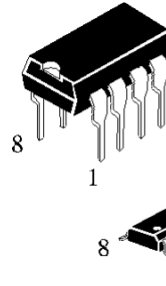


Low Power Dual Operational Amplifier

(compatible to LM258)

The HT258A contains two independent high gain operational amplifiers with internal frequency compensation. The op-amps operate over a wide voltage range. The low power drain makes the HT258A a good choice for battery operation.

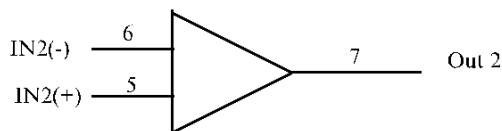
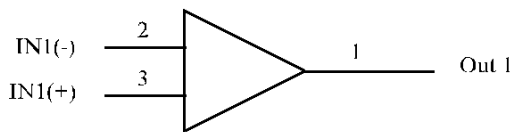
- Internally frequency compensated for unity gain
- Large DC voltage gain
- Single or Split Supply Operation
- Input common-mode voltage range to ground
- Large output voltage swing: 0V DC to $V_{CC}-1.5V$ DC
- Power drain suitable for battery operation
- Low input offset voltage and offset current
- Differential input voltage range equal to the power supply voltage



ORDERING INFORMATION

HT258AN Plastic
 HT258AR SOIC
 HT258AG Chip
 $T_A = -40^\circ$ to 125° C
 for all packages

BLOCK DIAGRAM



PIN 4 = GND

PIN 8= V_{CC}

MAXIMUM RATINGS

| Symbol | Parameter | Value | Unit |
|------------------|---|-------------|------|
| V _{CC} | Power Supply Voltages | | |
| | Single Supply | 32 | V |
| | Split Supplies | ±16 | |
| V _{IDR} | Input Differential Voltage Range (1) | ±32 | V |
| V _{ICR} | Input Common Mode Voltage Range | -0.3 to 32 | V |
| t _S | Short-Circuit duration of Output | 100 | ms |
| I _{IN} | Input Current, per pin (2) | 50 | mA |
| T _J | Junction Temperature Plastic Packages | 150 | °C |
| T _{stg} | Storage Temperature Plastic Packages | -55 to +125 | °C |
| T _L | Lead Temperature, 1mm from Case for 10 Seconds | 260 | °C |

* Maximum Ratings are those values beyond which damage to the device may occur. Functional operation should be restricted to the Recommended Operating Conditions.

Notes:

1. Split Power Supplies.
2. V_{IN}<-0.3V

RECOMMENDED OPERATING CONDITIONS

| Symbol | Parameter | Min | Max | Unit |
|-----------------|--|---------|--------|------|
| V _{CC} | DC Supply Voltage | ±2.5 or | ±15 or | V |
| | | 5.0 | 30 | |
| T _A | Operating Temperature, All Packag Types | -40 | +125 | °C |

DC ELECTRICAL CHARACTERISTICS (T_A=0 ÷ +70°C)

| Symbol | Parameter | Test Conditions | Guaranteed Limit | | Unit |
|------------------|---|--|------------------|---|----------|
| | | | Min | Max | |
| V _{IO} | Maximum Input Offset Voltage | V _{CC} =5.0-30V, R _S =0Ω, V _O =1.4V V _{ICR} =0V -(V _{CC} -1.5V)* V _{ICR} =0V -(V _{CC} -2.0V) | | 7.0* 9.0 | mV |
| I _{IO} | Maximum Input Offset Current | V _{CC} =5.0-30V, V _O =1.4V | | ±50* ±150 | nA |
| I _{IB} | Maximum Input Bias Current | V _{CC} =5.0-30V, V _O =1.4V | | -250* -500 | nA |
| V _{ICR} | Input Common Mode Voltage Range | V _{CC} =30V | 0 0 | V _{CC} -1.5V* V _{CC} -2.0V | V |
| I _{CC} | Maximum Power Supply Current | R _L =∞, V _{CC} =30V, V _O =15V R _L =∞, V _{CC} =5V, V _O =2.5V | | 2 1.2 | mA |
| A _{VOL} | Minimum Large Signal Open-Loop Voltage Gain | V _{CC} =15V, R _L =2KΩ | 25* 15 | | V/mV |
| V _{OH} | Minimum Output High-Level Voltage Swing | V _{CC} =5V, R _L =2KΩ* V _{CC} =30V, R _L =2KΩ V _{CC} =30V, R _L =10KΩ | 3.3* 26 27 | | V |
| V _{OL} | Maximum Output Low-Level Voltage Swing | V _{CC} =5V, R _L =10KΩ | | 20 | mV |
| CMR | Common Mode Rejection | Ω V _{CC} =5-30V, R _S =10K | 65* | | dB |
| PSR | Power Supply Rejection | V _{CC} =5-30V | 65* | | dB |
| I _{SC} | Maximum Output Short Circuit to GND | V _{CC} =5.0V, V _O =0V | | 60* | mA |
| I _{o+} | Minimum Source Output Current | V _{CC} =15V, V _{ID} =1.0V | 20* | | mA |
| I _{o-} | Minimum Output Sink Current | V _{CC} =15V, V _O =15V, V _{ID} =-1.0V V _{CC} =15V, V _O =0.2V, V _{ID} =-1.0V | 10* 12* | | mA ∞A |
| V _{IDR} | Differential Input Voltage Range | All V _{IN} ≥GND or V-Supply (if used) | | V _{CC} * | V |

