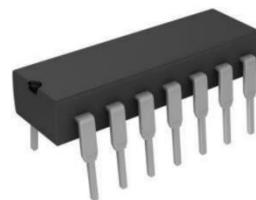


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TL084CN-HX Low Power Quad Operational Amplifier

The TL084CN-HX features four independent high gain operational amplifiers with internal frequency compensation. These four op-amps operate over a wide voltage range using either 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 suitable for battery-operated applications. When your project requires a traditional op-amp function, you can 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 TL084CN-HX is a versatile and durable component capable of amplifying signals from various 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.



DIP-14

FEATURES

- Internally frequency compensated for unity gain
- Large DC voltage gain: 100dB
- Wide power supply range:
3V ~ 32V (or $\pm 1.5V$ ~ $\pm 16V$)
- Input common-mode voltage range includes ground
- Large output voltage swing: 0V DC to VCC-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

| | | | | |
|-----------------|---|---|----|--------|
| OUT 1 | 1 | ● | 14 | OUT 4 |
| IN1(-) | 2 | | 13 | IN4(-) |
| IN1(+) | 3 | | 12 | IN4(+) |
| V _{CC} | 4 | | 11 | GND |
| IN2 (+) | 5 | | 10 | IN3(+) |
| IN2 (-) | 6 | | 9 | IN3(-) |
| OUT 2 | 7 | | 8 | OUT 3 |

Product Information

| | Package Information | temperature | Orchestration | quantity |
|------------|---------------------|-------------|---------------|----------|
| TL084CN-HX | DIP-14 | 0°C~70°C | Taping | 1000 |

RECOMMENDED OPERATING CONDITIONS

| Symbol | Parameter | Min | Max | Unit |
|-----------------|--|------------------|----------------|------|
| V _{CC} | DC Supply Voltage | ± 2.5 or 5.0 | ± 15 or 30 | V |
| T _A | Operating Temperature, All Package Types | -40 | +105 | °C |

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| MAXIMUM RATINGS | | | |
|------------------|--|-------------|------|
| Symbol | Parameter | Value | Unit |
| V _{CC} | Power Supply Voltages Single Supply Split Supplies | 32±16 | V |
| V _{IDR} | Input Differential Voltage Range ^a | ±32 | V |
| V _{ICR} | Input Common Mode Voltage Range | -0.3 to 32 | V |
| I _{SC} | Output Short Circuit Duration | Continuous | |
| T _J | Junction Temperature | 150 | °C |
| T _{STG} | Storage Temperature Plastic Packages | -55 to +125 | °C |
| I _{IN} | Input Current, per pin ^b | 50 | mA |
| T _L | Lead Temperature, 1 mm from Case for 10 Seconds | 260 | °C |

Notes

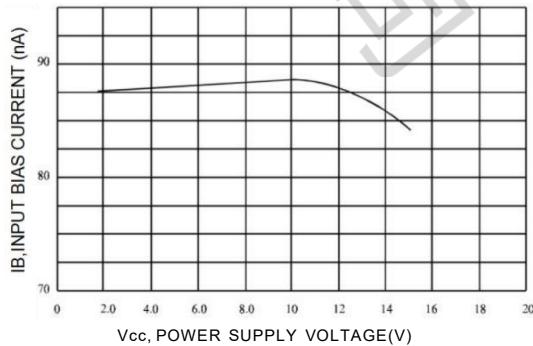
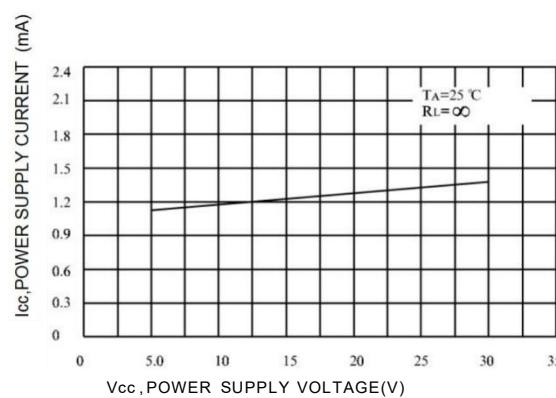
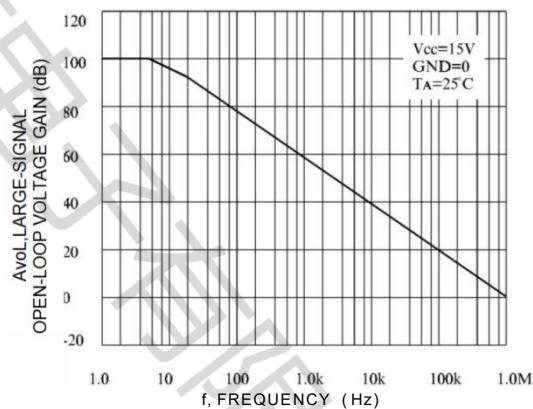
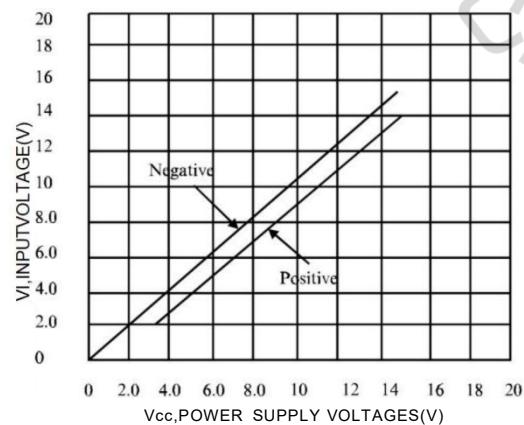
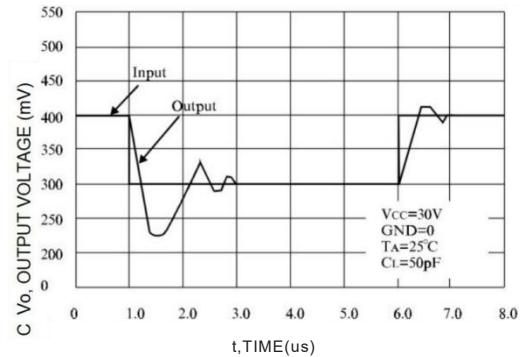
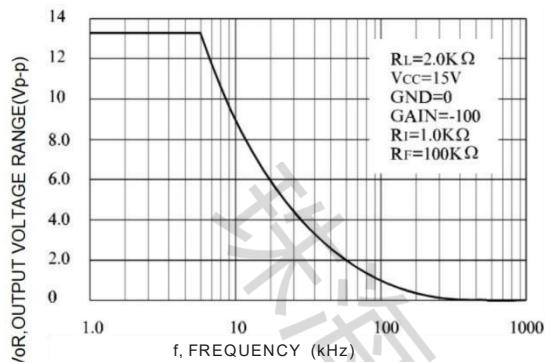
a. Split Power Supplies.
 b. V_{IN}<-0.3V. This input current will only exist when voltage at any of the input leads is driven negative.

