

## Linear Systems replaces discontinued Intersil ID101 The ID101 is a low leakage Monolithic Dual Pico-Amp Diode

The ID101 low-leakage monolithic dual diode provides a superior alternative to conventional diode technology when reverse current (leakage) must be minimized. In addition the monolithic dual construction allows excellent capacitance matching per diode. The ID101 features a leakage current of 0.1 pA and is well suited for use in applications such as input protection for operational amplifiers.

### ID101 Benefits:

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

### ID101 Applications:

- Op Amp Input Protection
- Multiplexer Overvoltage Protection

### FEATURES

DIRECT REPLACEMENT FOR INTERSIL ID101	
REVERSE LEAKAGE CURRENT	$I_R = 0.1\text{pA}$
REVERSE BREAKDOWN VOLTAGE	$BV_R \geq 30\text{V}$
REVERSE CAPACITANCE	$C_{rSS} = 0.75\text{pF}$
<b>ABSOLUTE MAXIMUM RATINGS</b> (Note 1) @ 25°C (unless otherwise noted)	
<b>Maximum Temperatures</b>	
Storage Temperature	-65°C to +200°C
Operating Junction Temperature	-55°C to +150°C
<b>Maximum Power Dissipation</b>	
Continuous Power Dissipation	300mW
<b>Maximum Currents</b>	
Forward Current	20mA
Reverse Current	100µA
<b>Maximum Voltages</b>	
Reverse Voltage	30V
Diode to Diode Voltage	±50V

### ID101 ELECTRICAL CHARACTERISTICS @ 25°C (unless otherwise noted)

SYMBOL	CHARACTERISTICS	MIN.	TYP.	MAX.	UNITS	CONDITIONS
$BV_R$	Reverse Breakdown Voltage	30	--	--	V	$I_R = 1\mu\text{A}$
$V_F$	Forward Voltage	0.8	--	1.1	V	$I_F = 10\text{mA}$
$I_R$	Reverse Leakage Current	--	0.1	--	pA	$V_R = 1\text{V}$
		--	2.0	10		$V_R = 10\text{V}$
$ I_{R1} - I_{R2} $	Differential Leakage Current	--	--	3		
$C_{rSS}$	Total Reverse Capacitance(Note 2)	--	0.75	1	pF	$V_R = 10\text{V}, f = 1\text{MHz}$

Note 1 - Absolute maximum ratings are limiting values above which ID101 serviceability may be impaired.

Note 2 - Design reference only, not 100% tested

FIGURE 1 – Operational Amplifier Protection

Input Differential Voltage limited to 0.8V (typ) by Diodes ID101  $D_1$  and  $D_2$ . Common Mode Input voltage limited by Diodes ID101  $D_3$  and  $D_4$  to ±15V.

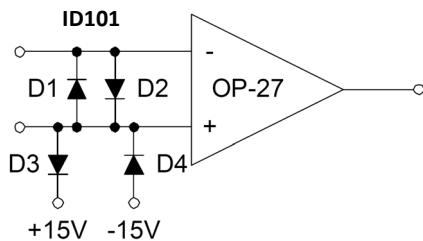
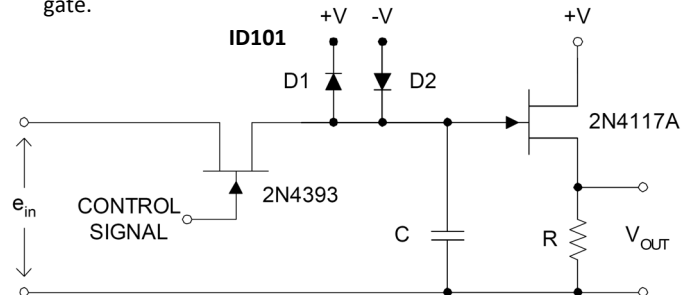
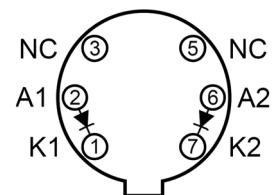


FIGURE 2 – Sample & Hold Circuit

Typical Sample and Hold circuit with clipping. ID101 diodes reduce offset voltages fed capacitively from the ID101 switch gate.



TO-71 (Bottom View)



Available Packages:

ID101 in TO-71  
ID101 available as bare die

Please contact Micross for full package and die dimensions

Note pins 3 & 5 must not be connected, in any fashion or manner, to any circuit or node