

DUAL OPERATIONAL AMPLIFIER

Overview:

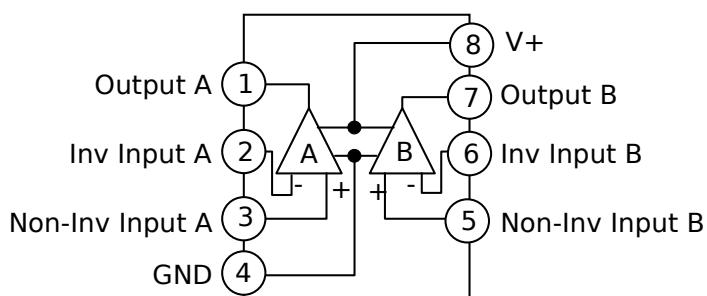
The LM258 consists of two independent, high-gain, internally frequency-compensated op-amps, specifically designed to operate from a single power supply over a wide range of voltages. The low-power supply drain is independent of the magnitude of the power supply voltage. Application areas include transducer amplifiers, DC gain blocks and all the conventional op-amp circuits.

It is available in DIP8 or SOP8 package.

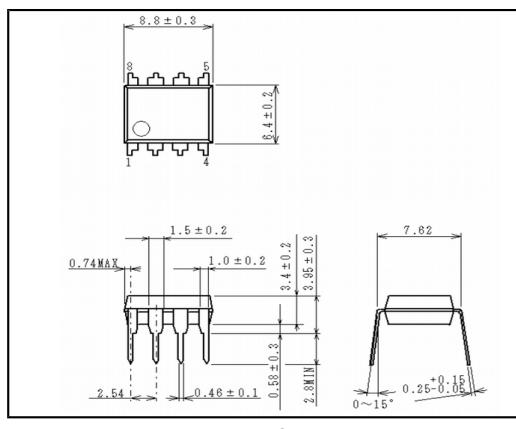
Features:

- Single or dual supply operation
- Two internally frequency-compensated amplifiers in one package
- Logic circuits matching
- Low power consumption
- Wide bandwidth

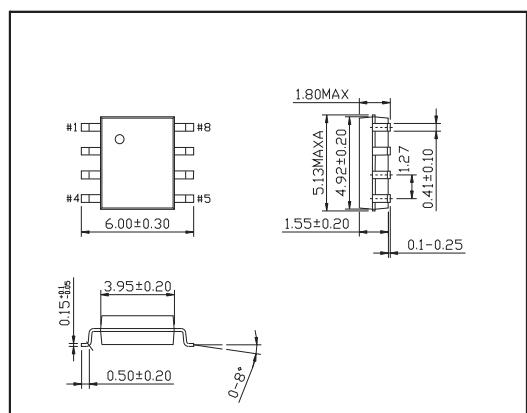
Pin configuration and functions:



Package outline drawing:



DIP-8



SOP-8

Limiting values (absolute maximum ratings, Tamb=25°C unless otherwise noted)

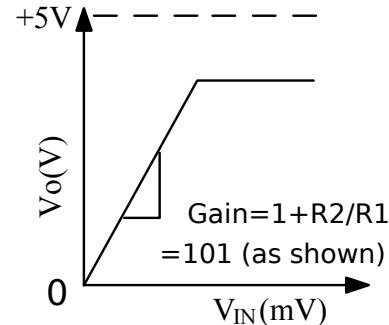
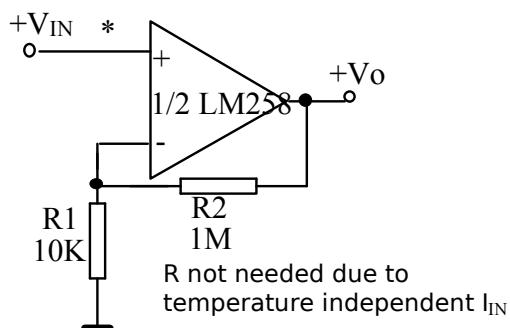
Parameter		Value	Unit
Supply voltage		32 or ± 16	V
Differential input voltage		32	V
Input voltage		-0.3~32	V
Power dissipation (Note 1)	DIP package	550	mW
	SOP package	530	
Duration of output short circuit (one amplifier) to ground (Note 2) ($V^+ \leq 15V$, $T_a=25^\circ C$)		continuous	
Input current ($V_{IN} < -0.3V$) (Note 3)		50	mA
Operating temperature		-25~85	°C
Storage temperature		-65~150	°C

Electrical characteristics (V⁺=5.0V unless otherwise noted)

