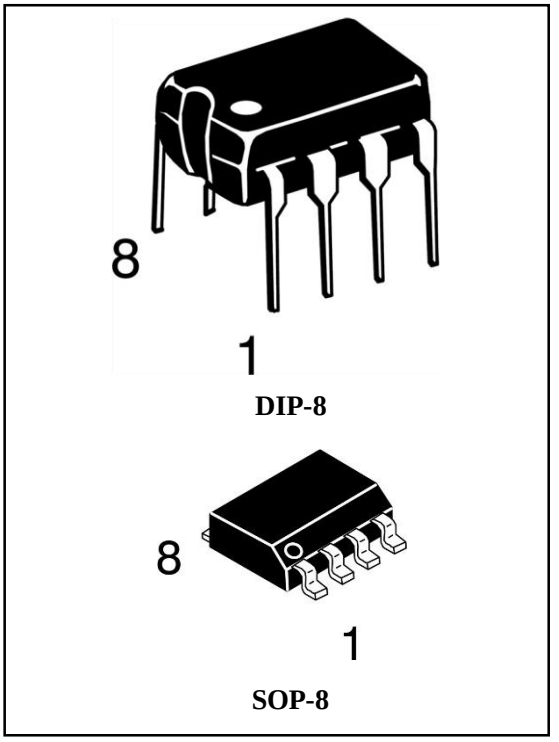
Low-power Consumption Dual Operation Amplifier Function description

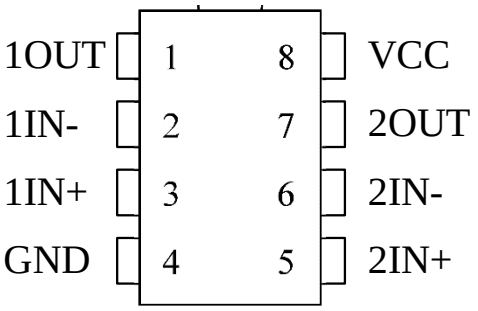
Overview

LM258A is composed by two independent high-gain operational amplifiers. It can work with either a single power supply or two power suppliers, and the power consumption current of the power supply is irrelevant to the value of the supply voltage. The applied ranges include audio frequency amplifiers, industrial control, DC gain parts and all the conventional operational amplifier circuits.

Package: SOP8, DIP8



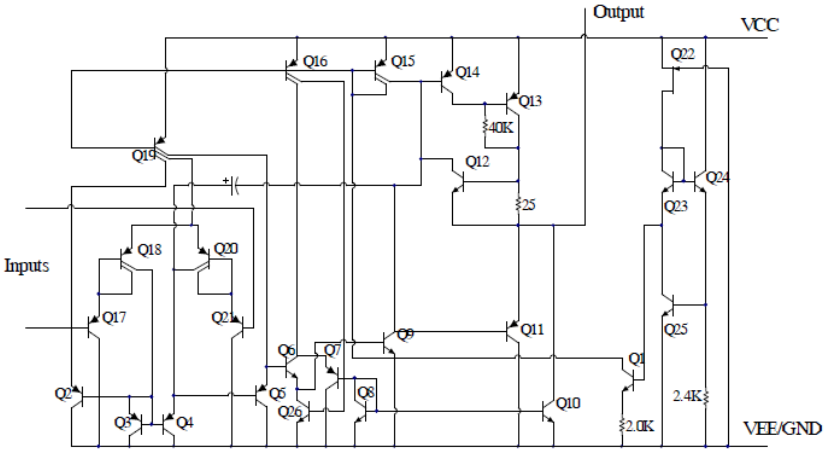
Pin Configuration Diagram



Main Features:

- ✧ It can work with either a single power supply or two power suppliers.
- ✧ It includes two operational amplifiers.
- ✧ It can be matched with logic circuits.
- ✧ Low power consumption
- ✧ It has wide frequency ranges.

Functional block diagram (each route of operational amplifier)



Limiting value (absolute maximum rated value, Tamb=25℃ unless otherwise specified

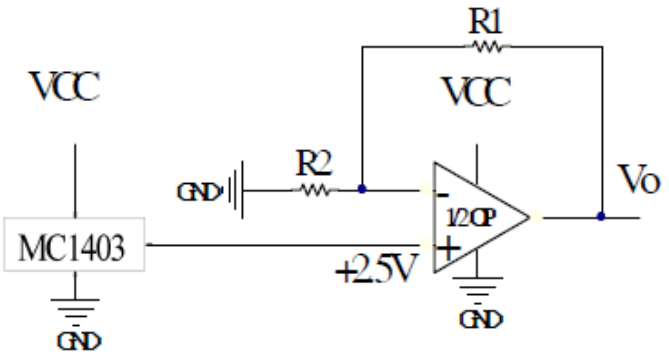
Parameters name		Values	Units
Supply voltage		32 or ±16	V
Low Input Voltage		32	V
Input Voltage		-0.3 ～ VCC	V
Power consumption (Notes 1)	DIP package	830	mW
	SOP package	530	
Short circuit current from the output end to the ground (each route of amplifier) (V≤15V, Ta=25℃)		Continuation	
Input current（ VIN < −0.3V)		50	mA
Maximum working junction temperature		150	℃
Operating ambient temperature		-25～ 85	℃
Storage Temperature		-65 ～ 150	℃

Note 1: Cannot exceed the maximum junction temperature.

