

General Purpose J-FET Input Dual Operational Amplifier

Overview

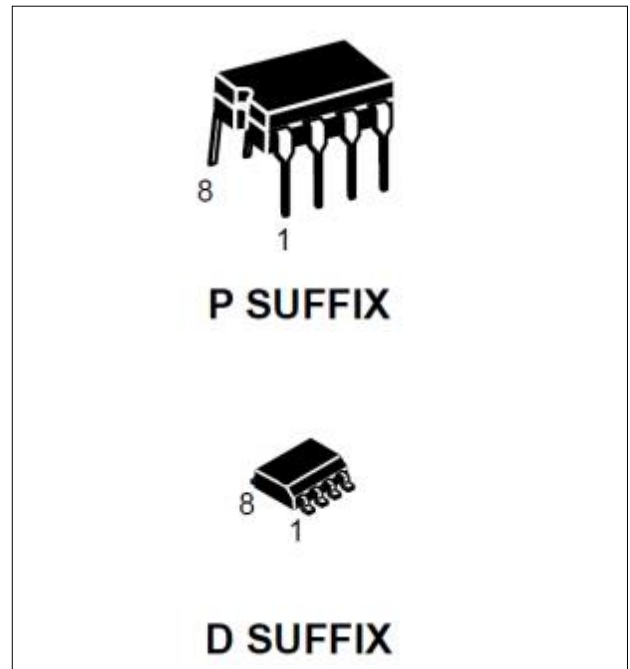
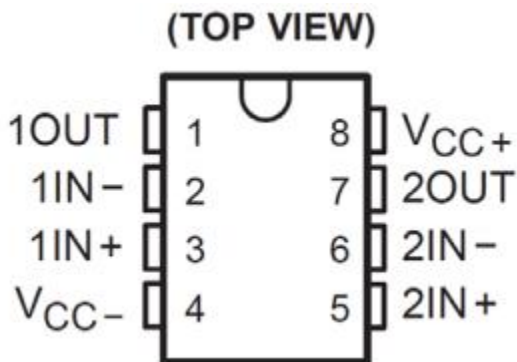
The TL072 is a high speed J-FET input dual operational amplifier consisting of a high voltage J-FET and bipolar transistors. Features high slew rate, low input bias and offset current, and low temperature coefficient of offset voltage. Working range 0°C--70°C.

The TL072 is available in DIP8 and SOP8 packages.

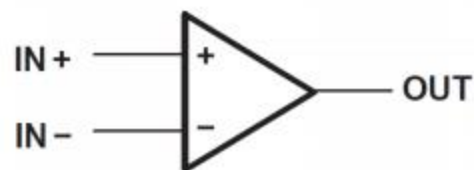
Main features

- lower power consumption
- Wide common-mode and differential-mode input voltage ranges
- Low input bias and offset currents
- Output short circuit current protection
- High input impedance
- High conversion rate
- High gain bandwidth product, up to 4MHz

