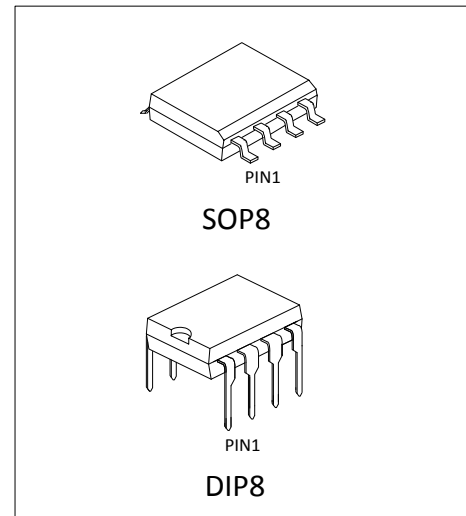


Dual Operational Amplifier

FEATURES

- No Frequency Compensation Required
- Short-Circuit Protection
- Wide Common-Mode and Differential Voltage Ranges
- Low-Power Consumption
- No Latch Up When Input Common Mode Range is Exceeded

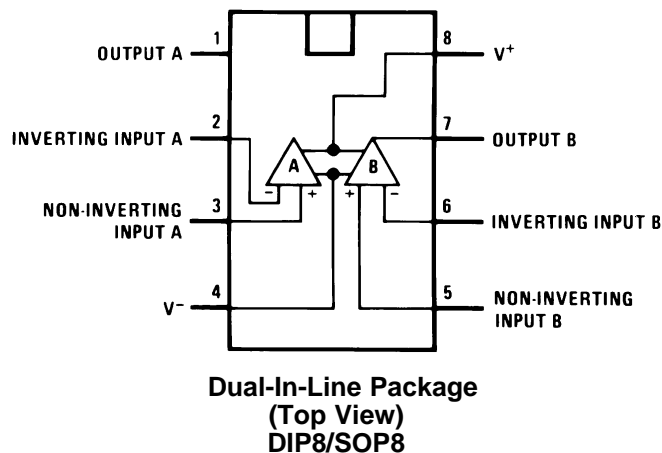


DESCRIPTION

The LM1458 and the LM1558 are general purpose dual operational amplifiers. The two amplifiers share a common bias network and power supply leads. Otherwise, their operation is completely independent.

The LM1458 is identical to the LM1558 except that the LM1458 has its specifications guaranteed over the temperature range from 0°C to +70°C instead of -55°C to +125°C.

Connection Diagram



Absolute Maximum Ratings

| | |
|---|-----------------|
| Supply Voltage | |
| LM1558 | ±22V |
| LM1458 | ±18V |
| Power Dissipation | |
| LM1558H/LM1458H | 500 mW |
| LM1458N | 400 mW |
| Differential Input Voltage | ±30V |
| Input Voltage | ±15V |
| Output Short-Circuit Duration | Continuous |
| Operating Temperature Range | |
| LM1558 | -55°C to +125°C |
| LM1458 | 0°C to +70°C |
| Storage Temperature Range | -65°C to +150°C |
| Lead Temperature (Soldering, 10 sec.) | 260°C |
| Soldering Information | |
| PDIP Package | |
| Soldering (10 seconds) | 260°C |
| SOIC Package | |
| Vapor Phase (60 seconds) | 215°C |
| Infrared (15 seconds) | 220°C |
| See AN-450 "Surface Mounting Methods and Their Effect on Product Reliability" for other methods of soldering surface mount devices. | |
| ESD tolerance | 300V |

- (1) "Absolute Maximum Ratings" indicate limits beyond which damage to the device may occur. Operating Ratings indicate conditions for which the device is functional, but do not guarantee specific performance limits.
- (2) The maximum junction temperature of the LM1558 is 150 C, while that of the LM1458 is 100 C. For operating at elevated temperatures, devices in the LMC package must be derated based on a thermal resistance of 150°C/W, junction to ambient or 20°C/W, junction to case. For the PDIP the device must be derated based on a thermal resistance of 187°C/W, junction to ambient.
- (3) For supply voltages less than ±15V, the absolute maximum input voltage is equal to the supply voltage.
- (4) Human body model, 1.5 kΩ in series with 100 pF.

