



Descriptions

Consisted of high voltage J-FET and bipolar transistors, the TL082IDR is a high speed J-FET dual- channel operational amplifier, featured with high slew rate, low input offset and bias current and low offset voltage temperature rate. The TL082IDR provides SOP-8(SOIC-8) package forms.

Feature

- Lower Power Consumption
- Wide Common-Mode And Differential Voltage Ranges
- Low Input Bias And Offset Currents
- Output Short-Circuit Protection
- High Input Impedance
- High Slew Rate
- High Gain-Bandwidth up to 4MHz

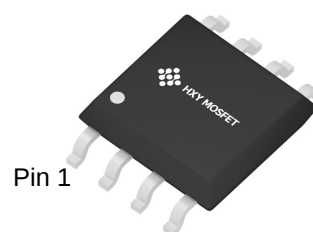
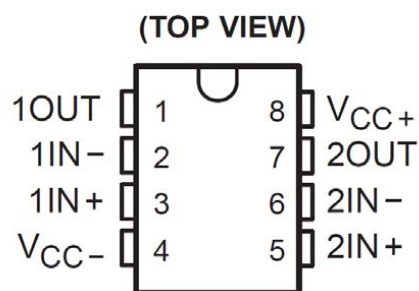
Applications

- Battery test equipment
- Pro audio mixers
- Single phase online UPS
- Solar energy: string and central inverter
- Three phase UPS
- Motor drives: AC and servo drive control and power stage modules

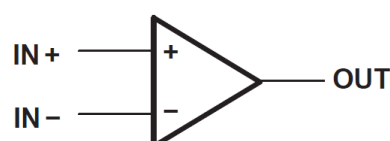
Ordering Information

Product Model	Package Type	Packing	Packing Qty
TL082IDR	SOP-8(SOIC-8)	Tape	4000Pcs/Reel

Pins Diagram

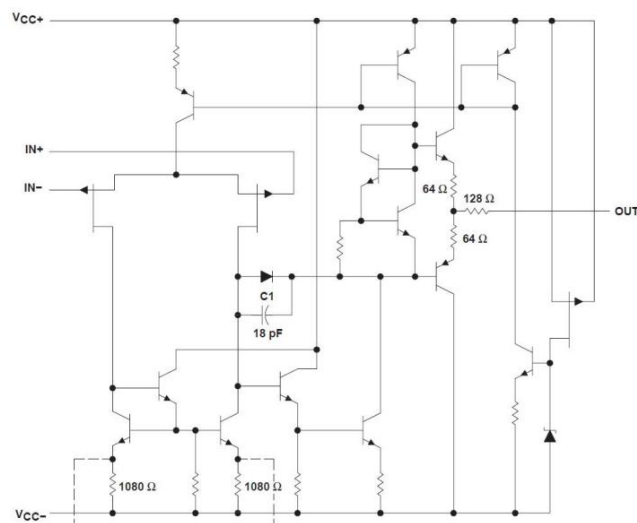


Symbol





Internal Diagram



Absolute Maximum Ratings

Symbol	Description	Parameter	Unit
V_{CC}	Supply Voltage	± 18	V
V_i	Input Voltage	± 14	V
V_{id}	Differential Input Voltage	± 28	V
T_{oper}	Operating Temperature Range	0~70	°C
T_{stg}	Storage Temperature Range	-65~+150	°C

Electrical Parameter Characteristics

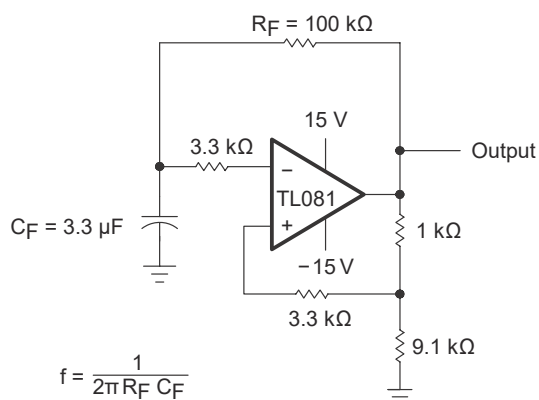
($V_{CC}=\pm 15$, $T_{amp}=25^\circ\text{C}$, Unless otherwise specified)