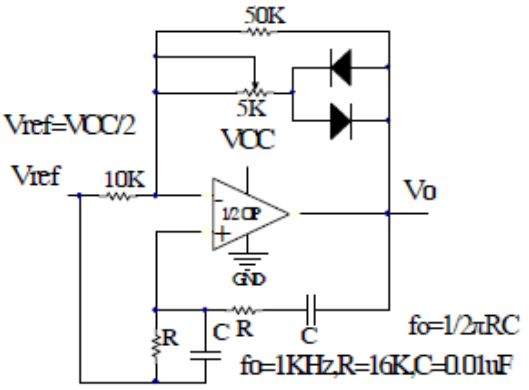
Electrical characteristics (Vcc=5.0V unless otherwise specified)

Parameter		Testing conditions		Specified values			Units
				MIN	Typical	MAX	
Input offset voltage		Ta=25℃			±2	±5	mV
Bias current		Ta=25℃，IIN(+)or IIN(-)，VCM=0V			±45	±150	nA
Offset current		Ta=25℃，IIN(+) – IIN(-)，VCM=0V			±3	±50	nA
Common-mode input voltage ranges		Ta=25℃，V^+=30V		0		Vcc -1.5	V
Supply current		RL=∞, in all the operational amplifiers	Vcc =30V		1	2	mA
			Vcc =5V		0.5	1.2	mA
Large signal voltage gain		Vcc =15V，Ta=25℃，RL≥2kΩ（for Vo=1~11V）		25	100		V/mV
Common mode rejection ratio		DC，Ta=25℃，VCM=0~Vcc-1.5V		70	90		dB
Power supply rejection ratio		DC，Ta=25℃，Vcc =5~30V		65	100		dB
Output sourcing current		VIN(+)=1V,VIN(-)=0V,Vcc=15V,Vo=2V,Ta=25℃		20	40		mA
Output source sinking current		VIN(-)=1V,VIN(+)=0V,Vcc=15V,Vo=2V,Ta=25℃		10	15		mA
		VIN(-)=1V,VIN(+)=0V,Vcc=15V,Vo=200mV, Ta=25℃		12	50		μA
Short circuit current to the ground		Vcc=15V， Ta=25℃			40	60	mA
Output voltage swing	VOH	Vcc=30V	RL=2kΩ	26			V
		Vcc=30V	RL=10kΩ	27	28		V
	VOL	Vcc=5V，RL=10kΩ			5	20	mV