| DC ELECTRICAL CHARACTERISTICS (TA=-40 to +105. °C) | | | | | | |
|--|---|---|-----------------------|-----|------------------------------|-------|
| Symbol | Parameter | Test Conditions | Guaranteed Limit | | | Unit |
| | | | Min | Typ | Max | |
| V _{IO} | Maximum Input Offset Voltage | V _O =1.4V V _{CC} =5.0- | | | 7.0 | mV |
| ΔV _{IO} /ΔT | Input Offset Voltage | RS=0Ω, V _{CC} =30V | | 7.0 | | μV/°C |
| I _{IO} | Maximum Input Offset Current | V _{CC} =5.0V | | | 150 | nA |
| ΔI _{IO} /ΔT | Input Offset Current Drift | RS=0Ω, V _{CC} =30V | | 10 | | pA/°C |
| I _{IB} | Maximum Input Bias Current | V _{CC} =5.0V | | | 500 | nA |
| V _{ICR} | Input Common Mode Voltage Range | V _{CC} =30V | 0 | | 28 | V |
| I _{CC} | Maximum Power Supply Current | RL=∞, V _{CC} =30V, V _O =0V RL=∞, V _{CC} =5V, V _O =0V | | | 3 1.2 | mA |
| A _{VOL} | Minimum Large Signal Open-Loop Voltage Gain | V _{CC} =15V, RL≥2KΩ | 15 25 ^a | | | V/mV |
| V _{OH} | Minimum Output High- Level Voltage Swing | V _{CC} =30V, RL=2KΩ V _{CC} =30V, RL=10KΩ | 26 27 | | | V |
| V _{OL} | Maximum Output Low- Level Voltage | V _{CC} =5V, RL=10KΩ | | | 20 | mV |
| C _{MR} | Common Mode | V _{CC} =30V, RS=10KΩ | 65 ^a | | | dB |
| P _{SR} | Power Supply Rejection | V _{CC} =30V | 65* | | | dB |
| C _S | Channel Separation | f= 1 KHz to 20KHz, V _{CC} =30V | -120 ^a | | | dB |
| I _{SC} | Maximum Output Short Circuit to GND | V _{CC} =5.0V | | | 60 ^a | mA |
| I _{source} | Minimum Output Source Current | V _{IN} +=1V, V _{IN} -=0V, | 20 | | 50 | mA |
| I _{sink} | Minimum Output Sink Current | V _{IN} +=0V, V _{IN} -=1V, | 5 | | | mA |
| V _{IDR} | Differential Input Voltage Range | All V _{IN} ≥GND or V-Supply (if used) | | | V _{CC} ^a | V |

Notes

a. =@25°C

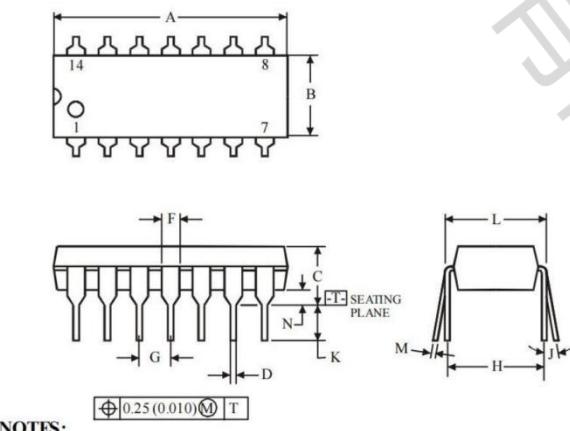
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Package Information

DIP14 (Package Outline Dimensions)



| Symbol | Dimension, mm | |
|--------|---------------|-------|
| | MIN | MAX |
| A | 18.67 | 19.69 |
| B | 6.1 | 7.11 |
| C | | 5.33 |
| D | 0.36 | 0.56 |
| F | 1.14 | 1.78 |
| G | | 2.54 |
| H | | 7.62 |
| J | 0° | 10° |
| K | 2.92 | 3.81 |
| L | 7.62 | 8.26 |
| M | 0.2 | 0.36 |
| N | 0.38 | |

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