

**Description**

The SN4558 is a monolithic Integrated Circuit designed for dual operational amplifier.

**SOP-8****Application**

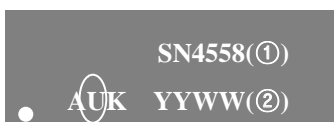
- Active filters
- Audio amplifiers
- VCOs
- Other electronic circuits

**Features**

- Power consumption as small as about 50mW (typ.)
- Built-in output short-circuit protecting circuit.
- Internal phase consumption type.
- No latch-up
- Wide same phase mode and differential voltage ranges
- High gain. low noise

**ORDERING INFORMATION**

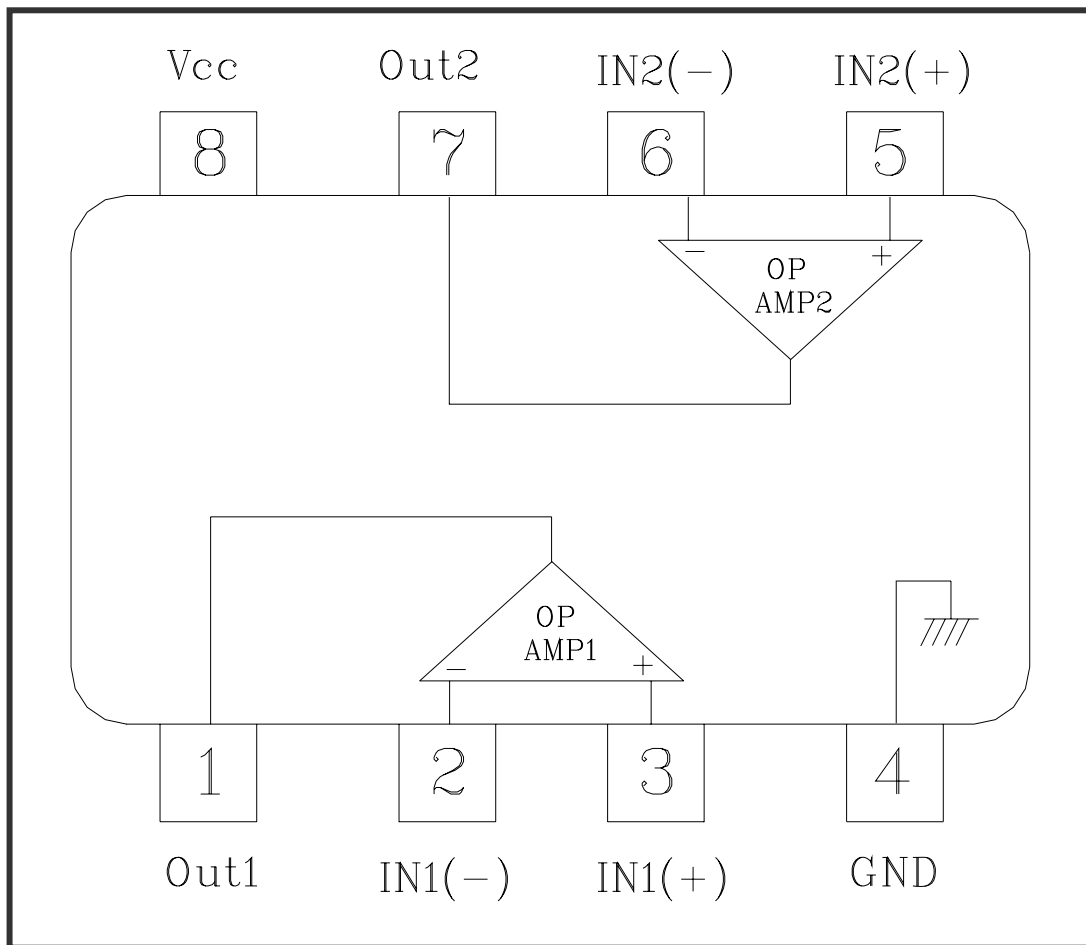
Product	Marking	Package
SN4558	SN4558	SOP-8

