Low power dual operational amplifier

Description：

LM358 is an operational amplifier with two independent high Open-loop gain, internal compensation and high common mode range. It can operate with a single power supply or dual power supplies, and the power consumption current of the power supply is independent of the power supply voltage. Adopting DIP8 or SOP8 packaging, the application range includes audio amplifiers, industrial controls, DC gain components, and all conventional operational amplifier circuits.

Features：

-Can operate with single or dual power sources

-High input single power supply voltage range: 3V~36V

-High input dual power supply voltage range: ± 18V

-Low power consumption and wide frequency range

Application：

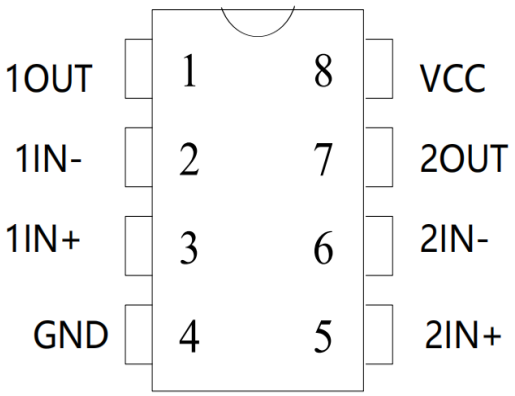
-DC gain

-Audio amplifier

-Sensor signal amplifier

-Other application areas

Pin Assignment：



Pin NO.	Pin Definition	Function Description
1	1OUT1	output terminal
2	1IN-	Input negative terminal
3	1IN+	Input positive terminal
4	VEE	Negative power terminal
5	2IN+	Input positive terminal
6	2IN-	Input negative terminal
7	2OUT	Output terminal
8	VCC	Positive power terminal

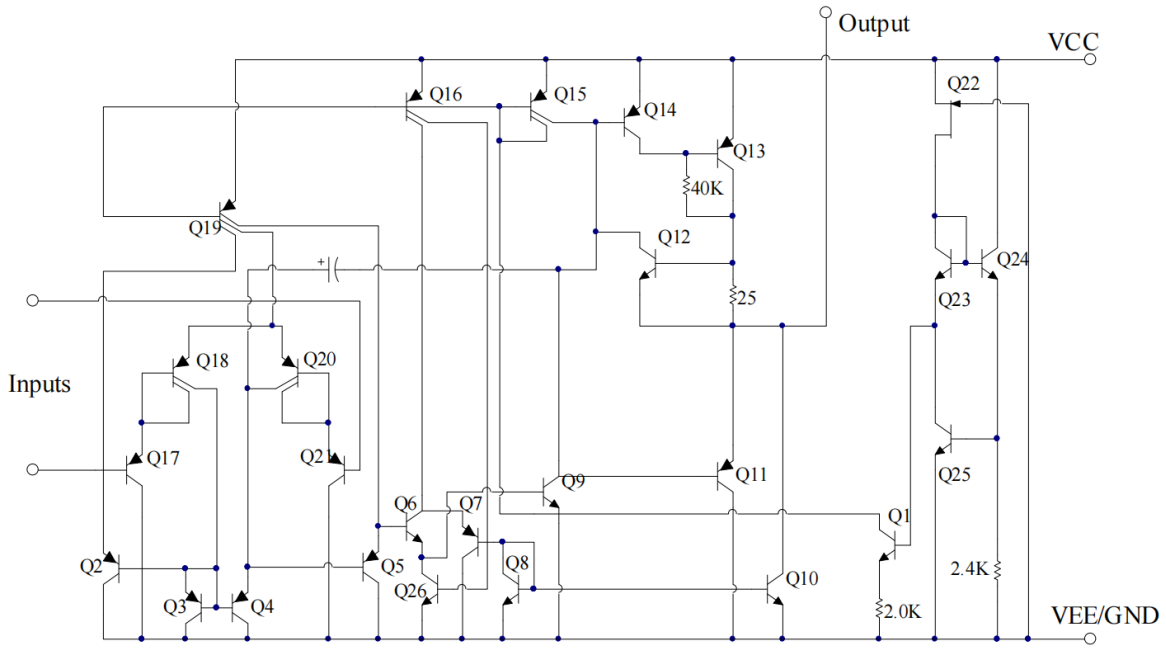
Absolute Maximum Ratings

Parameter	Symbol	limit value	Unit
Single power supply voltage	**Vcc**	40	V
Dual power supply voltage	**Vs**	±20	V
Differential input voltage (1)	**VIDR**	±32	V
INPUT VOLTAGE	**VI**	0.3～40V	V
Output short-circuit time	**tsc**	Unlimited	
Consumption	**PD**	DIP:830 / SOP:5300	mW
Operation temperature	**TA**	0-70	℃
Storage temperature	**Ts**	-60 to 150	℃
Welding temperature	**Tw**	260,10s	℃

