

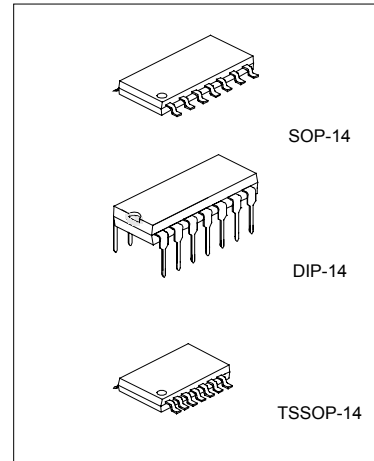
QUAD OPERATIONAL AMPLIFIERS

DESCRIPTION

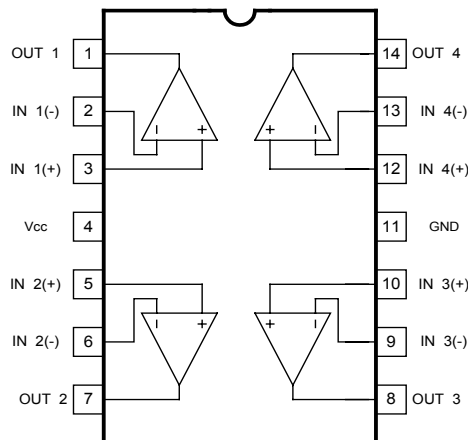
The UTC LM324 consists of four independent, high gain internally frequency compensated operational amplifiers which are designed specifically to operate from a single power supply over a wide voltage range. Operation from split power supplies is also possible. Application areas include transducer amplifier, DC gain blocks and all the conventional OP amp circuits which now can be easily implemented in single power supply system.

FEATURES

- *Internally frequency compensated for unity gain.
- *Large DC voltage gain :100dB.
- *Wide operating supply range ($V_{CC}=3V\sim 32V$).
- *Input common-mode voltage includes ground.
- *Large output voltage swing: From 0V to $V_{CC}-1.5V$.
- *Power drain suitable for battery operation.

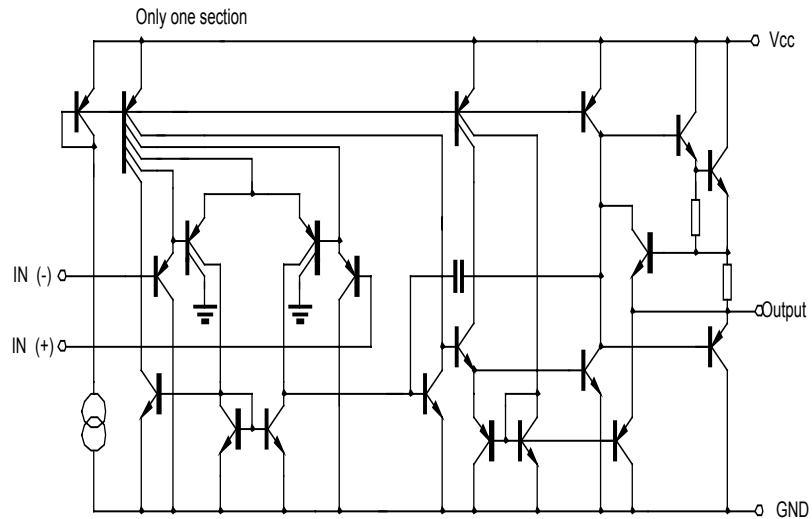


PIN CONFIGURATIONS



UTC LM324 LINEAR INTEGRATED CIRCUIT

BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

| PARAMETER | SYMBOL | VALUE | UNIT |
|----------------------------|---------|------------|------|
| Supply Voltage | Vcc | +18 | V |
| Differential Input Voltage | VIDiff) | 32 | V |
| Input Voltage | VI | -0.3~32V | V |
| Power Dissipation | Pd | 570 | mW |
| Operating Temperature | Topr | 0 to +70 | °C |
| Storage Temperature | Tstg | -65 to 150 | °C |