**▲ Marking Information**

① Device Code

② Year &amp; Week Code

◆ Internal Block Diagram



◆ Pin Description

No	Symbol	I/O	Description
1	Out1	O	OP-Amp1 Output
2	IN1(-)	I	OP-Amp1's Inverting Input
3	IN1(+)	I	OP-Amp1's Non-inverting Input
4	GND	GND	GND
5	IN2(+)	I	OP-Amp2's Non-inverting Input
6	IN2(-)	I	OP-Amp2's Inverting Input
7	Out2	O	OP-Amp2 Output
8	V <sub>CC</sub>	PWR	V <sub>CC</sub> for Dual Operational Amplifier

## Absolute maximum ratings

Characteristic	Symbol	Ratings	Unit
Supply voltage	$V_{CC}$	36 or $\pm 18$	V
Differential input voltage	$V_{IND}$	30	V
Input voltage	$V_{IN}$	$\pm 15$	V
Power Dissipation	$P_D$	300	mW
Operating temperature	$T_{opr}$	-45 ~ +85	$^{\circ}C$
Storage temperature	$T_{stg}$	-55 ~ +150	$^{\circ}C$

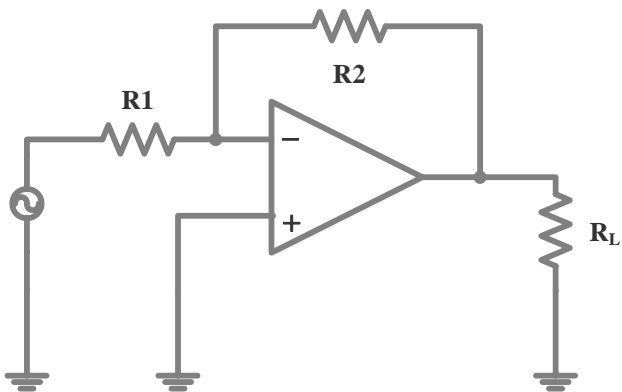
## Electrical Characteristics

(Unless otherwise specified.  $V_{CC} = +15V$ ,  $V_{EE} = -15V$  and  $T_a = 25^{\circ}C$ )

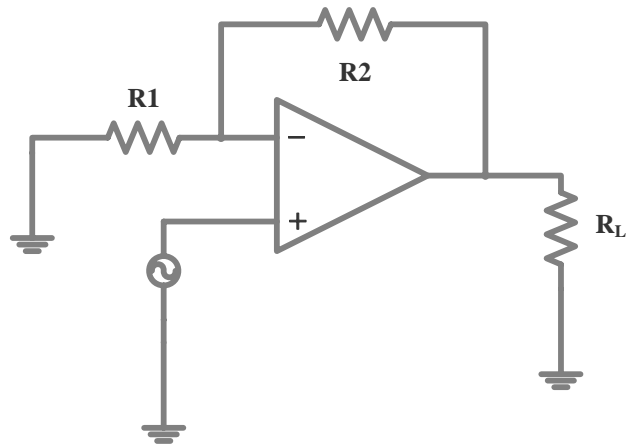
Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Input offset voltage	$V_{IOS}$	$R_g \leq 10 \text{ k}\Omega$	-	0.5	6	mV
Input offset current	$I_{IOS}$	-	-	5	200	nA
Input bias current	$I_{IB}$	-	-	60	500	nA
Input common mode Voltage Range	$V_{ICR}$	-	$\pm 12$	$\pm 14$	-	V
Maximum Output Voltage	$V_{OM}$	$R_L \geq 10 \text{ k}\Omega$	$\pm 12$	$\pm 14$	-	V
		$R_L \geq 2 \text{ k}\Omega$	$\pm 10$	$\pm 13$	-	V
Large signal Voltage Gain	$G_V$	$V_{out} = \pm 10V$ , $R_L \geq 2 \text{ k}\Omega$	86	100	-	dB
Common mode rejection ratio	CMRR	$R_g \leq 10 \text{ k}\Omega$	70	90	-	dB
Power supply rejection ratio	PSRR	$R_g \leq 10 \text{ k}\Omega$	-	30	150	$\mu V/V$
Slew Rate	SR	$G_V = 1$ , $R_L \geq 2 \text{ k}\Omega$	-	1.0	-	V/ $\mu s$
Supply Current	$I_{CC}$	-	-	4.0	6.0	mA
Equivalent input noise voltage	$V_{NI}$	RIAA, $R_S = 1 \text{ k}\Omega$ , $f = 30 \text{ Hz} \sim 30 \text{ kHz}$	-	2.5	-	$\mu V_{rms}$
Source Current	$I_{SOURCE}$	-	27	-	-	mA
Sink Current	$I_{SINK}$	-	27	-	-	mA