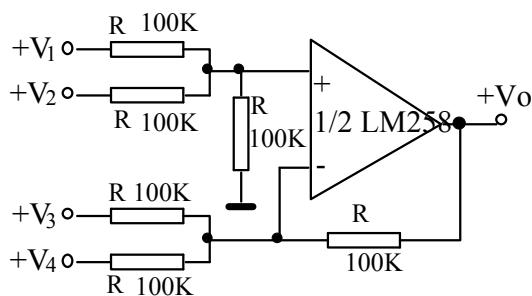
Parameter	Test conditions	Value			Unit
		Min.	Typ.	Max.	
Input offset voltage	Ta=25°C		2	5	mV
Input bias current	Ta=25°C, I _{IN(+)} or I _{IN(-)} , V _{CM} =0V		45	150	nA
Input offset current	Ta=25°C, I _{IN(+)} - I _{IN(-)} , V _{CM} =0V		3	30	nA
Input common mode voltage range	Ta=25°C, V ⁺ =30V	0		V ⁺ -1.5	V
Power supply current	Over full temperature range, R _L =∞ on all op amps	V ⁺ =30V		1	2
		V ⁺ =5V		0.5	1.2
Large signal voltage gain	V ⁺ =15V, Ta=25°C, R _L ≥2kΩ (for Vo=1~11V)	50	100		V/mV
Common mode rejection ratio	DC, Ta=25°C, V _{CM} =0~V ⁺ -1.5V	70	85		dB
Power supply rejection ratio	DC, Ta=25°C, V ⁺ =5~30V	65	100		dB
Channel separation	Ta=25°C, f=1~20kHz (all inputs)		-120		dB
Output source current	V _{IN(+)} =1V, V _{IN(-)} =0V, V ⁺ =15V, Vo=2V, Ta=25°C	20	40		mA
Output sink current	V _{IN(-)} =1V, V _{IN(+)} =0V, V ⁺ =15V, Vo=2V, Ta=25°C	10	20		mA
	V _{IN(-)} =1V, V _{IN(+)} =0V, V ⁺ =15V, Vo=200mV, Ta=25°C	12	50		μA
Short circuit current to ground	V ⁺ =15V, Ta=25°C		40	60	mA
Input offset voltage				7	mV
Input offset voltage drift	R _S =0Ω		7		μV/°C
Input offset current	I _{IN(+)} - I _{IN(-)}			100	nA
Input offset current drift	R _S =0Ω		10		pA/°C
Input bias current	I _{IN(+)} or I _{IN(-)}		40	300	nA
Input common mode voltage range	V ⁺ =30V	0		V ⁺ -2	V
Large signal voltage gain	V ⁺ =15V, (Vo=1~11V, R _L ≥2kΩ)	25			V/mV
Output voltage swing	V _{OH}	V ⁺ =30V	R _L =2kΩ	26	
			R _L =10kΩ	27	28
	V _{OL}	V ⁺ =5V, R _L =10kΩ		5	20
Output current	Source current	V _{IN(+)} =1V, V _{IN(-)} =0V, V ⁺ =15V, Vo=2V	10	20	mA
	Sink current	V _{IN(-)} =1V, V _{IN(+)} =0V, V ⁺ =15V, Vo=2V	5	8	mA

Typical applications

Non-inverting DC gain (0V input = 0V output)

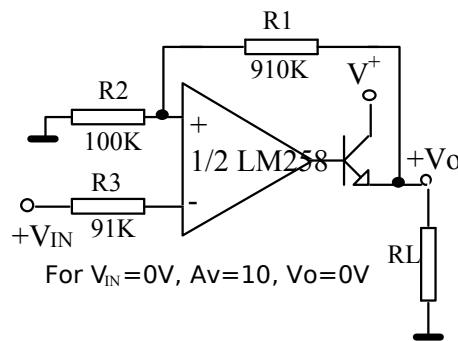


DC summing amplifier
 $(V_{IN,S} \geq 0V \text{ and } V_o \geq 0V)$

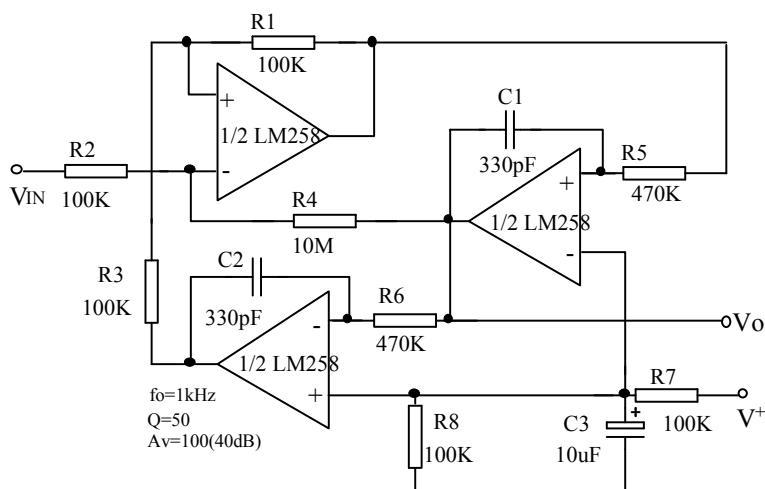


Where: to keep $V_o > 0$ $V_o = V_1 + V_2 + V_3 + V_4$
 $(V_1 + V_2) \geq (V_3 + V_4)$

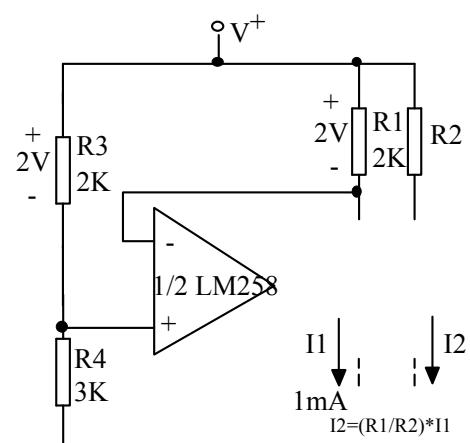
Power amplifier



RC active bandpass filter



Fixed current sources



Typical characteristics

