

Dual Operational Amplifier

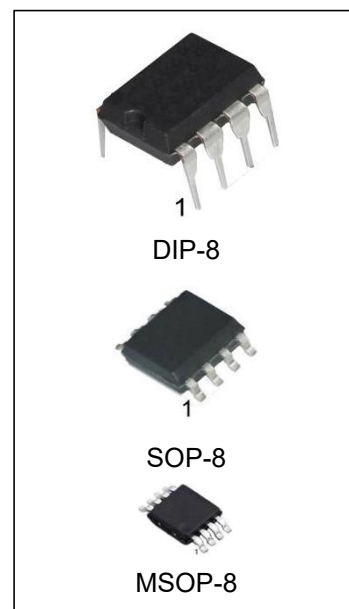
Features

- 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.

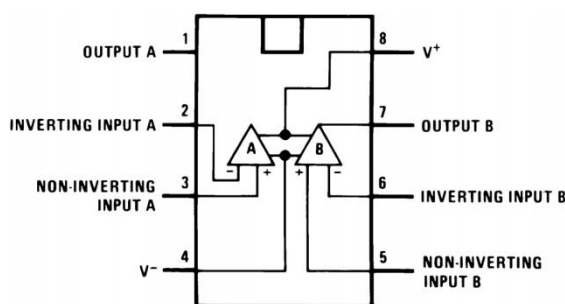
The LM1458 is identical to the LM1558 except that the LM1458 has its specifications guaranteed over the temperature range from 0°C to +70°C instead of -55°C to +125°C.



Ordering Information

DEVICE	Package Type	MARKING	Packing	Packing Qty
LM1458N	DIP-8	LM1458	TUBE	2000pcs/box
LM1458M/TR	SOP-8	LM1458	REEL	2500pcs/reel
LM1458MM/TR	MSOP-8	LM1458	REEL	3000pcs/reel
LM1558N	DIP-8	LM1558	TUBE	2000pcs/box
LM1558M/TR	SOP-8	LM1558	REEL	2500pcs/reel
LM1558MM/TR	MSOP-8	LM1558	REEL	3000pcs/reel

Connection Diagram



Dual-In-Line Package
DIP-8/SOP-8/MSOP-8

Absolute Maximum Ratings

Supply Voltage	
LM1558	±22V
LM1458	±18V
Power Dissipation	
LM1558M/LM1458M	500 mW
LM1558N/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
See AN-450 "Surface Mounting Methods and Their Effect on Product Reliability" for other methods of soldering surface mount devices.	
ESD tolerance	300V

