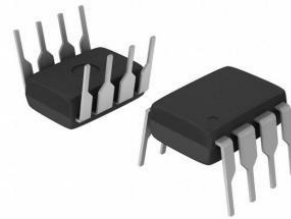


## HX072-S/HX072-P/HX072A-S/HX072A-P JFET Low Power Dual Operational Amplifier

The HX072-S/HX072-P/HX072A-S/HX072A-P is equipped with two separate high gain operational amplifiers that feature internal frequency compensation. These op-amps can function effectively within a wide voltage range using a single power supply or a split power supply. The device exhibits low power supply current drain, regardless of the power supply voltage, making it an ideal choice for battery-operated applications. When your project requires a traditional op-amp function, you can now simplify your design by utilizing a single +5VDC power supply commonly found in various digital systems or personal computer applications, eliminating the need for an additional 15V power supply solely for interface electronics. The HX072-S/HX072-P/HX072A-S/HX072A-P is a versatile and durable component that can be utilized for a myriad of purposes, including amplifying signals from different transducers, serving as a dc gain block, or performing any op-amp function. The accompanying pages provide useful instructions that will expedite the progress of your project.



SOP-8

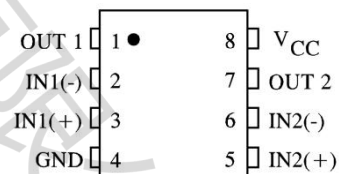


DIP-8

### FEATURES

- Internally frequency compensated for unity gain
- Large DC voltage gain: 100dB
- Wide power supply range:  
3V ~ 32V (or  $\pm 1.5V \sim \pm 16V$ )
- Input common-mode voltage range includes ground
- Large output voltage swing: 0V DC to  $V_{CC}-1.5V$  DC
- Power drain suitable for battery operation
- Low input offset voltage and offset current
- Differential input voltage range equal to the power supply voltage

### PIN ASSIGNMENT



### Product Information

	Package Information	temperature	Orchestration	quantity
HX072-S	SOP-8	0°C~70°C	Taping	2500
HX072-P	DIP-8	0°C~70°C	Taping	1000
HX072A-S	SOP-8	-40°C~85°C	Taping	2500
HX072A-P	DIP-8	-40°C~85°C	Taping	1000

### RECOMMENDED OPERATING CONDITIONS

Symbol	Parameter	Min	Max	Unit
$V_{CC}$	DC Supply Voltage	$\pm 2.5$ or 5.0	$\pm 15$ or 30	V
$T_A$	Operating Temperature, All Package Types	0	+70	°C

MAXIMUM RATINGS			
Symbol	Parameter	Value	Unit
V <sub>CC</sub>	Power Supply Voltages	32 ±16	V
V <sub>IDR</sub>	Input Differential Voltage Range <sup>a</sup>	±32	V
V <sub>ICR</sub>	Input Common Mode Voltage Range	-0.3 to 32	V
I <sub>SC</sub>	Output Short Circuit Duration	Continuous	
T <sub>J</sub>	Junction Temperature	150	°C
T <sub>stg</sub>	Storage Temperature	-55 to +125	°C
I <sub>IN</sub>	Input Current, per pin <sup>b</sup>	50	mA
T <sub>L</sub>	Lead Temperature, 1mm from Case for 10 Seconds	260	°C

### Notes

a. Split Power Supplies.

b. V<sub>IN</sub><0.3V. This input current will only exist when voltage at any of the input leads is driven negative.