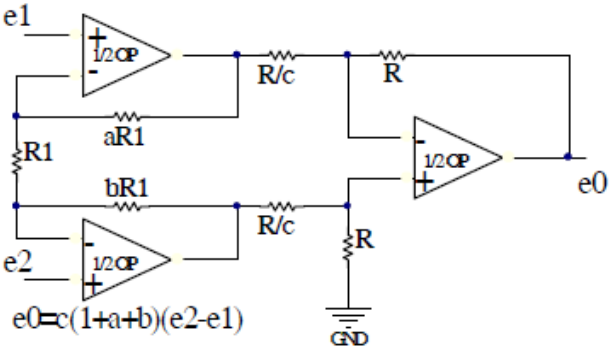
Typical applications



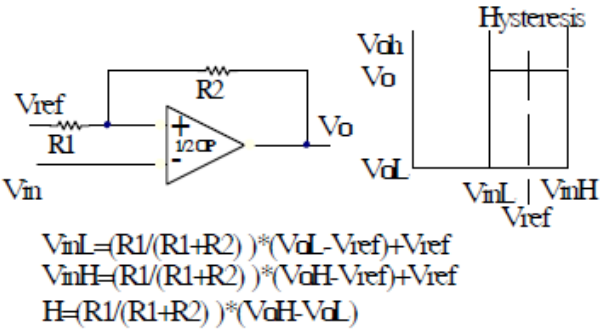
voltage reference，Vo=2.5V（1+R1/R2）



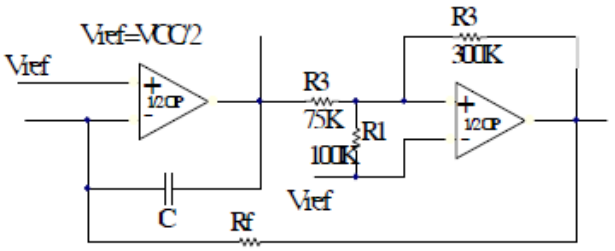
RC Bridge Sine Wave Oscillator



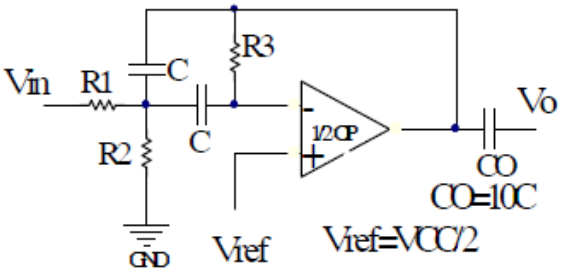
High-resistance differential amplifier



Hysteresis comparator

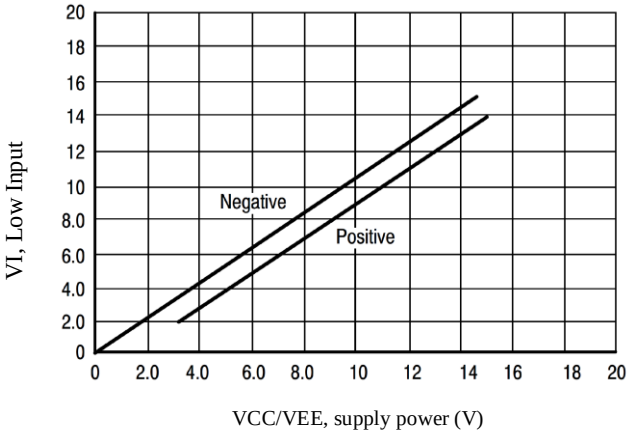


Functional signal generator fo = center frequency

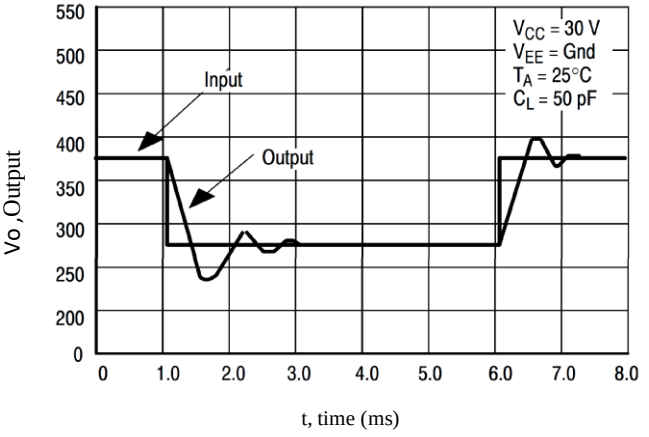


multi-feedback band-pass filter

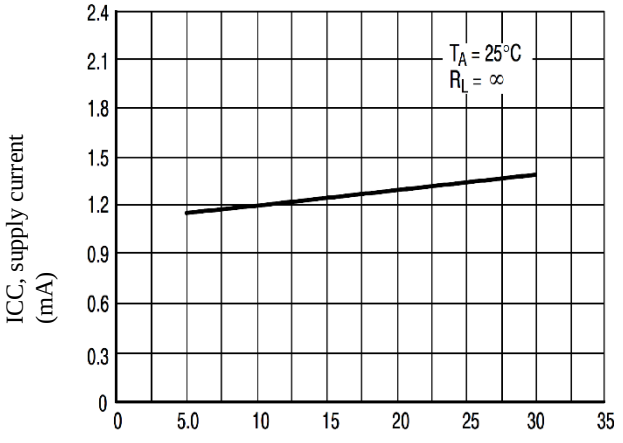
Typical characteristic curve



Input voltage ranges

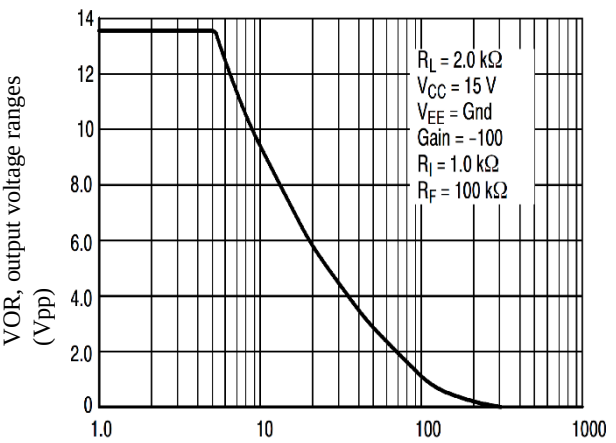


small signal voltage follower pulse response (the same direction)