Typical Applications

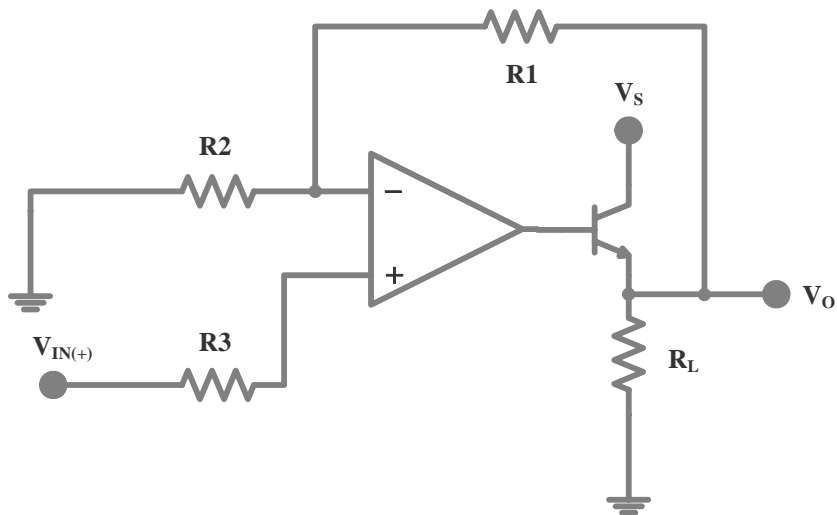
Inverting Amplifier



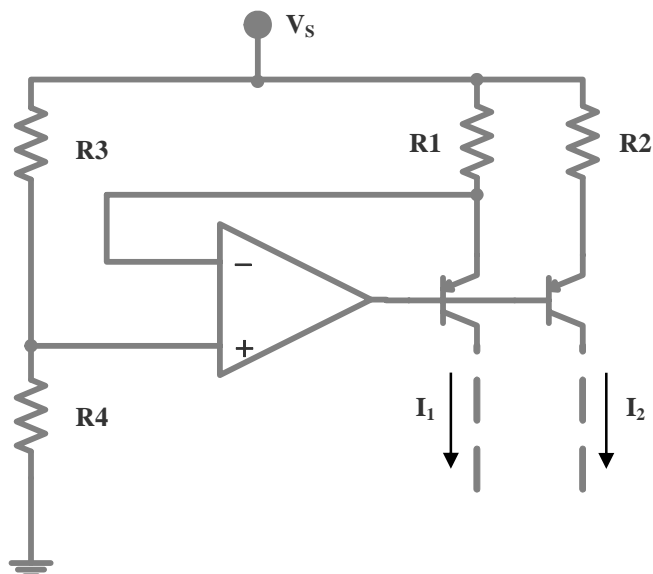
Non-inverting Amplifier



Power Amplifier



Fixed Current Sources



Electrical Characteristic Curves

Fig. 1  $G_V - f$

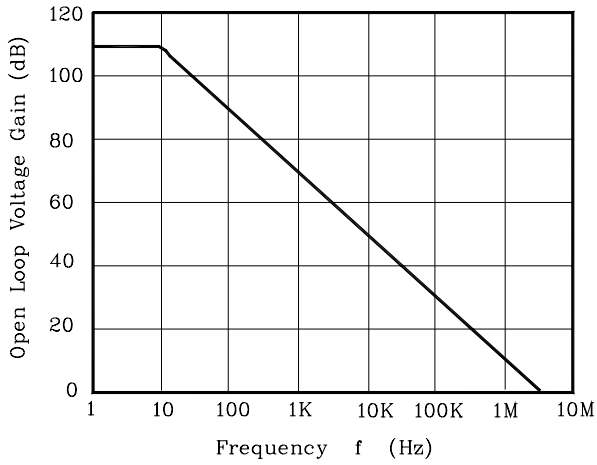


Fig. 2  $V_{OP-P} - f$

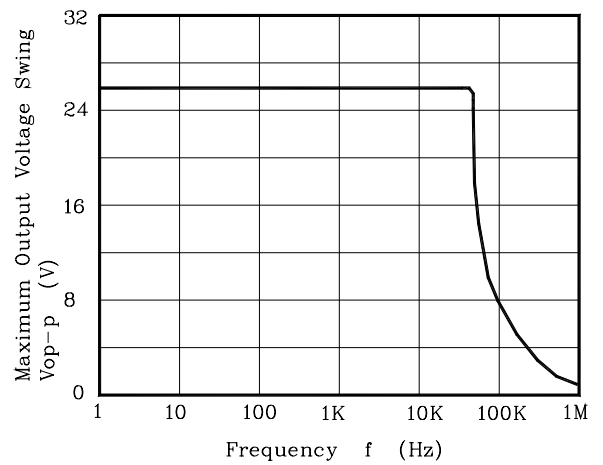