DC ELECTRICAL CHARACTERISTICS(T <sub>A</sub> =0 to +70°C)						
Symbol	Parameter	Test Conditions	Guaranteed Limit			Unit
			Min	Typ	Max	
V <sub>IO</sub>	Maximum Input Offset Voltage	V <sub>O</sub> =1.4V V <sub>CC</sub> =5.0-30V;R <sub>S</sub> =0Ω V <sub>ICM</sub> =0V to V <sub>CC</sub> -1.7V			9.0	mV
ΔV <sub>IO</sub> /ΔT	Input Offset Voltage Drift	R <sub>S</sub> =0Ω, V <sub>CC</sub> =30V		7.0		μV/°C
I <sub>IO</sub>	Maximum Input Offset Current	V <sub>CC</sub> =5.0V			150	nA
ΔI <sub>IO</sub> /ΔT	Input Offset Current Drift	R <sub>S</sub> =0Ω, V <sub>CC</sub> =30V		10		pA/°C
I <sub>IB</sub>	Maximum Input Bias Current	V <sub>CC</sub> =5.0V			-500	nA
V <sub>ICR</sub>	Input Common Mode Voltage Range	V <sub>CC</sub> =30V	0		28	V
I <sub>CC</sub>	Maximum Power Supply Current	R <sub>L</sub> =...,V <sub>CC</sub> =30V,V <sub>O</sub> =0V R <sub>L</sub> =...,V <sub>O</sub> =5V,V <sub>CC</sub> =30V			3	mA
A <sub>VOL</sub>	Minimum Large Signal Open-Loop Voltage Gain	V <sub>CC</sub> =15V, R <sub>L</sub> ≥2KΩ	15			V/mV
V <sub>OH</sub>	Minimum Output High- Level Voltage Swing	V <sub>CC</sub> =30V, R <sub>L</sub> =2KΩ V <sub>CC</sub> =30V, R <sub>L</sub> =10KΩ	26 27			V
V <sub>OL</sub>	Maximum Output Low- Level Voltage Swing	V <sub>CC</sub> =5V, R <sub>L</sub> =10KΩ			20	mV
CMR	Common Mode Rejection	V <sub>CC</sub> =30V, R <sub>S</sub> =10KΩ	65 <sub>a</sub>			dB
PSR	Power Supply Rejection	V <sub>CC</sub> =30V	65			dB
CS	Channel Separation	f=1KHz to 20KHz, V <sub>CC</sub> =30V	-120 <sub>a</sub>			dB
I <sub>SC</sub>	Maximum Output Short Circuit to GND	V <sub>CC</sub> =5.0V			60*	mA
I <sub>source</sub>	Minimum Source Output Current	V <sub>IN+</sub> =1V, V <sub>IN-</sub> =0V, V <sub>CC</sub> =15V, V <sub>O</sub> =0V	10			mA
I <sub>sink</sub>	Minimum Output Sink Current	V <sub>IN+</sub> =0V, V <sub>IN-</sub> =1V, V <sub>CC</sub> =15V, V <sub>O</sub> =15V V <sub>IN+</sub> =0V, V <sub>IN-</sub> =1V, V <sub>CC</sub> =15V, V <sub>O</sub> =0.2V	5 12 <sub>a</sub>			mA μA
V <sub>IDR</sub>	Differential Input	All V <sub>IN</sub> ≥GND or V-Supply (if used)			V <sub>CCa</sub>	V