VCC, supply voltage (v) f

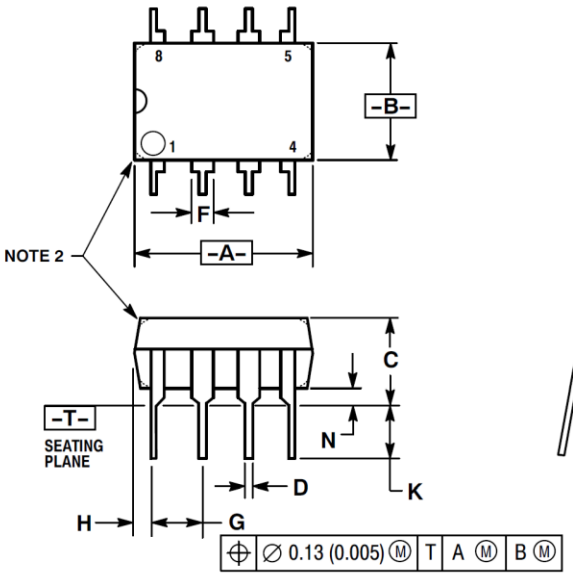
Supply current (quiescent power consumption)



frequency (KHz)

big signal frequency response

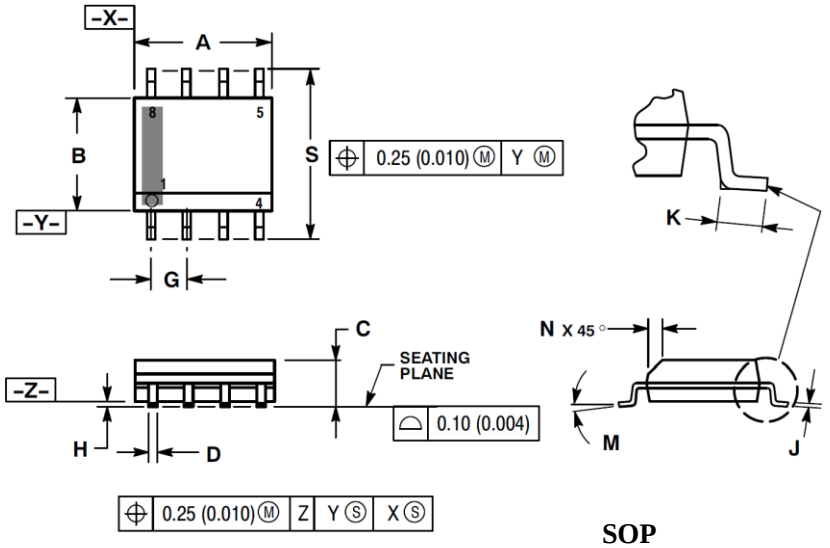
Package information：



NOTES:
1. DIMENSION L TO CENTER OF LEAD WHEN FORMED PARALLEL.
2. PACKAGE CONTOUR OPTIONAL (ROUND OR SQUARE CORNERS).
3. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.

	MILLIMETERS		INCHES	
DIM	MIN	MAX	MIN	MAX
A	9.40	10.16	0.370	0.400
B	6.10	6.60	0.240	0.260
C	3.94	4.45	0.155	0.175
D	0.38	0.51	0.015	0.020
F	1.02	1.78	0.040	0.070
G	2.54 BSC		0.100 BSC	
H	0.76	1.27	0.030	0.050
J	0.20	0.30	0.008	0.012
K	2.92	3.43	0.115	0.135
L	7.62 BSC		0.300 BSC	
M	---	10°	---	10°
N	0.76	1.01	0.030	0.040

DIP8



NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETER.
3. DIMENSION A AND B DO NOT INCLUDE MOLD PROTRUSION.
4. MAXIMUM MOLD PROTRUSION 0.15 (0.006) PER SIDE.
5. DIMENSION D DOES NOT INCLUDE DAMBAR PROTRUSION. ALLOWABLE DAMBAR PROTRUSION SHALL BE 0.127 (0.005) TOTAL IN EXCESS OF THE D DIMENSION AT MAXIMUM MATERIAL CONDITION.
6. 751-01 THRU 751-06 ARE OBSOLETE. NEW STANDARD IS 751-07.

	MILLIMETERS		INCHES	
DIM	MIN	MAX	MIN	MAX
A	4.80	5.00	0.189	0.197
B	3.80	4.00	0.150	0.157
C	1.35	1.75	0.053	0.069
D	0.33	0.51	0.013	0.020
G	1.27 BSC		0.050 BSC	
H	0.10	0.25	0.004	0.010
J	0.19	0.25	0.007	0.010
K	0.40	1.27	0.016	0.050
M	0°	8°	0°	8°
N	0.25	0.50	0.010	0.020
S	5.80	6.20	0.228	0.244

SOP 8