UTC LM324 LINEAR INTEGRATED CIRCUIT

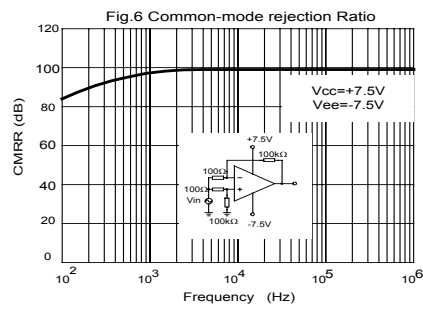
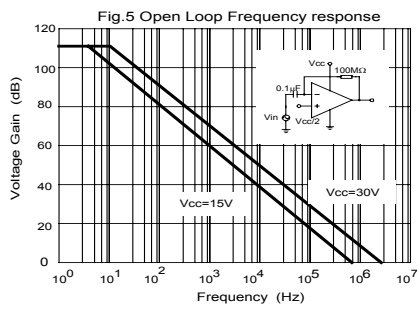
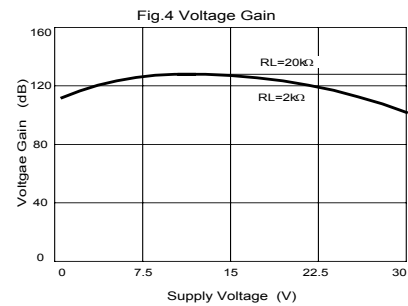
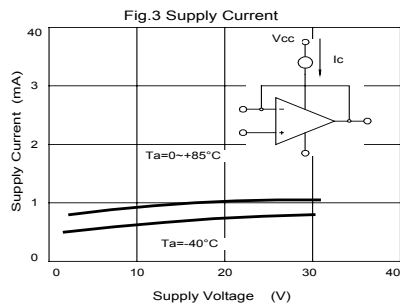
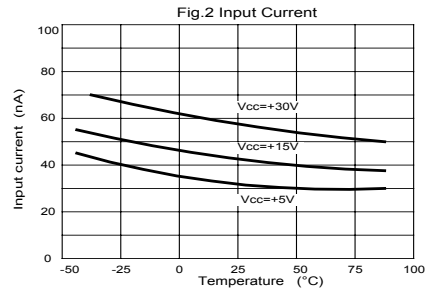
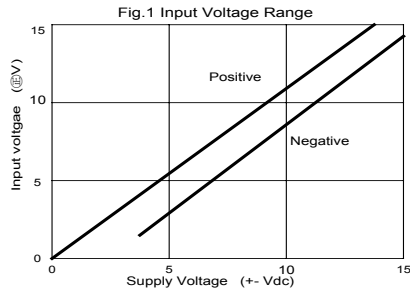
ELECTRICAL CHARACTERISTICS (Ta=25°C)

(Vcc=5.0V, All voltage referenced to GND unless otherwise specified)