* T_A= +25°C

NOTE: Guaranteed Limits of DC Electrical Characteristics are given for T_A=-40, +125°C as the information for chips

TYPICAL PERFORMANCE CHARACTERISTICS (T_A= +25°C)

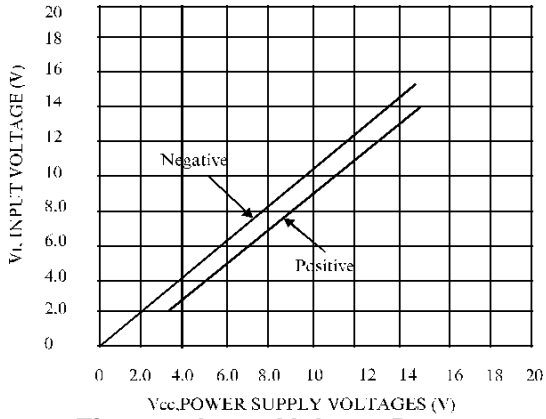


Figure 1. Input Voltage Range

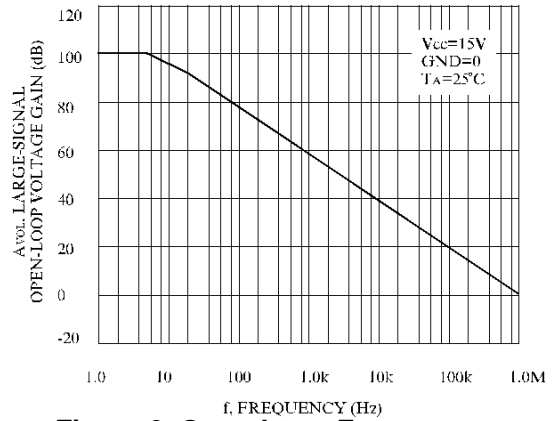


Figure 2. Open-Loop Frequency

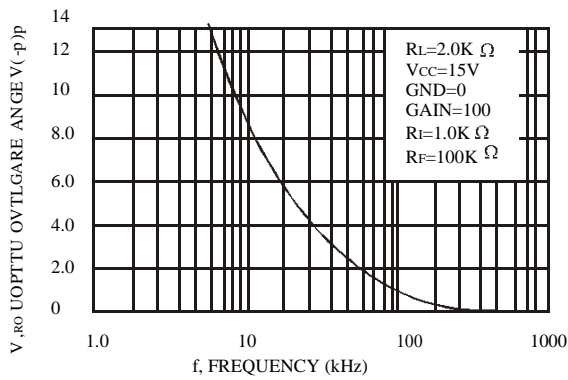


Figure 3. Large-Signal Frequency Response

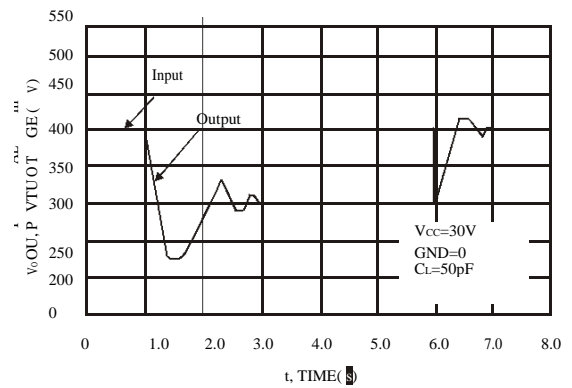


Figure 4. Small-Signal Voltage Follower Pulse Response (Noninverting)