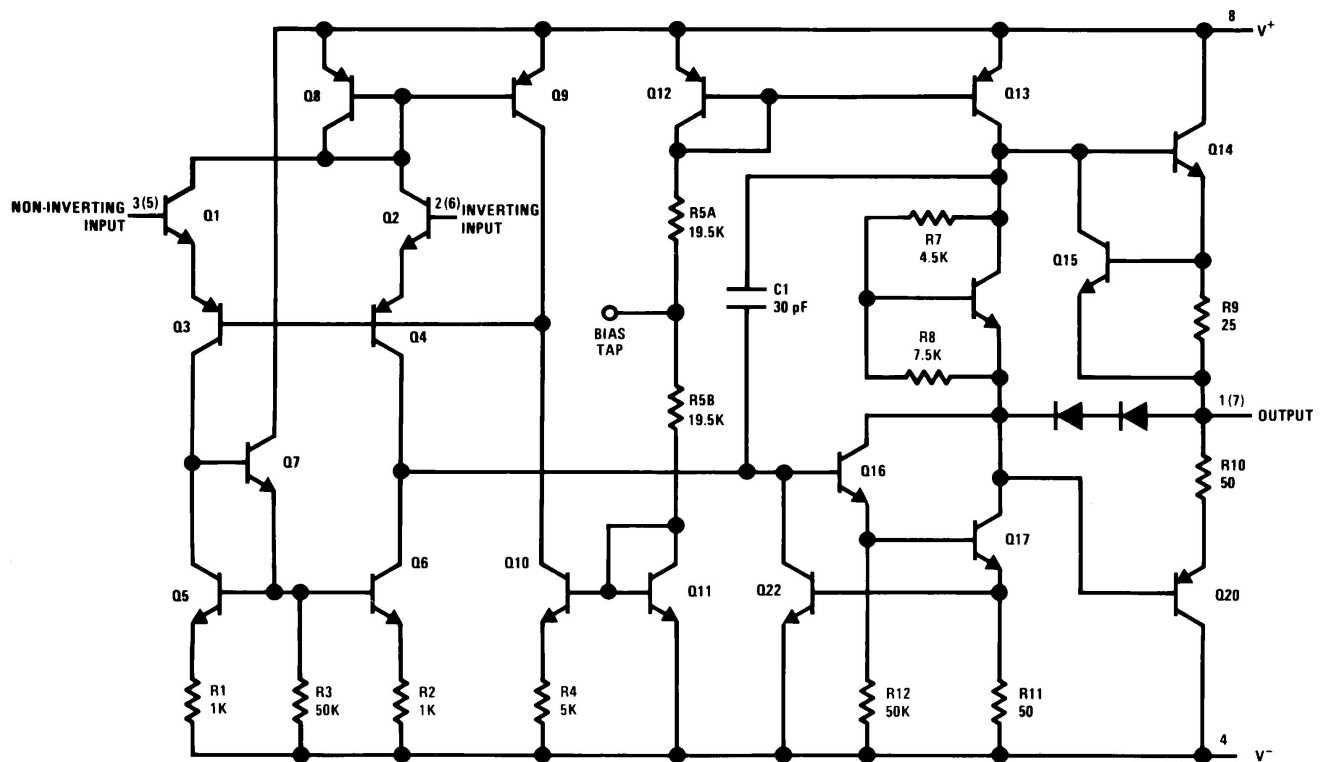
1. "Absolute Maximum Ratings" indicate limits beyond which damage to the device may occur. Operating Ratings indicate conditions for which the device is functional, but do not guarantee specific performance limits.
2. The maximum junction temperature of the LM1558 is 150°C, while that of the LM1458 is 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		M Ω
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
Input Voltage Range	$V_S = \pm 15\text{V}$	± 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

(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 $V_S = \pm 15\text{V}$.

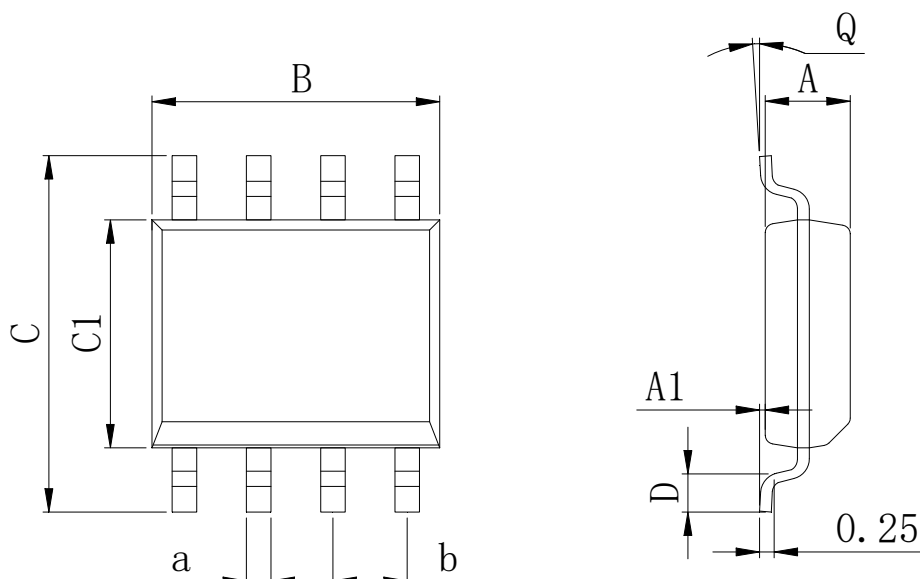
Schematic Diagram



Numbers in parentheses are pin numbers for amplifier B.