Electrical Characteristics ⁽¹⁾

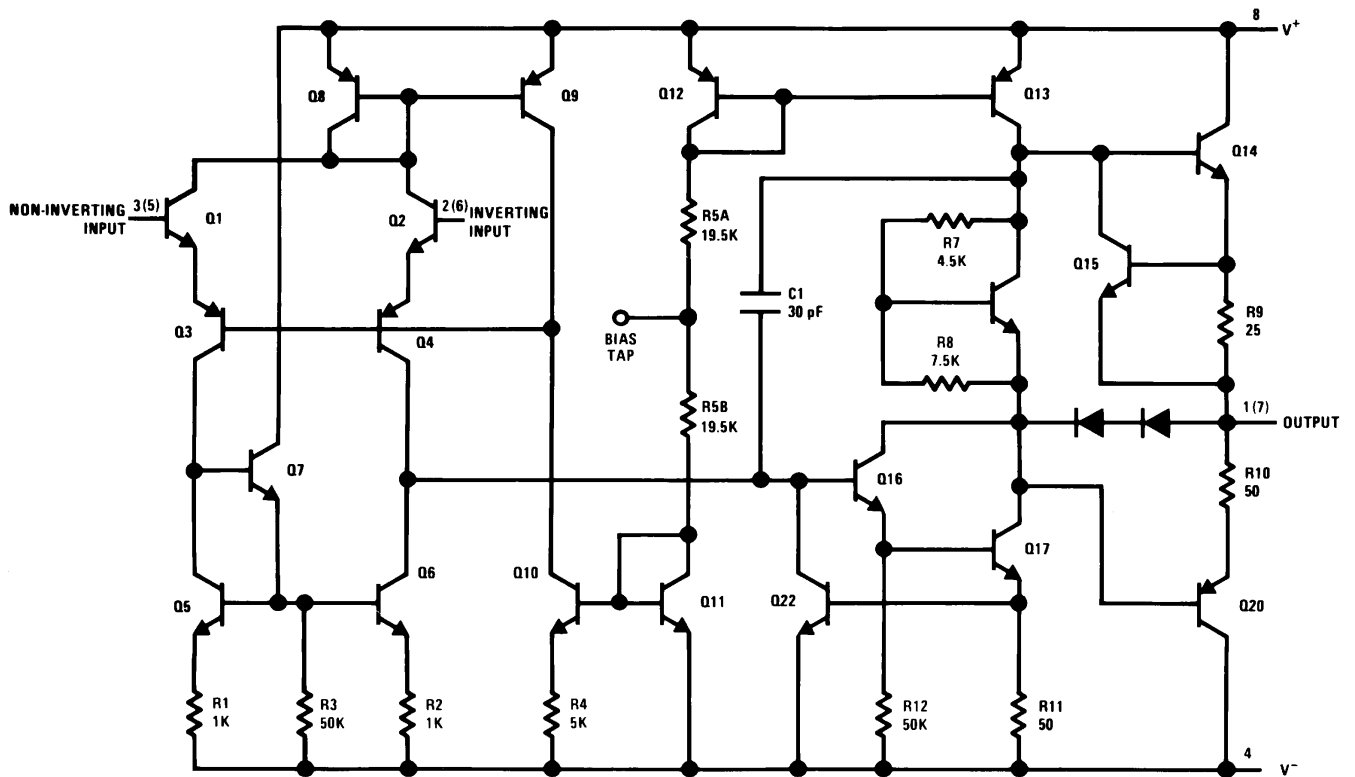
| Parameter | Conditions | LM1558 | | | LM1458 | | | Units |
|--------------------------------|---|------------|------------|-----|------------|------------|-----|--------|
| | | Min | Typ | Max | Min | Typ | Max | |
| Input Offset Voltage | $T_A = 25^\circ\text{C}$, $R_S \leq 10\text{ k}\Omega$ | | 1.0 | 5.0 | | 1.0 | 6.0 | mV |
| Input Offset Current | $T_A = 25^\circ\text{C}$ | | 80 | 200 | | 80 | 200 | nA |
| Input Bias Current | $T_A = 25^\circ\text{C}$ | | 200 | 500 | | 200 | 500 | nA |
| Input Resistance | $T_A = 25^\circ\text{C}$ | 0.3 | 1.0 | | 0.3 | 1.0 | | MΩ |
| Supply Current Both Amplifiers | $T_A = 25^\circ\text{C}$, $V_S = \pm 15\text{V}$ | | 3.0 | 5.0 | | 3.0 | 5.6 | mA |
| Large Signal Voltage Gain | $T_A = 25^\circ\text{C}$, $V_S = \pm 15\text{V}$ $V_{OUT} = \pm 10\text{V}$, $R_L \geq 2\text{ k}\Omega$ | 50 | 160 | | 20 | 160 | | V/mV |
| Input Offset Voltage | $R_S \leq 10\text{ k}\Omega$ | | | 6.0 | | | 7.5 | mV |
| Input Offset Current | | | | 500 | | | 300 | nA |
| Input Bias Current | | | | 1.5 | | | 0.8 | μA |
| Large Signal Voltage Gain | $V_S = \pm 15\text{V}$, $V_{OUT} = \pm 10\text{V}$ $R_L \geq \text{k}\Omega$ | 25 | | | 15 | | | V/mV |
| Output Voltage Swing | $V_S = \pm 15\text{V}$, $R_L = 10\text{ k}\Omega$ $R_L = 2\text{ k}\Omega$ | ±12 ±10 | ±14 ±13 | | ±12 ±10 | ±14 ±13 | | V V |

- (1) These specifications apply for $V_S = \pm 15\text{V}$ and $-55^\circ\text{C} \leq T_A \leq 125^\circ\text{C}$, unless otherwise specified. With the LM1458, however, all specifications are limited to $0^\circ\text{C} \leq T_A \leq 70^\circ\text{C}$ and $V_S = \pm 15\text{V}$.

