

PRECISION AMPLIFIER WITH ULTRALOW INPUT OFFSET VOLTAGE

Description

YP5701УД24 are chopper-stabilised amplifier, ideal for low signal processing applications. Featuring high performance and versatility, this device combine low input offset voltage, low input bias current, wide bandwidth, and very low drift over time and temperature. Low offset is achieved through a nulling scheme that provides continuous error correction. A nulling amplifier alternately nulls itself and the main amplifier. The result is an input offset voltage that is held to a minimum over the entire operating temperature range.

The YP5701УД24 are exact replacements for Intersil’s ICL7650B/ICL7653B. These devices have a $\pm 5\mu\text{V}$ max offset voltage (in «A» grade), are $0.05\mu\text{V}/^\circ\text{C}$ max input offset voltage temperature coefficient, and a 10pA max bias current—all specified over the commercial temperature range.

Features

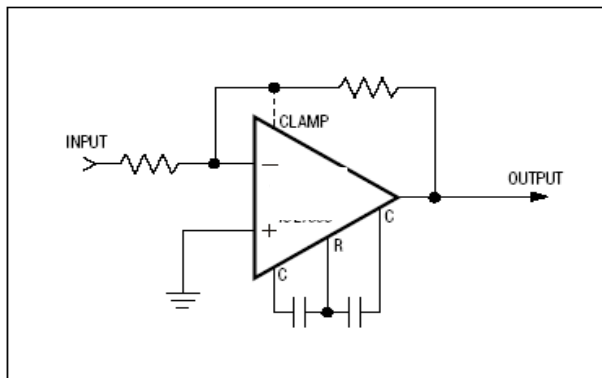
- Lower Supply Current: 2mA
- Low Offset Voltage: 1 μV
- No Offset Voltage Trimming Needed
- High-Gain CMRR and PSRR: 120dB min
- Lower Offset Drift with Time and Temperature
- Extended Common-Mode Voltage Range
- Low DC Input Bias Current: 10pA

Applications

- Instrumentation amplifier
- Thermocouplers
- Thermistors
- Condition amplifier
- Presicion amplifier
- Strain gauges

ABSOLUTE MAXIMUM RATINGS

- Supply voltage (V+ to V-)18V
- Input voltage (V- -0.3V) to (V+ +0.3V)
- Voltage on oscillator control pins
on EXT/CLOCK IN (V+ -0.6V) to (V+ +0.3V)
- All other V- to V+
- Output Short Circuit Duration ∞
- Current to any pin 10mA
- Current to any pin while operating 100 μA
(recommend limiting to aviod lachup problems).



Typical Operating.(Inverting Aplifier With Optional Clamp)

ELECTRICAL CHARACTERISTICS – УР5701УД24

Test circuit at Figure 1. V+= +5V, V- = -5V

PARAMETER, UNIT	SYMBOL	T _A =25°C		T _A =-45..+85°C	
		MIN	MAX	MIN	MAX
Input Offset Voltage, μV	V _{IO}		± 5		± 10
Input Bias Current, pA	I _I		10		300
Input Offset Current, pA	I _{IO}		5		200
Voltage Gain, (R _L =10k Ω)	A _V	10 ⁶		3·10 ⁵	
Output Voltage Swing, (R _L =10k Ω) V	V _O	± 4.7		± 4.2	
Common-mode Rejection Ratio	CMRR	120			
Power Supply Rejection Ratio	PSRR	110			
Unity-Gain Bandwidth, MHz	f _T	0.8			
Slew Rate, V/ μs	SR	2.0			
Supply Current, mA	I _{SUPP}		3.5		5.0
Input offset voltage vs. Temperature, $\mu\text{V}/^\circ\text{C}$					0.05

WARNING!