Symbol	Parameter Name	Test Conditions	Parameter			Unit
			Min.	Typ.	Max.	
V_{IO}	Input Offset Voltage	$V_o=0V$		3	6	mV
I_{IO}	Input Offset Current	$V_o=0V$			1.5	pA
I_{ib}	Input Bias Current	$V_o=0V$			2.5	nA
V_{icr}	Input Common Mode Voltage Range		-12	± 11	15	V
V_{OM}	Maximum Peak Output Voltage Swing	$R_L = 10\text{ k}\Omega$ $R_L \geq 2\text{ k}\Omega$	± 12 ± 10	± 13.5 ± 12.5		V
A_{VD}	Large-signal differential voltage amplification	$R_L \geq 2\text{ k}\Omega$, $V_o = \pm 10\text{ V}$	80	95		dB
B1	Gain Bandwidth			3		MHz
CMRR	Common Mode Rejection Ratio		70	85		dB
kSVR	Supply Voltage Rejection Ratio	$V_{CC} = \pm 15\text{ V}$ to $\pm 9\text{ V}$, $V_o=0V$	70	86		dB
I_{CC}	Static Supply Current (each amplifier)			1.4	2.8	mA
SR	Slew Rate	$V_i = 10\text{ V}$	8	13		V/us
t_R	Rise time			0.05		us

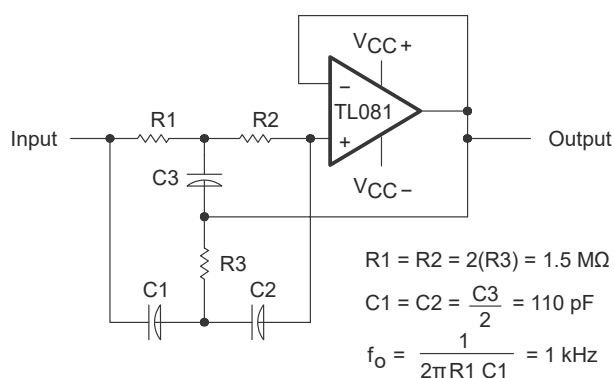


Typical Application (Including One Amplifier)