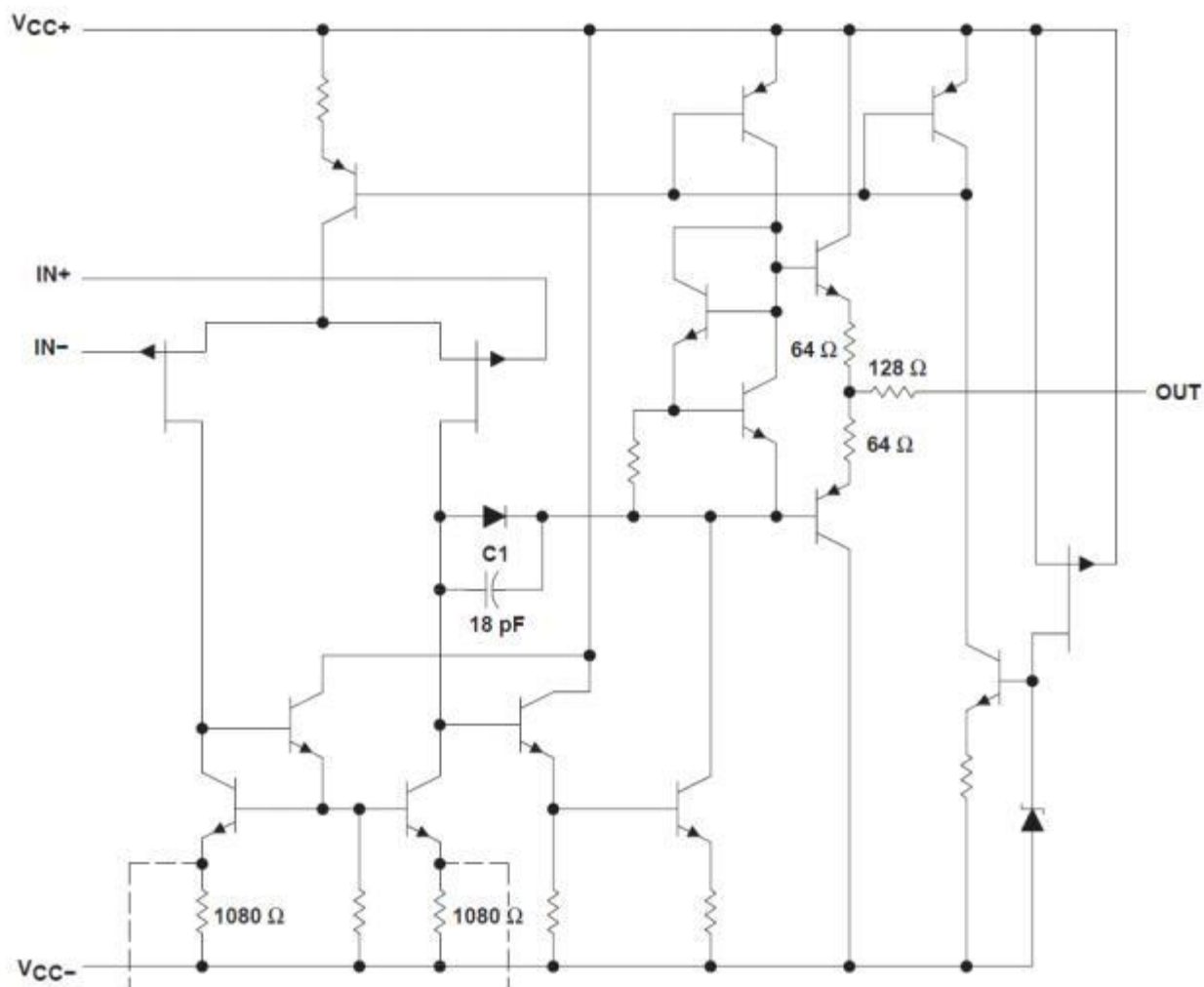
Pin Diagram



Symbol (per op amp)



Internal block diagram (each op amp)



Limit parameters

Symbol	Description	limit value	Unit
Vcc	voltage	±18	V
Vi	Input voltage	±14	V
Vid	Differential mode input power	±28	V
Toper	Operating temperature	0—70	°C
Tstg	stored temperature	-65—150	°C

Electrical characteristics ($V_{cc}=\pm 15$, $T_{amp}=25^{\circ}C$, special cases are specified separately)

Symbol	Parameter	Test condition	Test value			Unit
			Min	Typ	Max	
V_{io}	offset voltage	$V_o=0V$		3	10	mV
I_{io}	Input offset current	$V_o=0V$			1.5	nA
I_{ib}	output bias current	$V_o=0V$			2.5	nA
V_{icr}	Input common mode voltage		-12	± 11	15	V
V_{om}	Peak output voltage	$R_L = 10\text{ k}\Omega$ $R_L \geq 2\text{ k}\Omega$	± 11 ± 10	± 13.5 ± 12.5		V
AVD	Large signal voltage gain	$R_L \geq 2\text{ k}\Omega$, $V_O = \pm 10\text{ V}$	80	95		dB
B1	Gain Bandwidth Product			3		MHz
CMRR	Common Mode Rejection Ratio		70	85		dB
kSVR	power supply rejection ratio	$V_{CC} = \pm 15\text{ V to } \pm 9\text{ V}$ $V_o=0V$	70	86		dB
ICC	Quiescent Current - Per Channel			1.4	2.8	mA
SR	Slew rate	$V_I = 10\text{ V}$,	8	10		V/us
t_r	Rise Time			0.1		us
R_i	input resistance			10^{12}		Ω

Typical application circuit diagram (one of the operational amplifiers)