Physical Dimensions

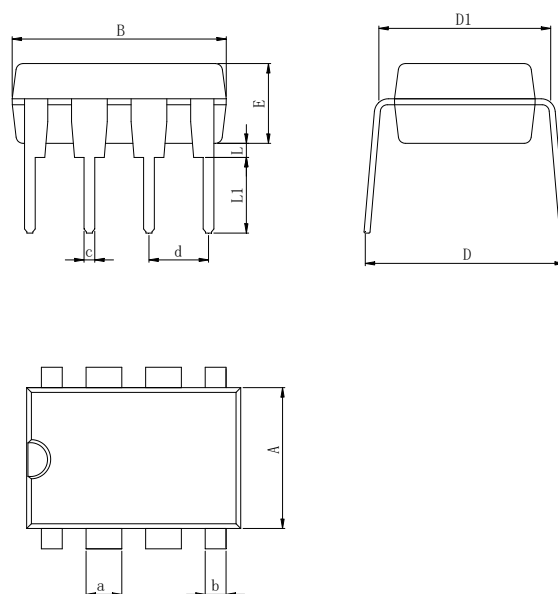
SOP-8



Dimensions In Millimeters(SOP-8)

Symbol:	A	A1	B	C	C1	D	Q	a	b
Min:	1.35	0.05	4.90	5.80	3.80	0.40	0°	0.35	1.27 BSC
Max:	1.55	0.20	5.10	6.20	4.00	0.80	8°	0.45	

DIP-8

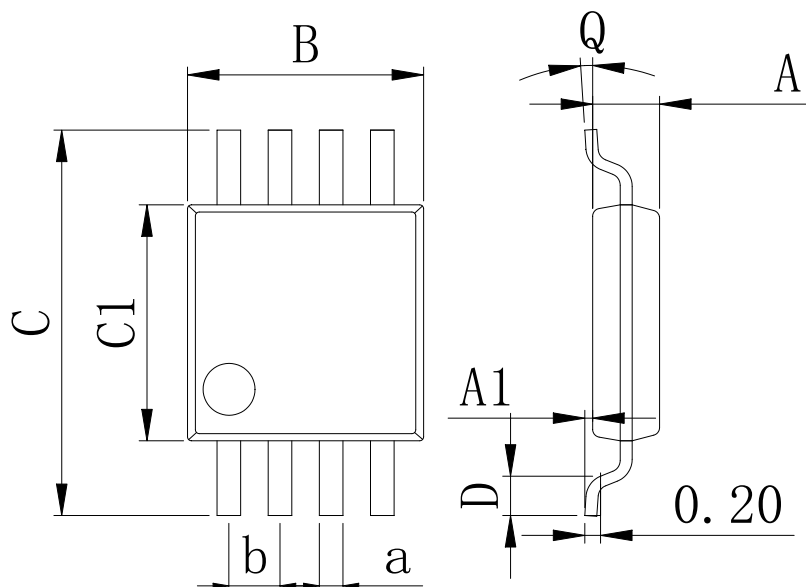


Dimensions In Millimeters(DIP-8)

Symbol:	A	B	D	D1	E	L	L1	a	b	c	d
Min:	6.10	9.00	8.10	7.42	3.10	0.50	3.00	1.50	0.85	0.40	2.54 BSC
Max:	6.68	9.50	10.9	7.82	3.55	0.70	3.60	1.55	0.90	0.50	

Physical Dimensions

MSOP-8



Dimensions In Millimeters(MSOP-8)									
Symbol:	A	A1	B	C	C1	D	Q	a	b
Min:	0.80	0.05	2.90	4.75	2.90	0.35	0°	0.25	0.65 BSC
Max:	0.90	0.20	3.10	5.05	3.10	0.75	8°	0.35	

Revision History

DATE	REVISION	PAGE
2015-10-3	New	1-8
2023-8-29	Update encapsulation type、Updated DIP-8 dimension	1、 2、 5
2024-11-5	Update Lead Temperature	2

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