1. ESD (electrostatic discharge) sensitive device. Permanent damage may occur on devices, subjected to high energy ESD.
2. IC's have latch-up effect. To avoid this effect we recommend use power source with current limit at 10-20 mA or used 500 Ohm resistor in series with power bus

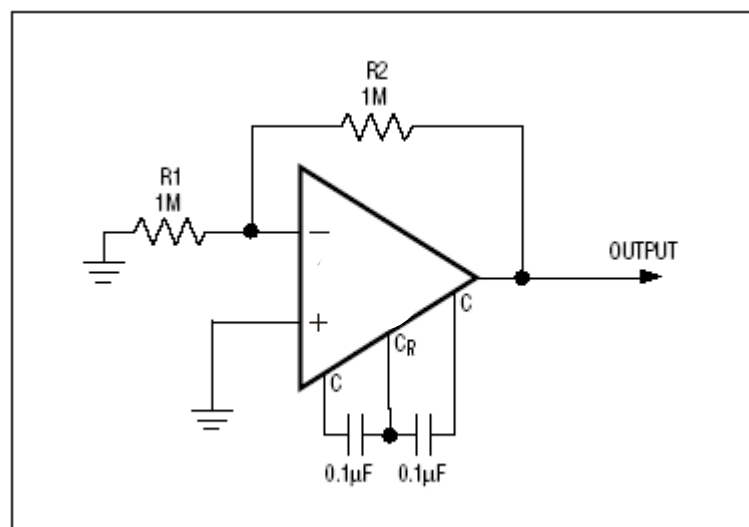
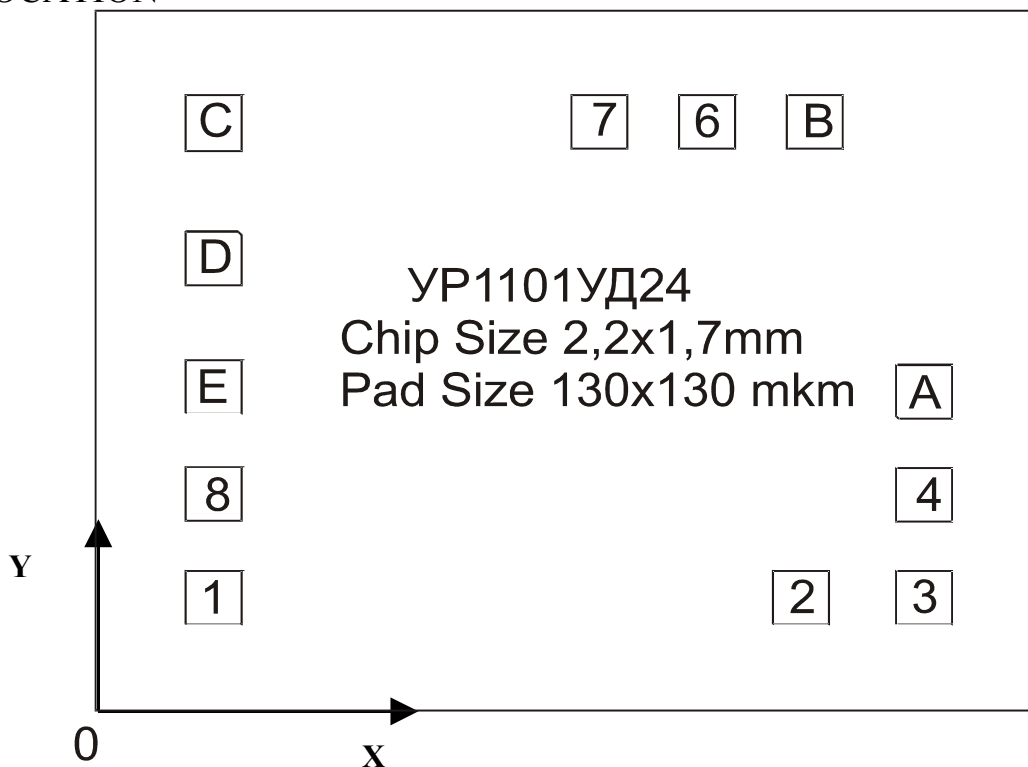


Figure 1. УР5701УД24 Test Circuit

PAD LOCATION



Pad Coordinates and functions

Pad N	DIP N	SO-8 N	TO-99 N	ADC PIN	Coordinates, μm	
					x	y
1	1	1	1	C _{EXTA}	209	209
2	2	2	2	-INPUT	1573	209
3	3	3	3	+INPUT	1859	209
4	4	4	4	U ₋	1859	459
A	-	-	-		1859	709
6	6	6	6	OUTPUT	1355	1365
7	7	7	7	U ₊	1105	1365
8	8	8	8	C _{EXTB}	209	461
B	-	-	-		1605	1365
C	-	-	-		209	1360
D	-	-	-		209	1033
E	-	-	-		209	721