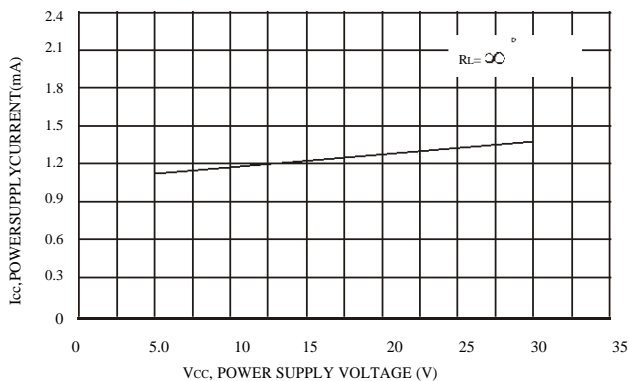


Figure 5. Power Supply Current versus Power Supply Voltage

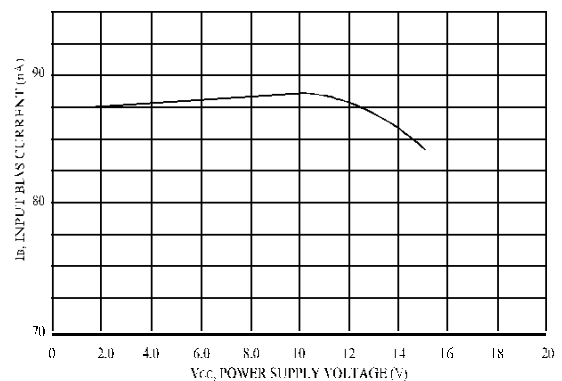
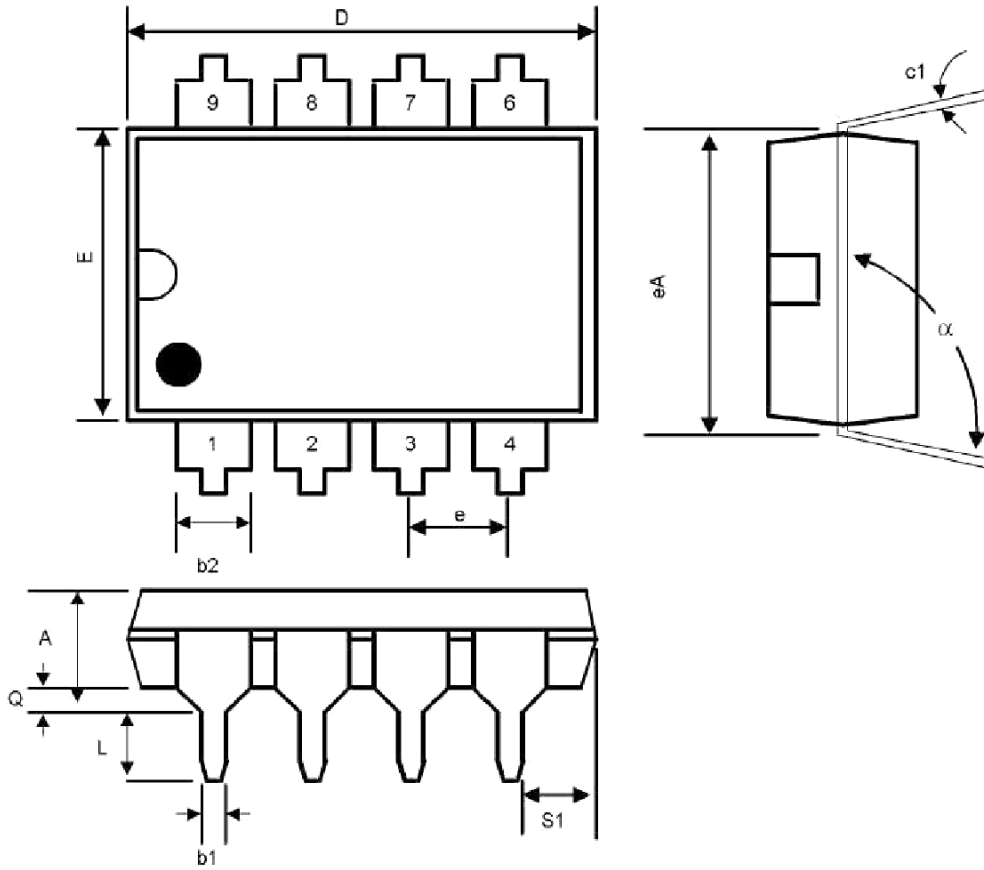
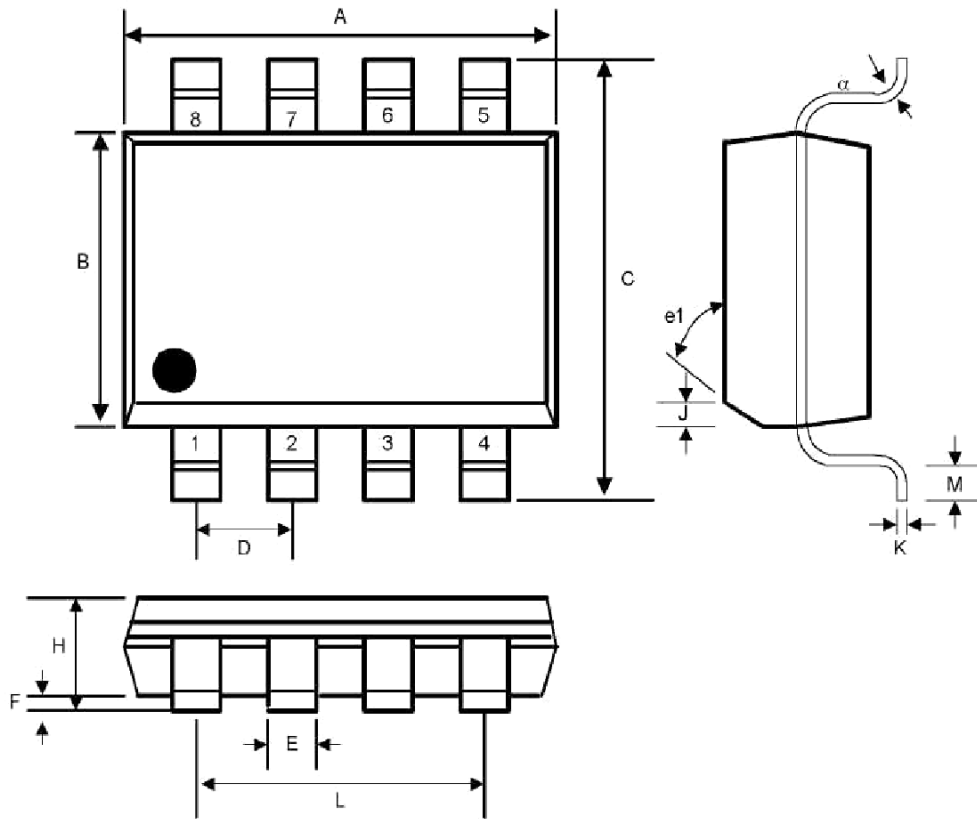