Note: (1) The maximum voltage difference between input terminal NI+and IN -.

(2) Limit parameters refer to the limit values that cannot be exceeded under any conditions. If this limit value is exceeded, it may cause physical damage such as product deterioration; At the same time, it cannot be guaranteed that the chip can operate normally when approaching the limit parameters.

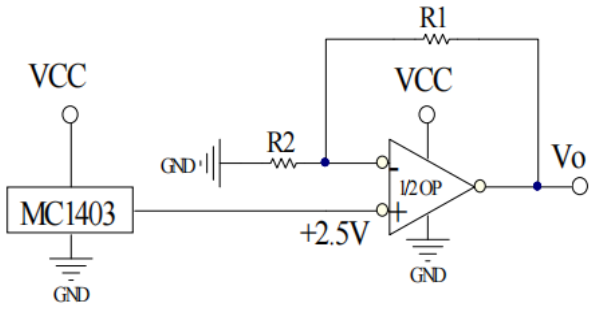
Block Diagram



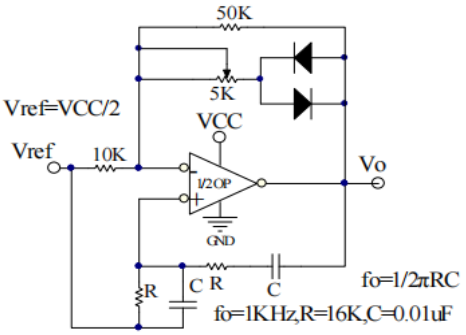
Electrical characteristics （Vcc=5.0V，If there are no other regulations,）

Parameter		Test conditions		Specification value			Unit
				MIN	TYP	MAX	
Input offset voltage		Ta=25℃			±2	±5	mV
Input Bias Current		Ta=25℃，IIN(+) or IIN(-)，VCM=0V			±45	±250	nA
Input offset curren		Ta=25℃，IIN(+)-IIN(-)，VCM=0V			±3	±50	nA
Input common mode voltage range		Ta=25℃，V+=30V		0		Vcc -1.5	
Power supply current		RL=∞ on all operational amplifiers	Vcc=30V		1	2	mA
			Vcc=5V		0.5	1.2	mA
Large Signal Voltage Gain		Vcc=15V, Ta=25 ℃, RL ≥ 2k Ω (for Vo=1-11V)		25	100		V/mV
Common Mode Rejection Ratio		DC，Ta=25℃，VCM=0~Vcc-1.5V		65	90		dB
Power Supply Rejection Ratio		DC，Ta=25℃，Vcc=5~30V		65	100		dB
Output source current		VIN(+)=1V,VIN(-)=0V,Vcc=15V,Vo=2V,Ta=25℃		20	40		mA
Output suction 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 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

