

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	$C_{RSS} = 0.75 \text{ pF}$

ABSOLUTE MAXIMUM RATINGS (Note 1)
@ 25°C (unless otherwise noted)

Maximum Temperatures

Storage Temperature	-65°C to +200°C
Operating Junction Temperature	-55°C to +150°C

Maximum Power Dissipation

Continuous Power Dissipation	300mW
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Maximum Currents

Forward Current	20mA
Reverse Current	100µA

Maximum Voltages

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	pA	$V_R = 10 \text{ V}$
$ I_{R1} - I_{R2} $	Differential Leakage Current	--	--	3	pA	
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.

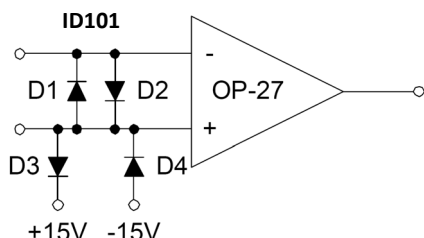
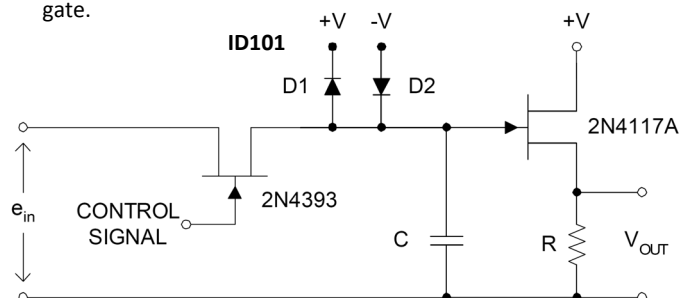
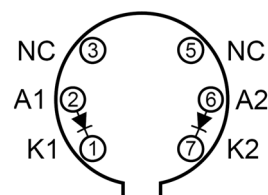


FIGURE 2 – Sample & Hold Circuit

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



TO-71 (Bottom View)



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