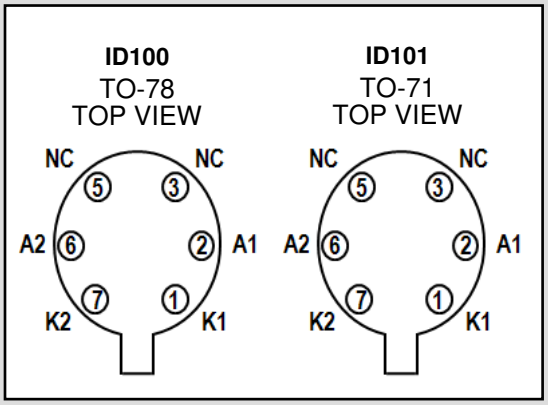
LINEAR SYSTEMS

*Improved Standard Products®*

# ID100 ID101

## MONOLITHIC DUAL PICO AMPERE DIODES

| FEATURES | |
|---|---|
| DIRECT REPLACEMENT FOR INTERSIL ID100 & ID101 | |
| REVERSE LEAKAGE CURRENT | $I_R$ = 0.1pA |
| REVERSE BREAKDOWN VOLTAGE | $BV_R \geq$ 30V |
| REVERSE CAPACITANCE | $C_{rss}$ = 0.75pF |
| **ABSOLUTE MAXIMUM RATINGS[1]** @ 25 °C (unless otherwise stated) | |
| **Maximum Temperatures** | |
| Storage Temperature | -65 to +150 °C |
| Operating Junction Temperature | -55 to +150 °C |
| **Maximum Power Dissipation @ TA = + 25°** | |
| Continuous Power Dissipation | 300mW |
| **Maximum Currents** | |
| Forward Current | 20mA |
| Reverse Current | 100µA |
| **Maximum Voltages** | |
| Reverse Voltage | 30V |
| Diode to Diode Voltage | ±50V |




**ELECTRICAL CHARACTERISTICS @ 25 °C (unless otherwise stated)**

| SYMBOL | CHARACTERISTIC | MIN | TYP | MAX | UNITS | CONDITIONS |
|---|---|---|---|---|---|---|
| $BV_R$ | Reverse Breakdown Voltage | 30 | | | V | $I_R$ = 1µA |
| $V_F$ | Forward Voltage | 0.8 | | 1.1 | | $I_F$ = 10mA |
| $I_R$ | Reverse Leakage Current | | 0.1 | | pA | $V_R$ = 1V |
| | | | 2.0 | 10 | | $V_R$ = 10V |
| $\|I_{R1}-I_{R2}\|$ | Differential Leakage Current | | | 3 | | |
| $C_{rss}$ | Total Reverse Capacitance[2] | | 0.75 | 1 | pF | $V_R$ = 10V, $f$ = 1MHz |

**Figure 1. Operational Amplifier Protection**
Input Differential Voltage limited to 0.8V (typ) by Diodes ID100 $D_1$ and $D_2$.
Common Mode Input voltage limited by Diodes ID100 $D_3$ and $D_4$ to ±15V.

**Figure 2. Sample and Hold Circuit**
Typical Sample and Hold circuit with clipping. ID100 diodes reduce offset voltages fed capacitively from the ID100 switch gate.

**FIGURE 1**

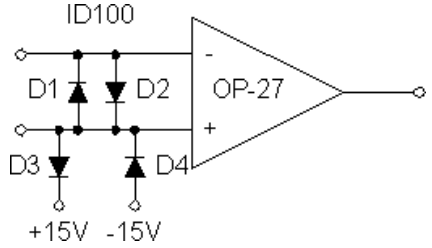
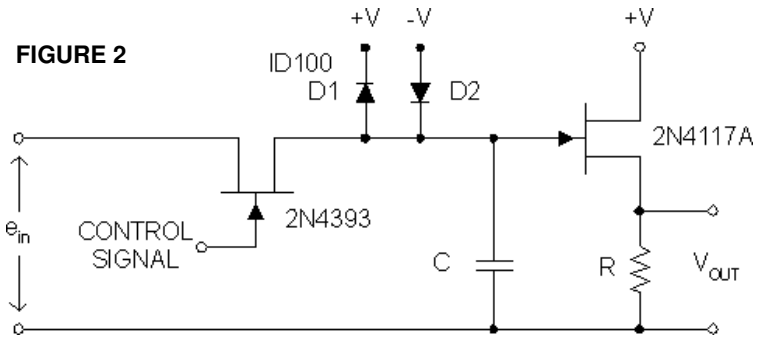