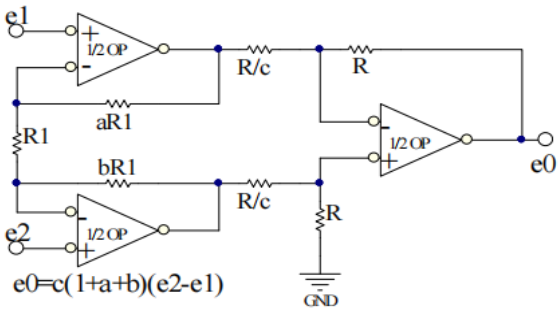
Typical Applications



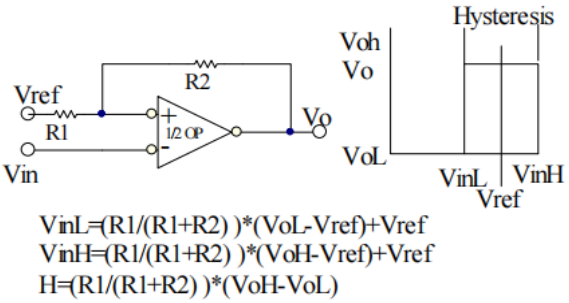
voltage reference，Vo=2.5V（1+R1/R2）



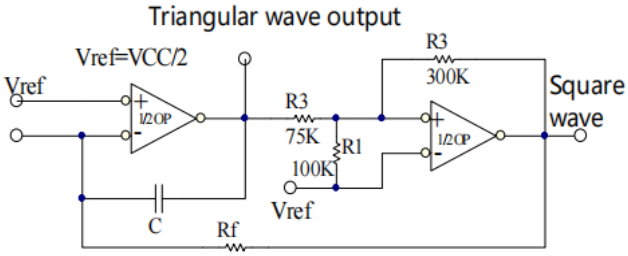
wien bridge oscillator



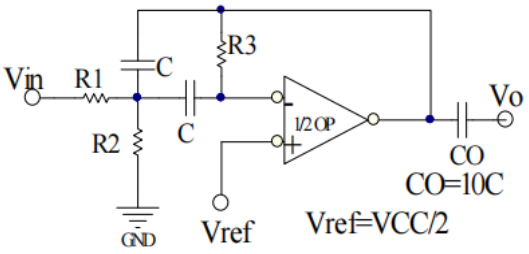
High impedance differential amplifier



hysteresis comparator

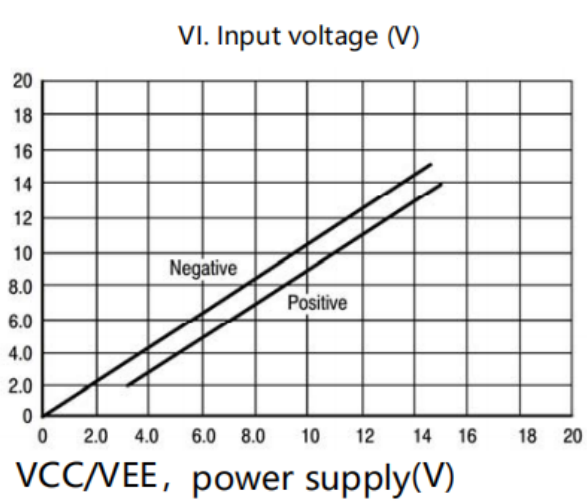


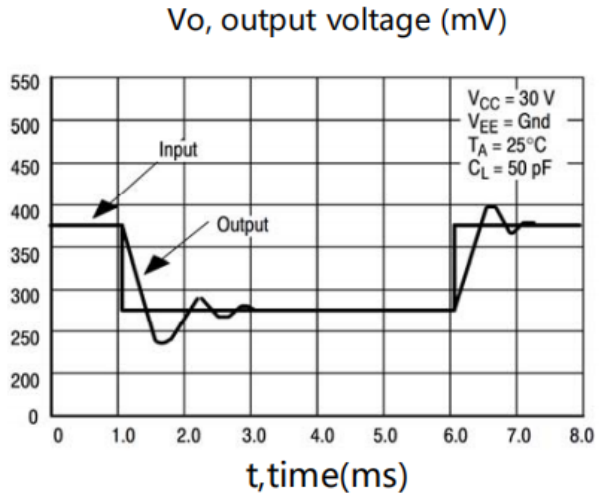
function signal generator

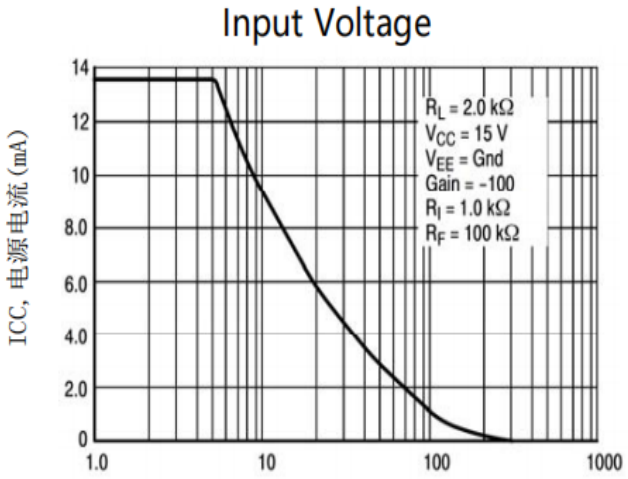


Fo=center frequency multi feedback bandpass filter

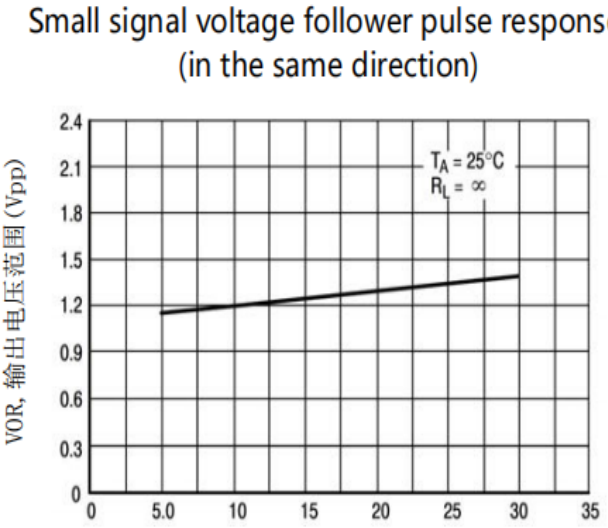
