PAD/JPAD/SSTPAD series of extremely low-leakage diodes provides a superior alternative to conventional diode technology when reverse current (leakage) must be minimized. They feature leakage currents ranging from -1 pA (PAD1) to -100 pA (SSTPAD100) to support a wide range of applications. These devices are well suited for use in applications such as input protection for operational amplifiers.

The hermetically sealed TO-206AF (TO-72) package allows full military processing per MIL-S-19500 (see Military Information). The TO-226A (TO-92) plastic package provides a low-cost option. The TO-236 (SOT-23) package provides surface-mount capability. Both J and SST series are available in tape-and-reel for automated assembly. (See Packaging Information.)



Updates to this data sheet may be obtained via facsimile by calling Siliconix FaxBack, 1-408-970-5600. Please request FaxBack document #2201.

## Absolute Maximum Ratings<sup>a</sup>

Forward Current:	(PAD) ..... 50 mA	Operation Junction Temp: (PAD) ..... -55 to 175°C
	(JPAD/SSTPAD) ..... 10 mA	(JPAD/SSTPAD) <sup>c</sup> ..... -55 to 150°C
Total Device Dissipation:	(PAD) <sup>b</sup> ..... 300 mW	Lead Temperature ( <sup>1</sup> / <sub>16</sub> " from case for 10 sec.) ..... 300°C
	(JPAD/SSTPAD) <sup>b</sup> ..... 350 mW	

Notes:

- T<sub>A</sub> = 25°C unless otherwise noted.
- Derate 2 mW/°C above 25°C.
- Derate 2.8 mW/°C above 25°C.

## Specifications<sup>a</sup>

Parameter	Symbol	Test Conditions	Limits			Unit
			Min	Typ <sup>b</sup>	Max	
<b>Static</b>						
Reverse Current	I <sub>R</sub>	V <sub>R</sub> = -20 V	PAD1	-0.3	-1	pA
			PAD5/JPAD5/SSTPAD5	-1	-5	
			PAD50/JPAD50	-5	-50	
			SSTPAD100	-10	-100	
Reverse Breakdown Voltage	BV <sub>R</sub>	I <sub>R</sub> = -1 μA	PAD1/PAD5	-45	-60	V
			SSTPAD5/100	-30	-55	
			All Others	-35	-55	
Forward Voltage Drop	V <sub>F</sub>	I <sub>F</sub> = 1 mA		0.8	1.5	
<b>Dynamic</b>						
Reverse Capacitance	C <sub>R</sub>	V <sub>R</sub> = -5V, f = 1 MHz	PAD1/PAD5	0.5	0.8	pF
			All Others	1.5	2	

Notes:

- T<sub>A</sub> = 25°C unless otherwise noted.
- Typical values are for DESIGN AID ONLY, not guaranteed nor subject to production testing.

NT/NPA

## Typical Characteristics