Figure 6. Input Bias Current versus Power Supply Voltage

Package Outlines: DIP-8


| SYMBOL | INCHES | | MILLIMETERS | | NOTES |
|----------|-----------------|------------------|-----------------|------------------|-------|
| | MIN | MAX | MIN | MAX | |
| A | - | 0.200 | - | 5.08 | - |
| b1 | 0.014 | 0.023 | 0.36 | 0.58 | - |
| b2 | 0.045 | 0.065 | 1.14 | 1.65 | - |
| c1 | 0.008 | 0.015 | 0.20 | 0.38 | - |
| D | 0.355 | 0.400 | 9.02 | 10.16 | - |
| E | 0.220 | 0.310 | 5.59 | 7.87 | - |
| e | 0.100 BSC | | 2.54 BSC | | - |
| eA | 0.300 BSC | | 7.62 BSC | | - |
| L | 0.125 | 0.200 | 3.18 | 5.08 | - |
| Q | 0.015 | 0.060 | 0.38 | 1.52 | - |
| s1 | 0.005 | - | 0.13 | - | - |
| α | 90 ⁰ | 105 ⁰ | 90 ⁰ | 105 ⁰ | - |

Small Outline SOP-8


| SYMBOL | INCHES | | MILLIMETERS | | NOTES |
|--------|-----------|-------|-------------|------|-------|
| | MIN | MAX | MIN | MAX | |
| A | 0.188 | 0.197 | 4.80 | 5.00 | - |
| B | 0.149 | 0.158 | 3.80 | 4.00 | - |
| C | 0.228 | 0.244 | 5.80 | 6.20 | - |
| D | 0.050 BSC | | 1.27 BSC | | - |
| E | 0.013 | 0.020 | 0.33 | 0.51 | - |
| F | 0.004 | 0.010 | 0.10 | 0.25 | - |
| H | 0.053 | 0.069 | 1.35 | 1.75 | - |
| J | 0.011 | 0.019 | 0.28 | 0.48 | - |
| K | 0.007 | 0.010 | 0.19 | 0.25 | - |
| M | 0.016 | 0.050 | 0.40 | 1.27 | - |
| L | 0.150 REF | | 3.81 REF | | - |
| e1 | 45° | | 45° | | - |
| α | 0° | 8° | 0° | 8° | - |

*All specs and applications shown above subject to change without prior notice.