**FIGURE 2**

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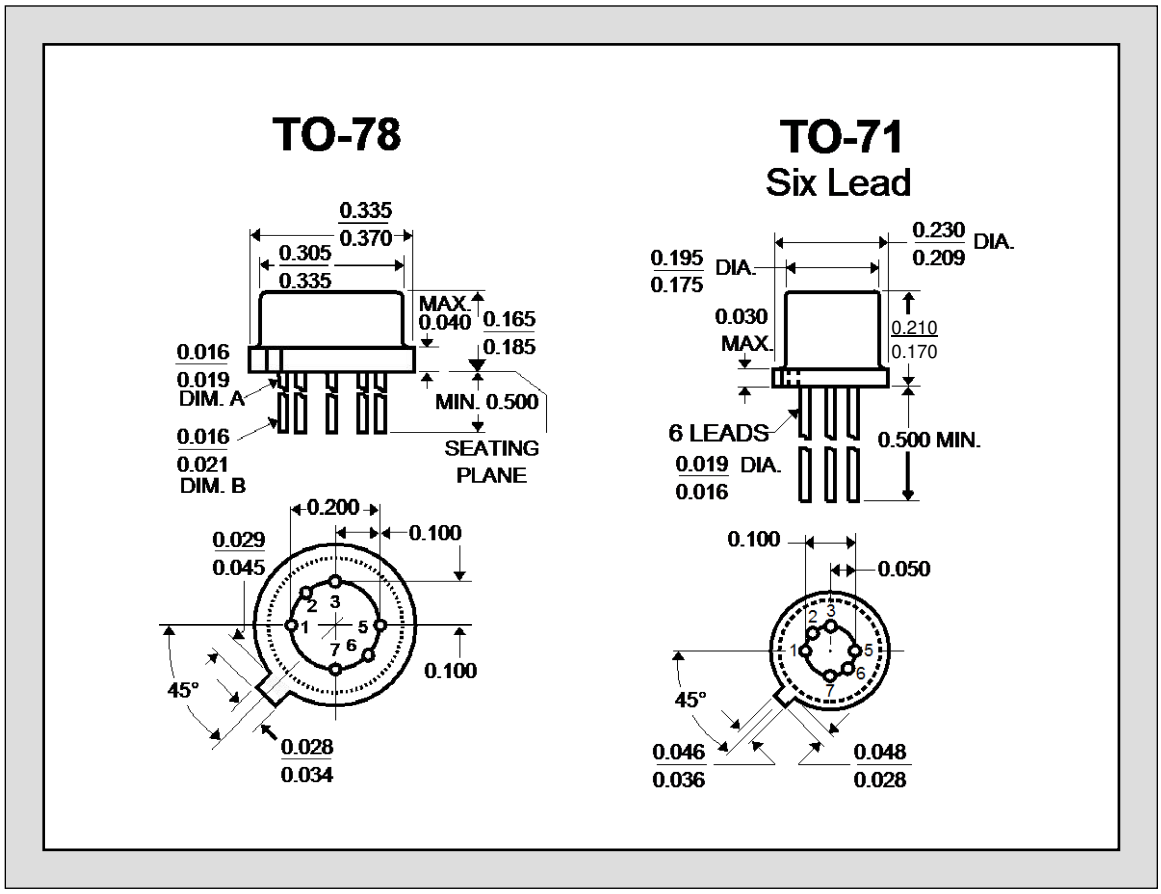


1. Absolute maximum ratings are limiting values above which serviceability may be impaired.
2. Design reference only, not 100% tested.
3. Pins 3 & 5 on ID100 and ID101 must not be connected, in any fashion or manner, to any circuit or node.



Linear Integrated Systems (LIS) is a 25-year-old, third-generation precision semiconductor company providing high-quality discrete components. Expertise brought to LIS is based on processes and products developed at Amelco, Union Carbide, Intersil and Micro Power Systems by company President John H. Hall. Hall, a protégé of Silicon Valley legend Dr. Jean Hoerni, was the director of IC Development at Union Carbide, co-founder and vice president of R&D at Intersil, and founder/president of Micro Power Systems.

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