### Notes

a. =@25°C

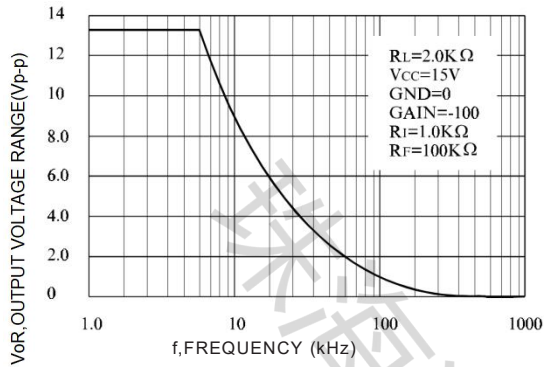


Fig 1. Large-Signal Frequency Response

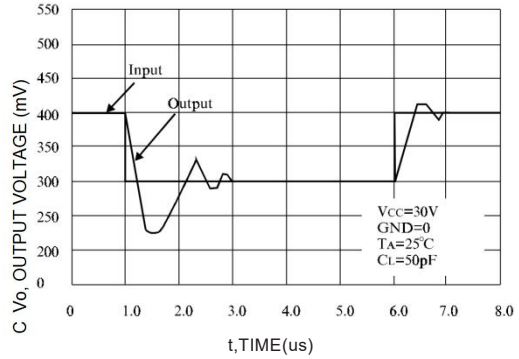


Fig 2. Small-Signal Voltage Follower Pulse Response

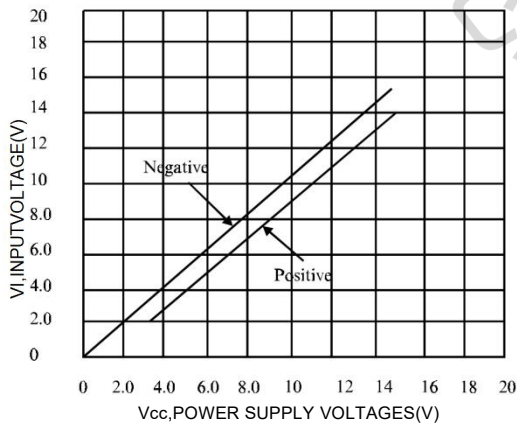


Fig 3. Input Voltage Range

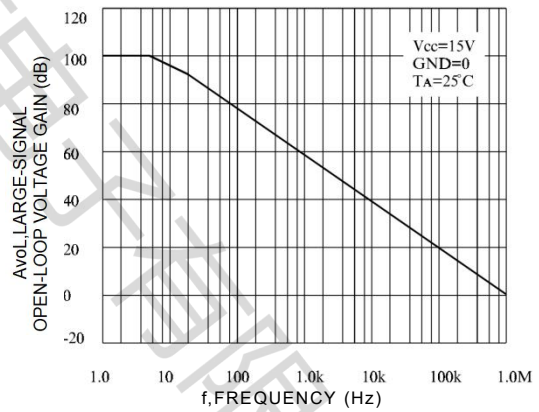


Fig 4. Open-Loop Frequency

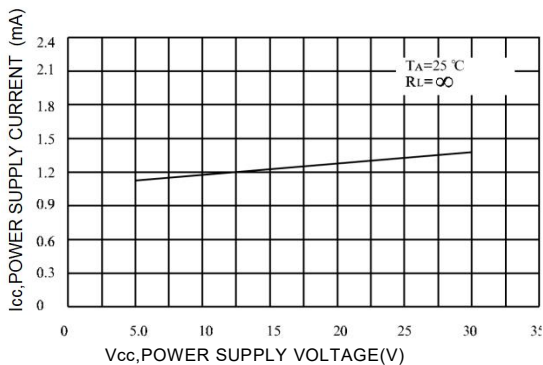


Fig 5. Power Supply Current versus Power Supply Voltage

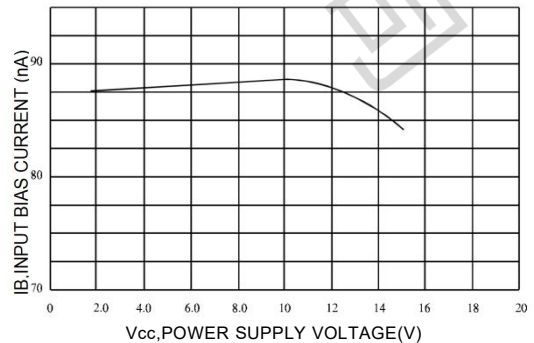
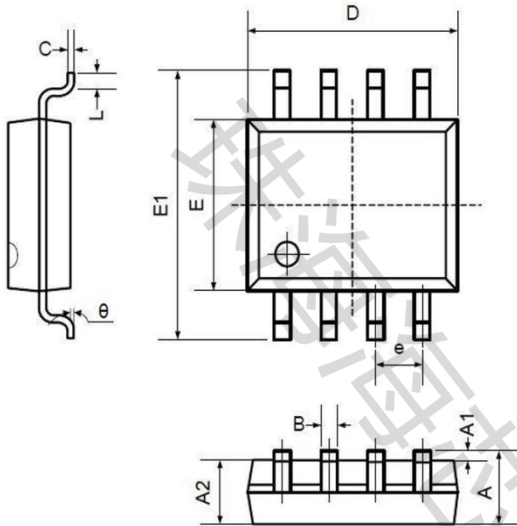


Fig 6. Input Bias Current versus Power Supply Voltage

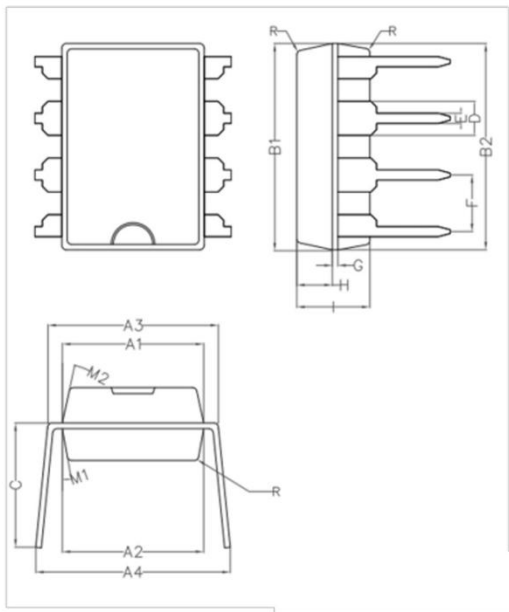
## Package Information

### SOP8 (Package Outline Dimensions)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
B	0.330	0.510	0.013	0.020
C	0.190	0.250	0.007	0.010
D	4.780	5.000	0.188	0.197
E	3.800	4.000	0.150	0.157
E1	5.800	6.300	0.228	0.248
e	1.270TYP		0.050TYP	
L	0.400	1.270	0.016	0.050
theta	0°	8°	0°	8°

### DIP8 (Package Outline Dimensions)



Symbol	Min	Non	Max
A1	6.28	6.33	6.38
A2	6.33	6.38	6.43
A3	7.52	7.62	7.72
A4	7.80	8.40	9.00
B1	9.15	9.20	9.25
B2	9.20	9.25	9.30
C		5.57	
D		1.52	
E	0.43	0.45	0.47
F		2.54	
G		0.25	
H	1.54	1.59	1.64
I	3.22	3.27	3.32
R		0.20	
M1	9°	10°	11°
M2	11°	12°	13°

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