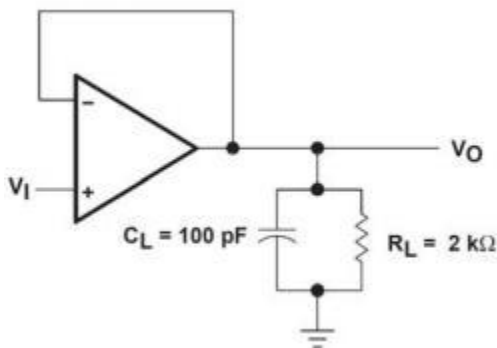


Figure 1. Unit Gain Circuit

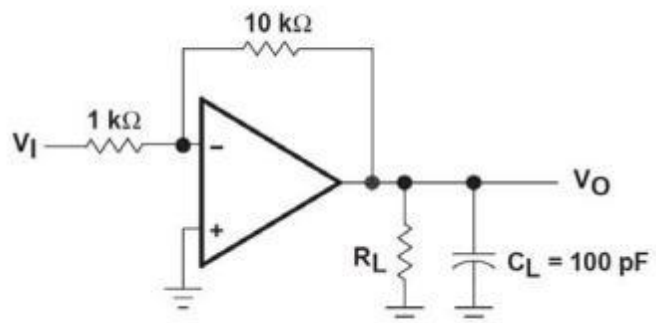


Figure 2. Gain-of-10 Circuit

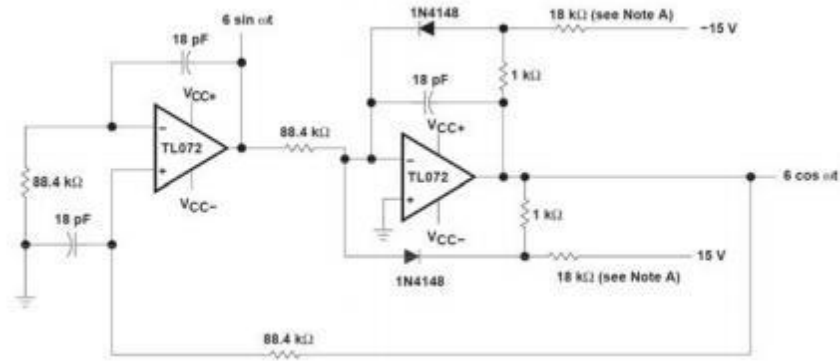


Figure 3. 100kHz Oscillator

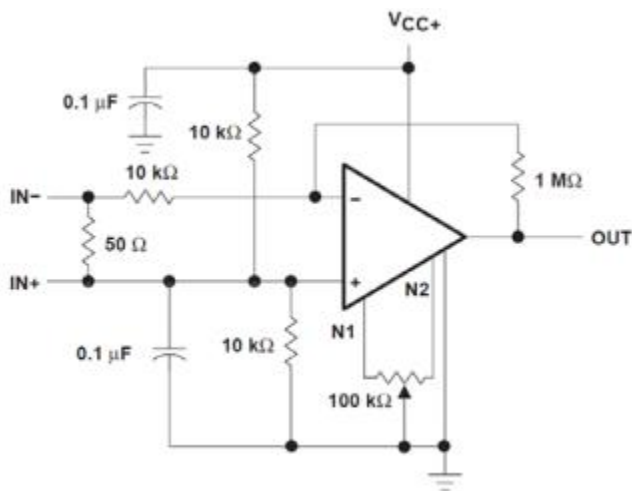