Fig. 3  $I_{IB} - T_a$

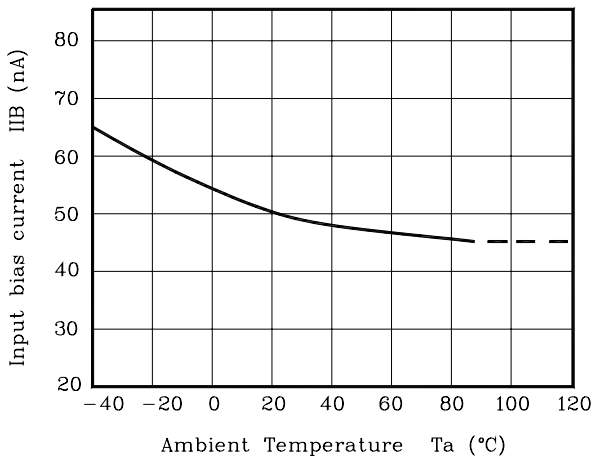


Fig. 4  $V_{OM} - V_{CC}, V_{EE}$

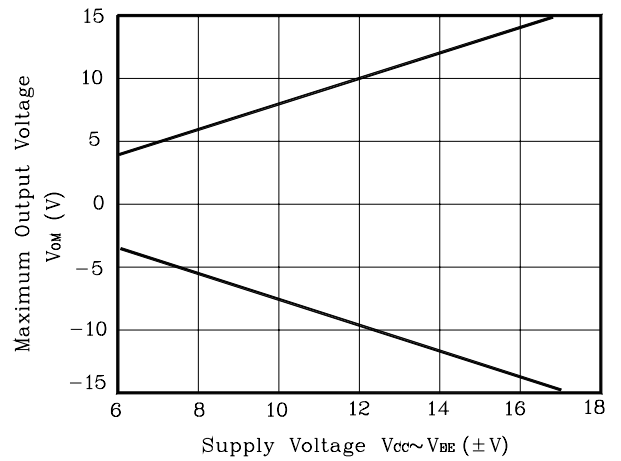


Fig. 5  $V_{OP-P} - R_L$

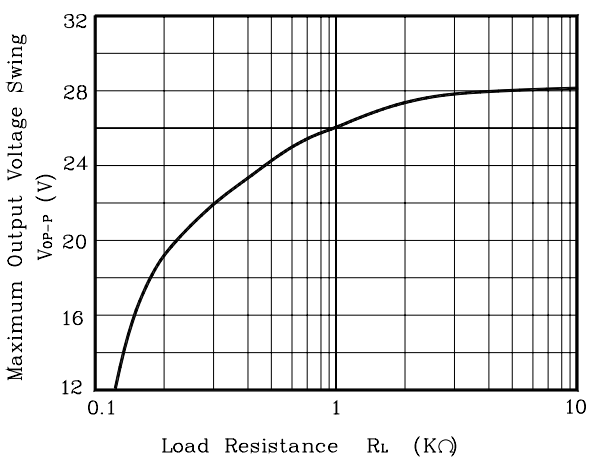
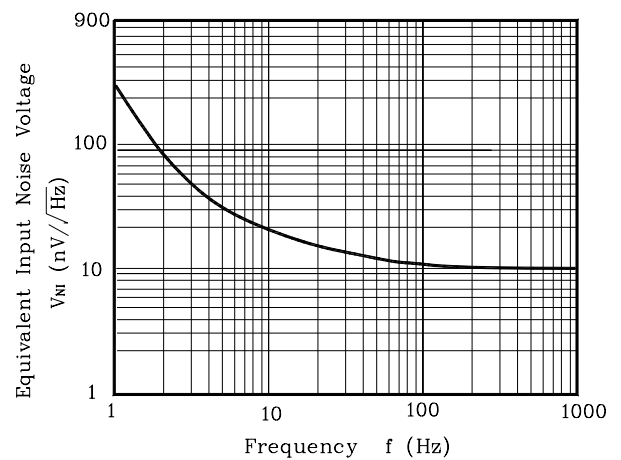
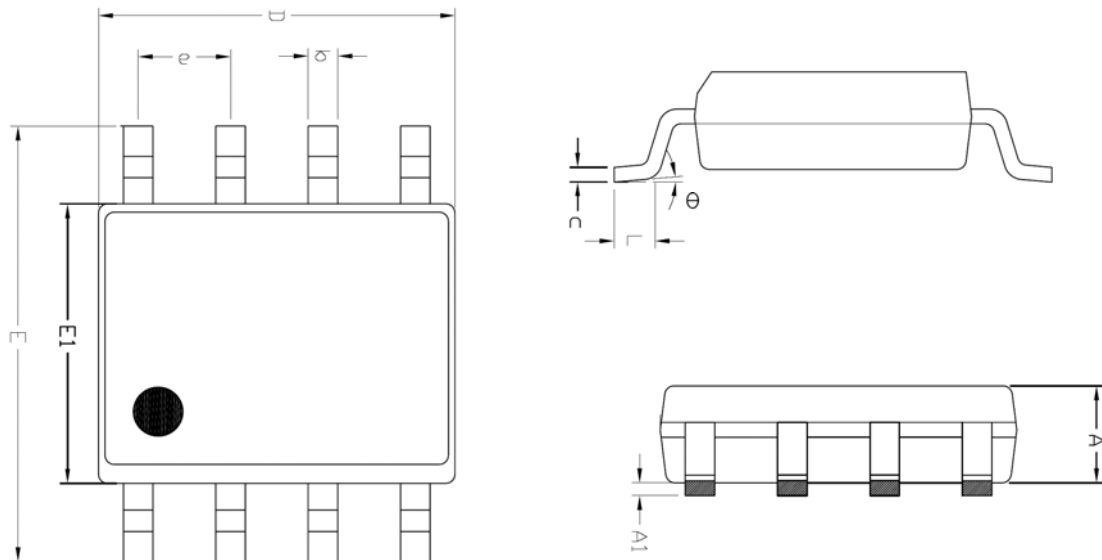


Fig. 6  $V_{NI} - f$

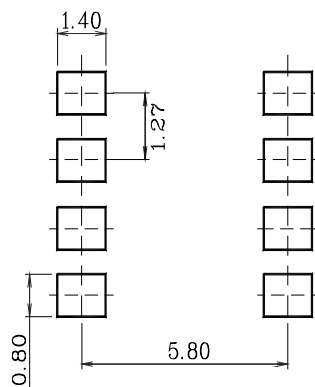


**Outline Dimension (Unit : mm)**



SYMBOL	MILLIMETER(mm)			NOTE
	MINIMUM	NOMINAL	MAXIMUM	
A	1.245	—	1.445	
A1	0.125	0.175	0.275	
b	0.320	0.420	0.520	
c	0.170	0.220	0.270	
D	4.802	4.902	5.002	
E	5.870	6.020	6.170	
E1	3.761	3.861	3.961	
e	1.270 BSC			
L	0.462	0.562	0.662	
θ	0 °	—	8 °	

**※ Recommend PCB solder land (Unit : mm)**



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