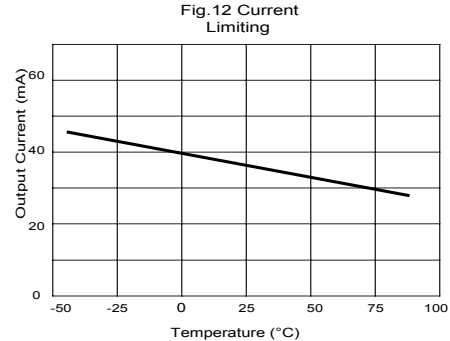
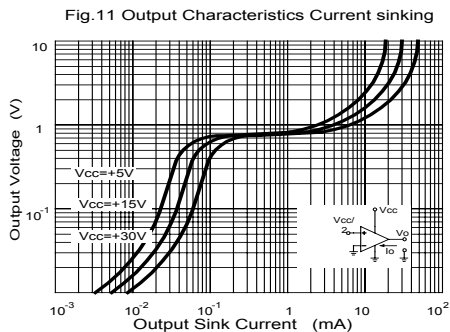
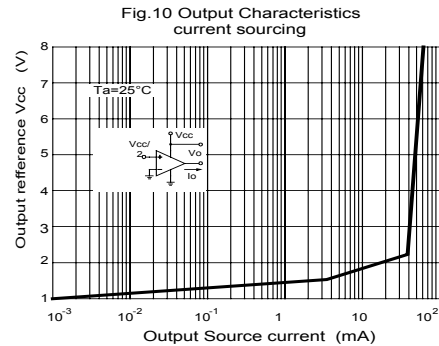
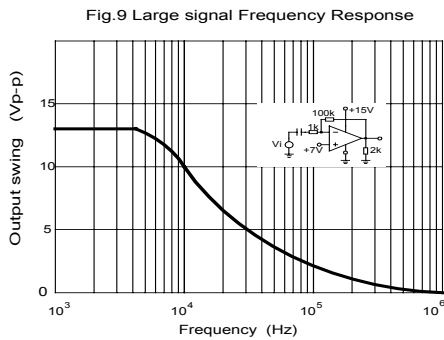
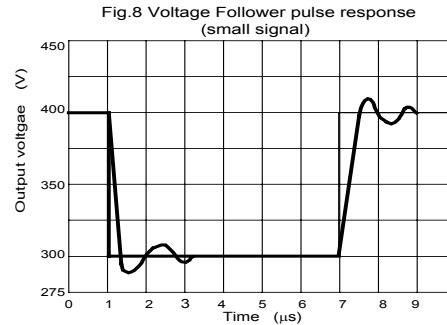
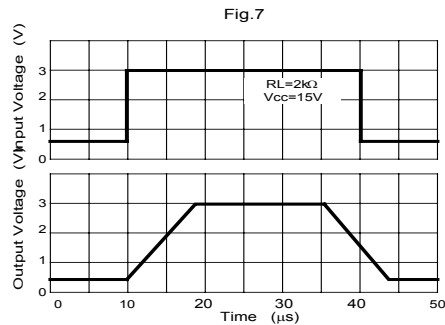
| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP. | MAX | UNIT |
|---------------------------------|----------------------|-----------------------------------------------------------------------------------------------|-----|----------------------|-----------------|------|
| Input Offset Voltage | V _{IO} | V _{CM} =0 to V _{CC} =-1.5 V _{O(p)} =1.4V, R _S =0 | | | 7 | mV |
| Input Offset Current | I _{IO} | | | | 50 | nA |
| Input Bias Current | I _B | | | | 250 | nA |
| Input Common-Mode Voltage Range | V _{I(R)} | V _{CC} =30V | 0 | V _{CC} -1.5 | | V |
| Supply Current | I _{CC} | R _L =∞, V _{CC} =30V V _{CC} =5V | | 1.0 0.7 | 3 1.2 | mA |
| Large Signal Voltage Gain | G _V | V _{CC} =15V, R _L >2kΩ V _{O(p)} =1V to 11V | 25 | 100 | | V/mV |
| Output Voltage Swing | V _(OH) | V _{CC} =30V, R _L =2kΩ | 26 | | | V |
| | | V _{CC} =30V, R _L =10kΩ | 27 | 28 | | V |
| | V _(OL) | V _{CC} =5V, R _L >10kΩ | | 5 | 20 | mV |
| Common-Mode Rejection Ratio | CMRR | | 65 | 75 | | dB |
| Power Supply Rejection Ratio | PSRR | | 65 | 100 | | dB |
| Channel Separation | CS | f=1kHz to 20kHz | | 120 | | dB |
| Short Circuit to GND | I _{SC} | | | 40 | 60 | mA |
| Output Current | I _{source} | V _{I(+)} =1V, V _{I(-)} =0 V _{CC} =15V, V _{O(p)} =2V | 20 | 40 | | mA |
| | I _{sink} | V _{I(+)} =0V, V _{I(-)} =1V V _{CC} =15V, V _{O(p)} =2V | 10 | 13 | | mA |
| | | V _{I(+)} =1V, V _{I(-)} =0 V _{CC} =15V, V _{O(p)} =200mV | 12 | 45 | | μA |
| Differential Input Voltage | V _{I(diff)} | | | | V _{CC} | V |

UTC LM324 LINEAR INTEGRATED CIRCUIT

TYPICAL PERFORMANCE CHARACTERISTICS



UTC LM324 LINEAR INTEGRATED CIRCUIT



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