Figure 4. AC Amplifier

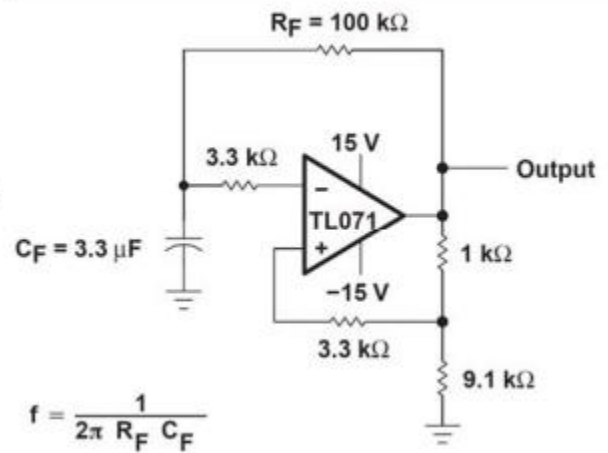
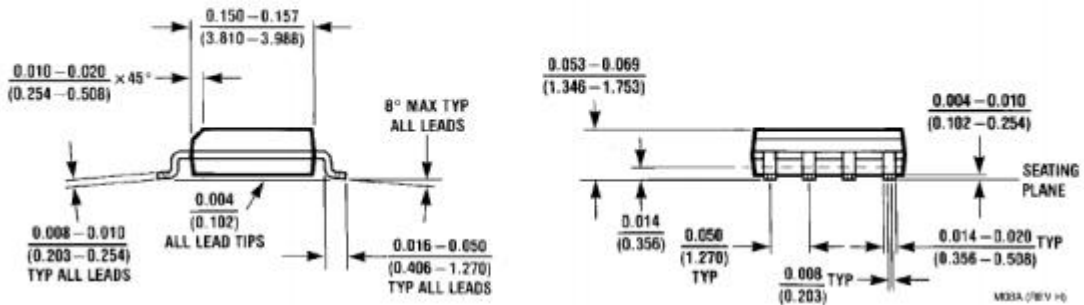
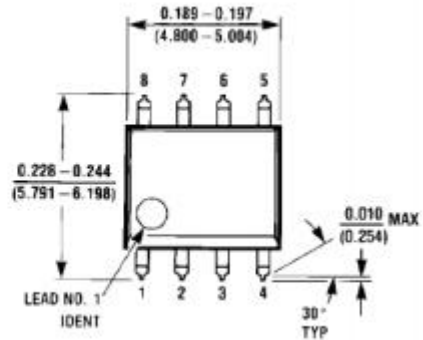
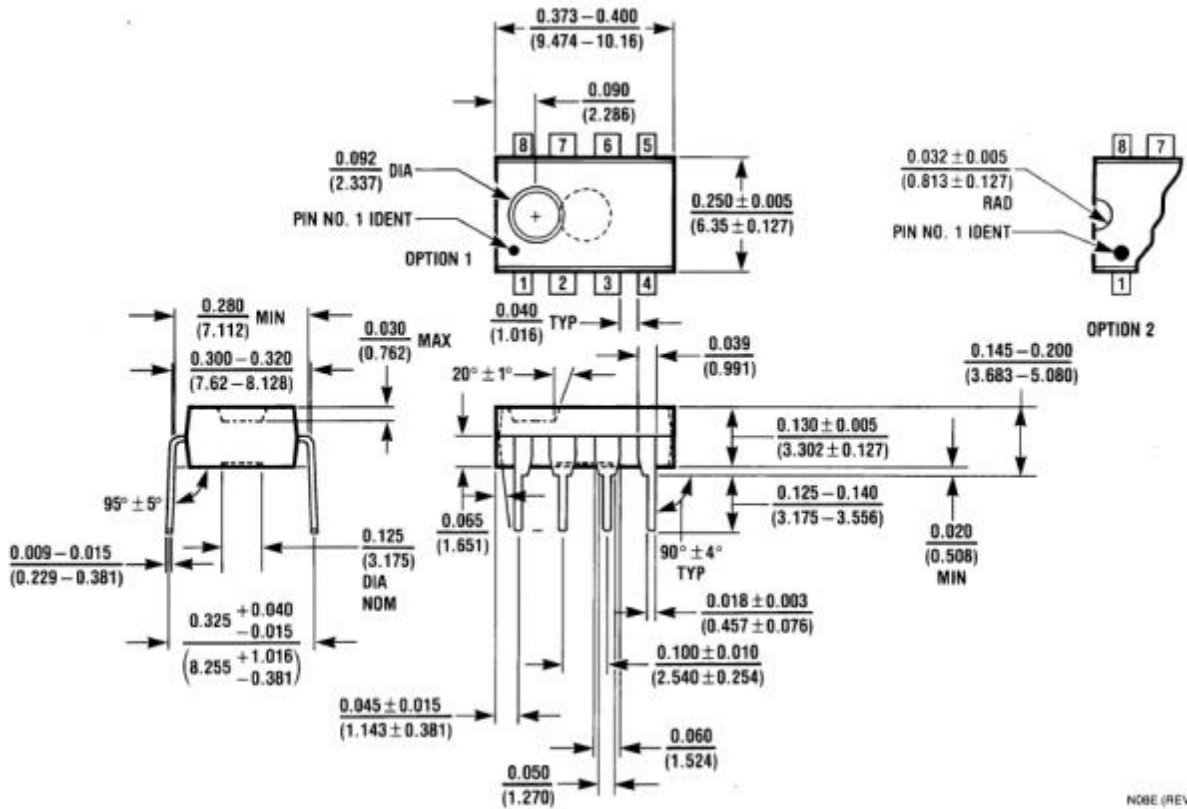


Figure 5 0.5Hz Square Wave Oscillator

Package information



SOP8



DIP8