



Low-Leakage Pico-Amp Diodes

PAD1 JPAD5 SSTPAD5
PAD5 JPAD50 SSTPAD100
PAD50

PRODUCT SUMMARY	
Part Number	I_R 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

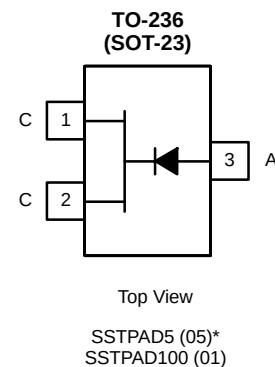
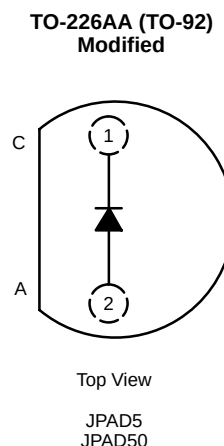
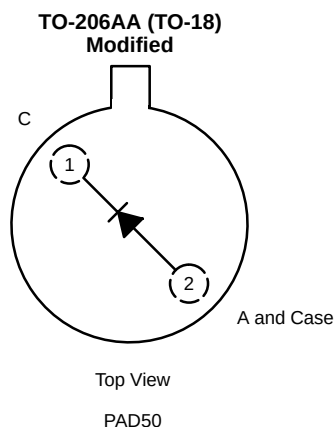
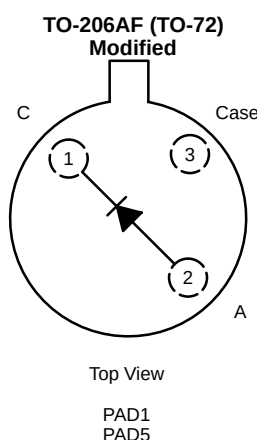
APPLICATIONS

- 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.)



*Marking Code for TO-236

ABSOLUTE MAXIMUM RATINGS^a

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

Notes:

- $T_A = 25^\circ\text{C}$ unless otherwise noted.
- Derate 2 mW/ $^\circ\text{C}$ above 25°C .
- Derate 2.8 mW/ $^\circ\text{C}$ above 25°C .

SPECIFICATIONS SPECIFICATIONS (T _A = 25 °C UNLESS OTHERWISE NOTED)							
Parameter	Symbol	Test Conditions	Limits			Unit	
			Min	Typ ^a	Max		
Static							
Reverse Current	I _R	V _R = −20 V	PAD1		−0.3	−1	pA
			PAD5/JPAD5/SSTPAD5		−1	−5	
			PAD50/JPAD50		−5	−50	
			SSTPAD100		−10	−100	
Reverse Breakdown Voltage	BV _R	I _R = −1 μA	PAD1/PAD5	−45	−60		V
			SSTPAD5/100	−30	−55		
			All Others	−35	−55		
Forward Voltage Drop	V _F	I _F = 1 mA			0.8	1.5	
Dynamic							
Reverse Capacitance	C _R	V _R = −5V, f = 1 MHz	PAD1/PAD5		0.5	0.8	pF
			All Others		1.5	2	

Notes:

- Typical values are for DESIGN AID ONLY, not guaranteed nor subject to production testing.

TYPICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)