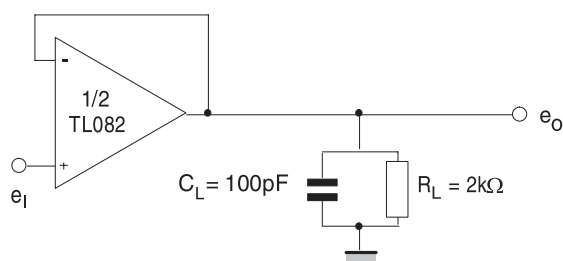
Typical lines



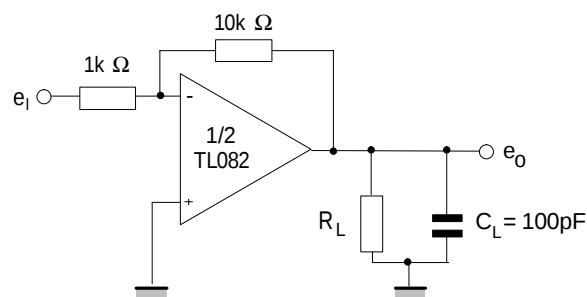
0.5-Hz Square-Wave Oscillator



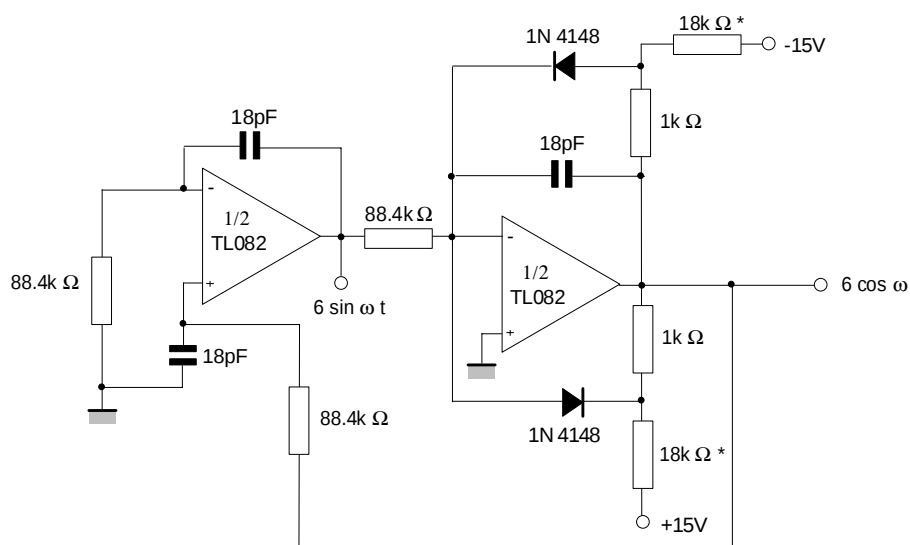
High-Q Notch Filter



Voltage follower

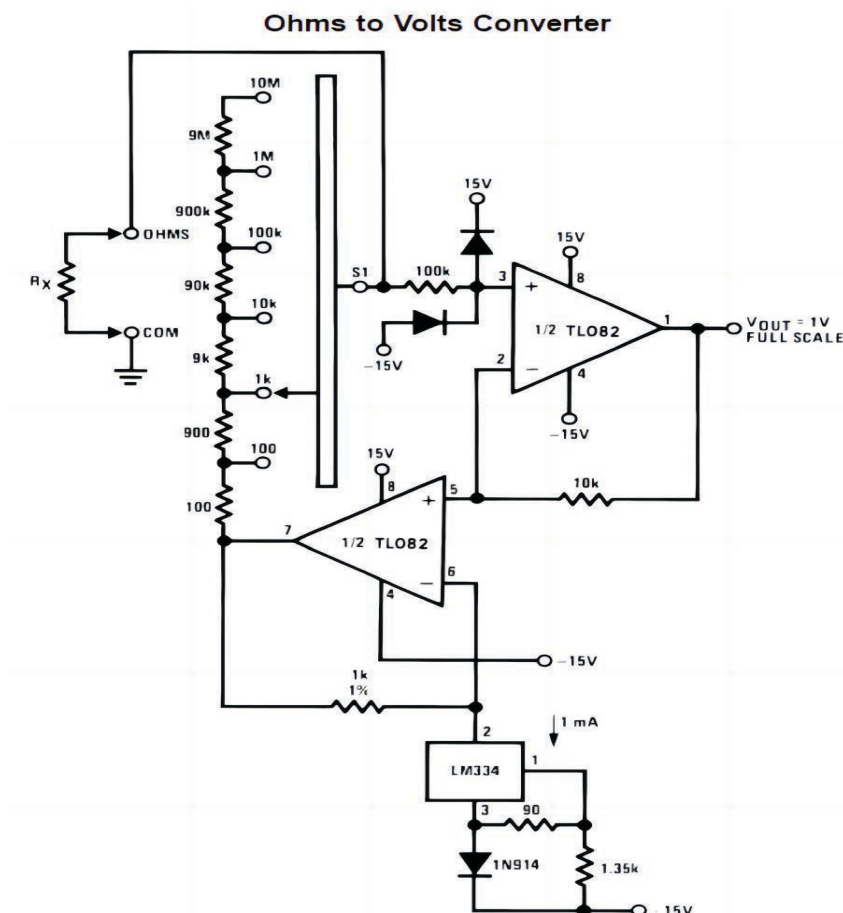


Gain-of-10 inverting amplifier