Electrical Characteristics ⁽¹⁾ (continued)

| Parameter | Conditions | LM1558 | | | LM1458 | | | Units |
|--------------------------------|------------------------------|----------|-----|-----|----------|-----|-----|-------|
| | | Min | Typ | Max | Min | Typ | Max | |
| Input Voltage Range | $V_S = \pm 15V$ | ± 12 | | | ± 12 | | | V |
| Common Mode Rejection Ratio | $R_S \leq 10\text{ k}\Omega$ | 70 | 90 | | 70 | 90 | | dB |
| Supply Voltage Rejection Ratio | $R_S \leq 10\text{ k}\Omega$ | 77 | 96 | | 77 | 96 | | dB |

SCHEMATIC DIAGRAM



Numbers in parentheses are pin numbers for amplifier B.

PACKAGE

SOP8

| UNIT: mm | | | | | | | |
|----------|-------|-------|-------|------|-------|-------|-------|
| DIM. | MIN | TYP | MAX | DIM. | MIN | TYP | MAX |
| A | 4.520 | 4.570 | 4.620 | a | 0.400 | 0.420 | 0.440 |
| A1 | 0.100 | - | 0.250 | b | 1.260 | 1.270 | 1.280 |
| B | 4.800 | 4.920 | 5.100 | Q | 0° | - | 8° |
| C | 5.800 | 6.100 | 6.250 | | | | |
| C1 | 3.800 | 3.900 | 4.000 | | | | |
| D | 0.400 | - | 0.950 | | | | |

DIP8

| UNIT: mm | | | | | | | |
|----------|-------|-------|-------|------|-------|-------|-------|
| DIM. | MIN | TYP | MAX | DIM. | MIN | TYP | MAX |
| A | 6.100 | 6.300 | 6.680 | a | 1.504 | 1.524 | 1.544 |
| B | 9.000 | 9.200 | 9.500 | b | - | 0.889 | - |
| D | 8.400 | 8.700 | 9.000 | c | 0.437 | 0.457 | 0.477 |
| D1 | 7.42 | 7.62 | 7.82 | d | 2.530 | 2.540 | 2.550 |
| E | 3.100 | 3.300 | 3.550 | L | 0.500 | - | 0.700 |
| | | | | L1 | 3.000 | 3.200 | 3.600 |

Important statement:

Huaguan Semiconductor Co,Ltd. reserves the right to change the products and services provided without notice. Customers should obtain the latest relevant information before ordering, and verify the timeliness and accuracy of this information.

Customers are responsible for complying with safety standards and taking safety measures when using our products for system design and machine manufacturing to avoid potential risks that may result in personal injury or property damage.

Our products are not licensed for applications in life support, military, aerospace, etc., so we do not bear the consequences of the application of these products in these fields.

Our documentation is only permitted to be copied without any tampering with the content, so we do not accept any responsibility or liability for the altered documents.

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for [Operational Amplifiers - Op Amps](#) category:

Click to view products by [HGSEMI](#) manufacturer:

Other Similar products are found below :

[OPA2991IDSGR](#) [OPA607IDCKT](#) [007614D](#) [633773R](#) [635798C](#) [635801A](#) [702115D](#) [709228FB](#) [741528D](#) [NCV33072ADR2G](#)
[SC2902DTBR2G](#) [SC2903DR2G](#) [SC2903VDR2G](#) [LM258AYDT](#) [LM358SNG](#) [430227FB](#) [430228DB](#) [460932C](#) [AZV831KTR-G1](#) [409256CB](#)
[430232AB](#) [LM2904DR2GH](#) [LM358YDT](#) [LT1678IS8](#) [042225DB](#) [058184EB](#) [070530X](#) [SC224DR2G](#) [SC239DR2G](#) [SC2902DG](#)
[SCYA5230DR2G](#) [714228XB](#) [714846BB](#) [873836HB](#) [MIC918YC5-TR](#) [TS912BIYDT](#) [NCS2004MUTAG](#) [NCV33202DMR2G](#)
[M38510/13101BPA](#) [NTE925](#) [SC2904DR2G](#) [SC358DR2G](#) [LM358EDR2G](#) [AZV358MTR-G1](#) [AP4310AUMTR-AG1](#) [HA1630D02MMEL-E](#)
[NJM358CG-TE2](#) [HA1630S01LPEL-E](#) [LM324AWPT](#) [HA1630Q06TELL-E](#)