



## 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

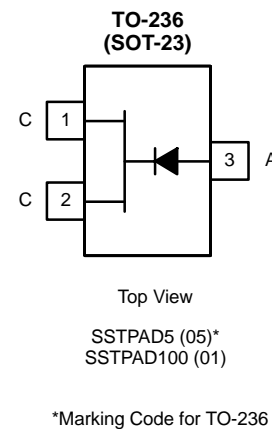
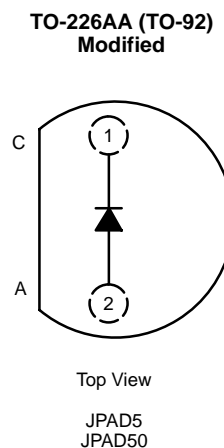
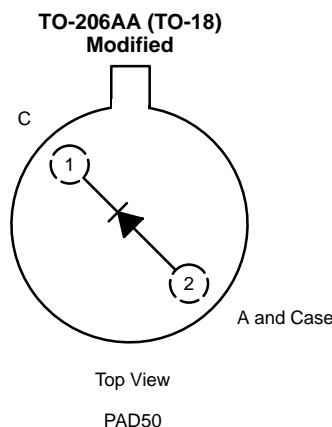
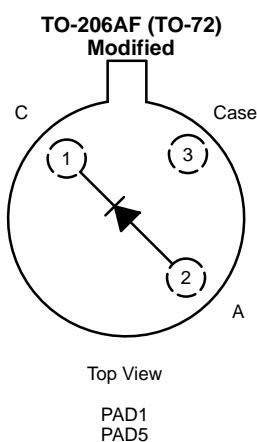
### APPLICATIONS

- 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.)



### ABSOLUTE MAXIMUM RATINGS<sup>a</sup>

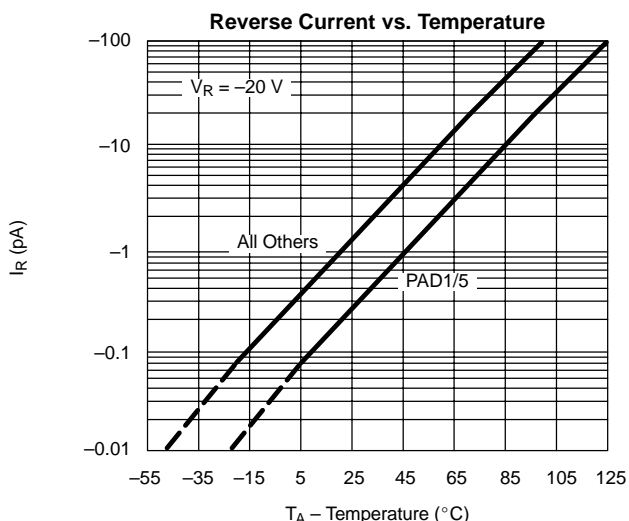
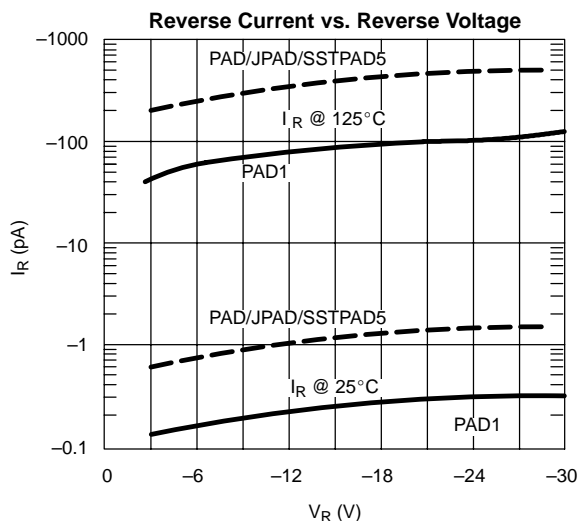
Forward Current:	(PAD .....	50 mA
	(JPAD/SSTPAD) .....	10 mA
Total Device Dissipation:	(PAD) <sup>b</sup> .....	300 mW
	(JPAD/SSTPAD) <sup>b</sup> .....	350 mW
Operation Junction Temp:	(PAD) .....	-55 to 175°C
	(JPAD/SSTPAD) <sup>c</sup> .....	-55 to 150°C
Lead Temperature ( <sup>1</sup> / <sub>16</sub>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

Notes:  
 a.  $T_A = 25^\circ\text{C}$  unless otherwise noted.  
 b. Derate 2 mW/ $^\circ\text{C}$  above 25°C.  
 c. Derate 2.8 mW/ $^\circ\text{C}$  above 25°C.

SPECIFICATIONS SPECIFICATIONS ( $T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)						
Parameter	Symbol	Test Conditions	Limits			Unit
			Min	Typ <sup>a</sup>	Max	
<b>Static</b>						
Reverse Current	$I_R$	$V_R = -20\text{ V}$	PAD1	-0.3	-1	pA
			PAD5/JPAD5/SSTPAD5	-1	-5	
			PAD50/JPAD50	-5	-50	
			SSTPAD100	-10	-100	
Reverse Breakdown Voltage	$BV_R$	$I_R = -1\ \mu\text{A}$	PAD1/PAD5	-45	-60	V
			SSTPAD5/100	-30	-55	
			All Others	-35	-55	
Forward Voltage Drop	$V_F$	$I_F = 1\text{ mA}$		0.8	1.5	
<b>Dynamic</b>						
Reverse Capacitance	$C_R$	$V_R = -5\text{V}, f = 1\text{ MHz}$	PAD1/PAD5	0.5	0.8	pF
			All Others	1.5	2	

Notes:  
 a. 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)





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