* These resistor values may be adjusted for a symmetrical output

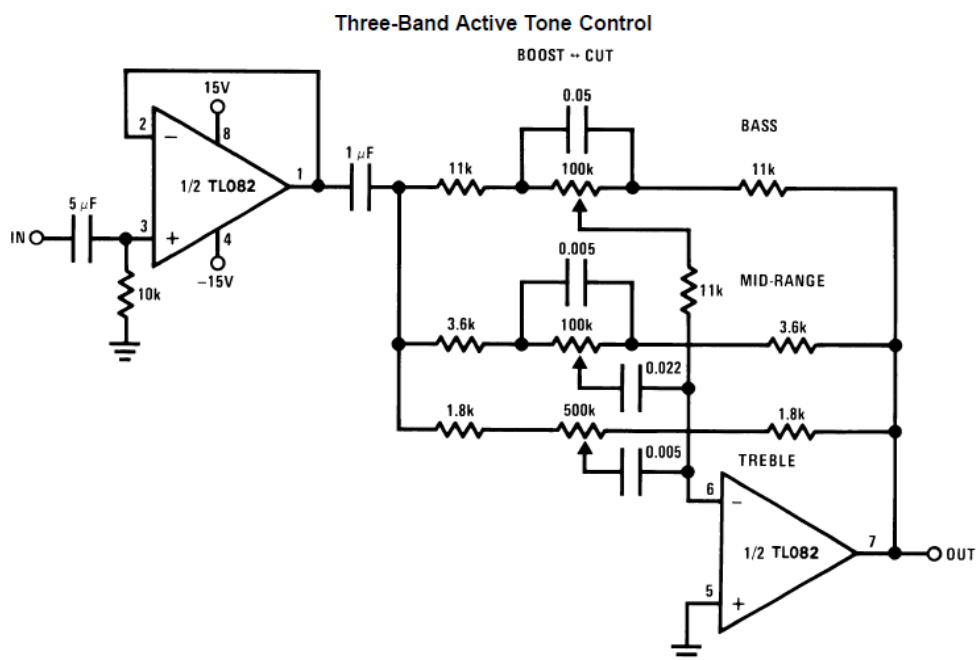
100kHz quadruple oscillator



$$V_O = \frac{1V}{R_{LADDER}} \times R_X$$

Where R_{LADDER} is the resistance from switch S1 pole to pin 7 of the TL082CN .