Typical characteristic curve







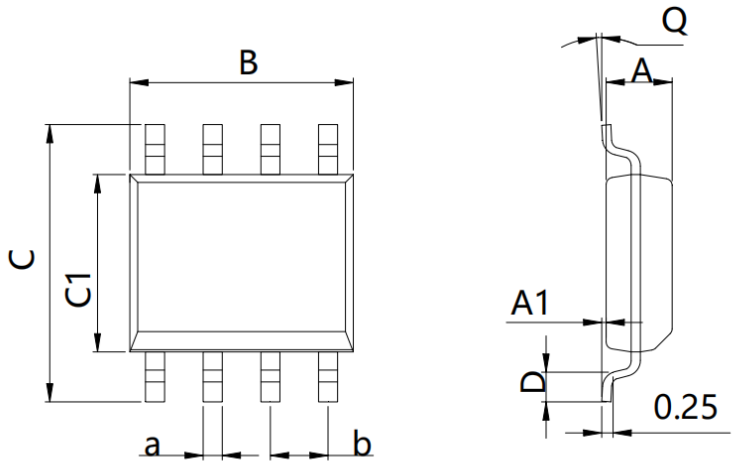
Power supply current (static power consumption)



Large signal frequency response

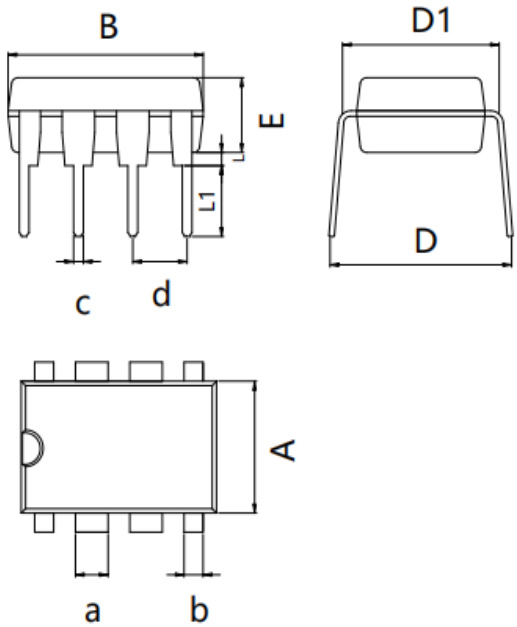
PACKAGE MECHANICAL DATA

SOP8



Dimensions In Millimeters(SOP8)									
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	

DIP8



Dimensions In Millimeters(DIP8)											
Symbol:	A	B	D	D1	E	L	L1	a	b	c	d
Min:	6.10	9.00	8.40	7.42	3.10	0.50	3.00	1.50	0.85	0.40	2.54 BSC
Max:	6.68	9.50	9.00	7.82	3.55	0.70	3.60	1.55	0.90	0.50	