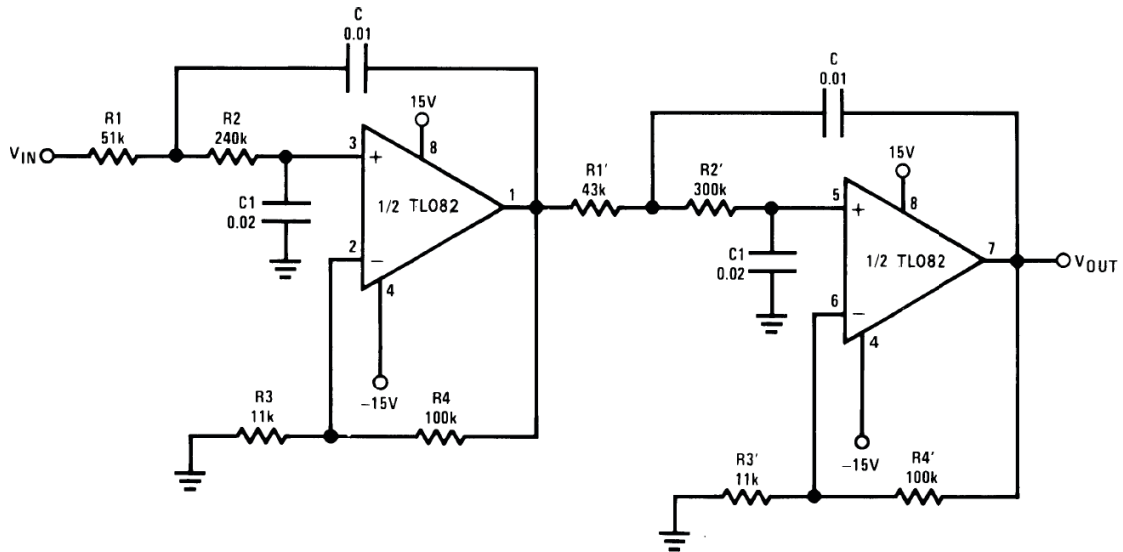
Resistance-to-Voltage Conversion



Three-Band Active Tone Control

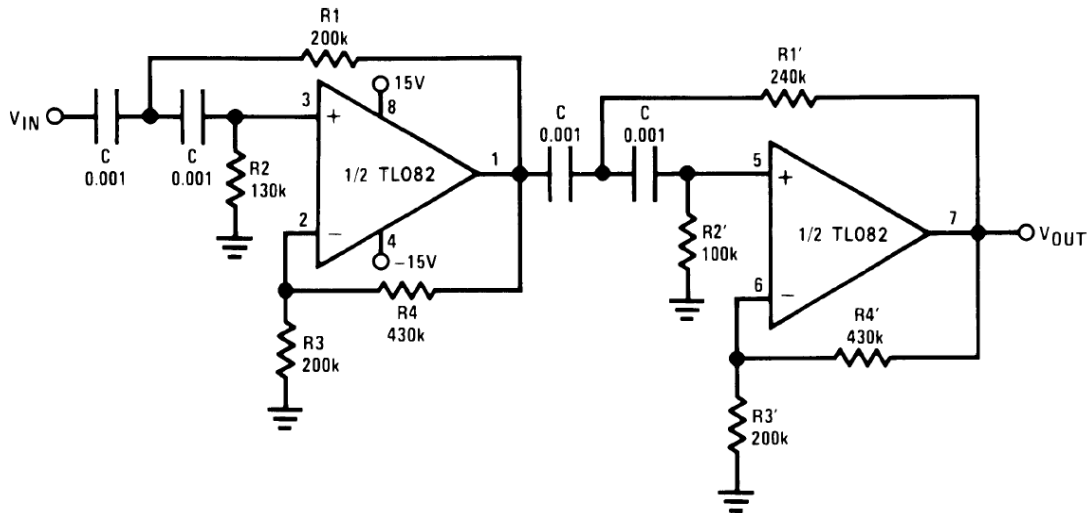


Fourth Order Low Pass Butterworth Filter



Fourth-order Low Pass Butterworth Filter

Fourth Order High Pass Butterworth Filter



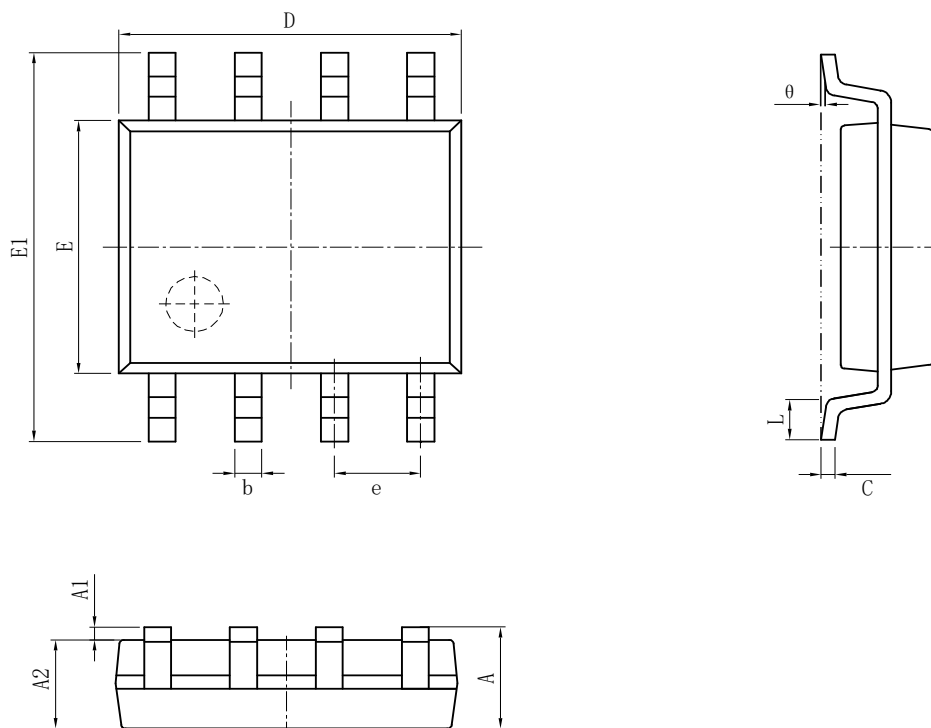
- Corner frequency (f_c) = $\sqrt{\frac{1}{R1R2C^2}} \cdot \frac{1}{2\pi} = \sqrt{\frac{1}{R1'R2'C^2}} \cdot \frac{1}{2\pi}$
- Passband gain (H_O) = $(1 + R4/R3) (1 + R4'/R3')$
- First stage $Q = 1.31$
- Second stage $Q = 0.541$
- Circuit shown uses closest 5% tolerance resistor values for a filter with a corner frequency of 1 kHz and a passband gain of 10

Fourth Order High Pass Butterworth Filter



Package Information

SOP-8(SOIC-8)



Symbol	Size	Dimensions In Millimeters		Symbol	Size	Dimensions In Inches	
		Min(mm)	Max(mm)			Min(in)	Max(in)
A		1.350	1.750	A		0.053	0.069
A1		0.100	0.250	A1		0.004	0.010
A2		1.350	1.550	A2		0.053	0.061
b		0.330	0.510	b		0.013	0.020
c		0.170	0.250	c		0.006	0.010
D		4.700	5.100	D		0.185	0.200
E		3.800	4.000	E		0.150	0.157
E1		5.800	6.200	E1		0.228	0.224
e		1.270(BSC)		e		0.050(BSC)	
L		0.400	1.270	L		0.016	0.050
θ		0°	8°	θ		0°	8°



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