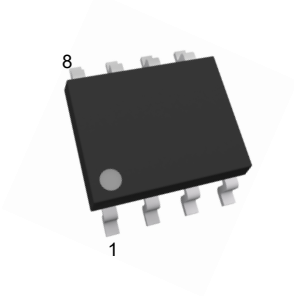
Low Power Double Operational Amplifier

Description

The LM358 consists of two independent and high-gain operational amplifier . It can work under single power supply or dual power supply, and the magnitude of current is not affected by the magnitude of the power supply voltage. Its applications include audio amplifiers, industrial controls, DC gain and all conventional operational amplifier circuit.

The LM358 available in SOP-8 package.

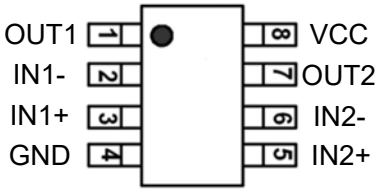
SOP-8



Feature

- Can work under single supply or dual supply
- Including two operational amplifiers
- Logical circuit matching
- Low power dissipation
- Wide frequency range

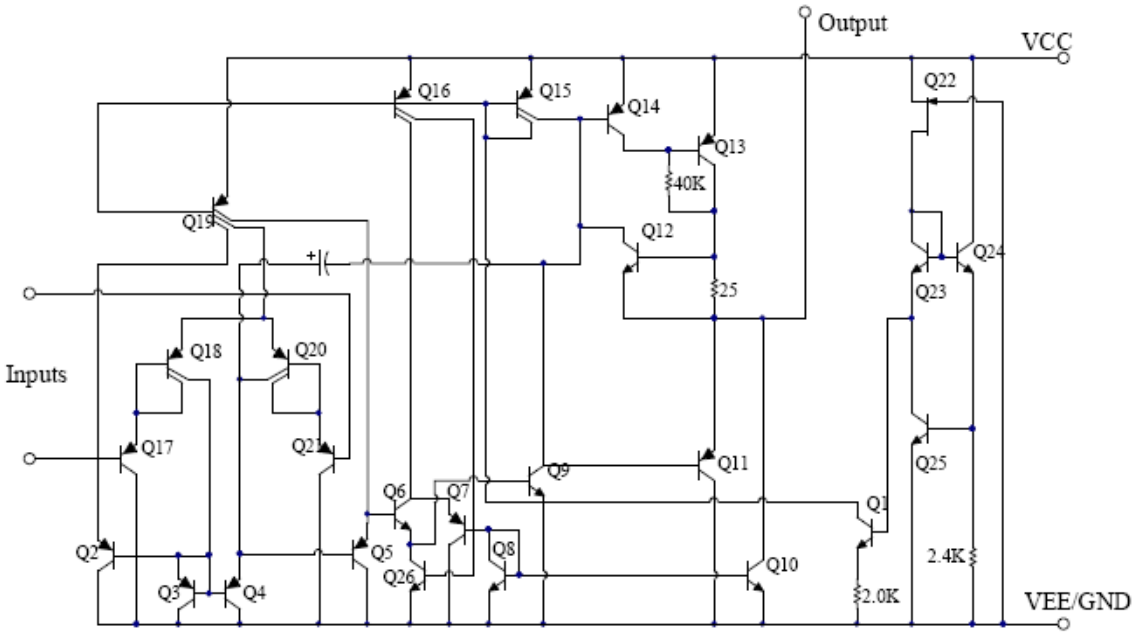
Pin Assignment



Pin Function

Pin No.	Symbol	Function	Pin No.	Symbol	Function
1	OUT1	The output of the first operational amplifier	5	IN2+	The non-inverting intput of the second operational amplifier
2	IN1-	The inverting intput of the first operational amplifier	6	IN2-	The inverting intput of the second operational amplifier
3	IN1+	The non-inverting intput of the first operational amplifier	7	OUT2	The output of the second operational amplifier
4	GND	ground	8	VCC	the power supply

Block Diagram



Absolute Maximum Ratings (at T_A = 25°C)

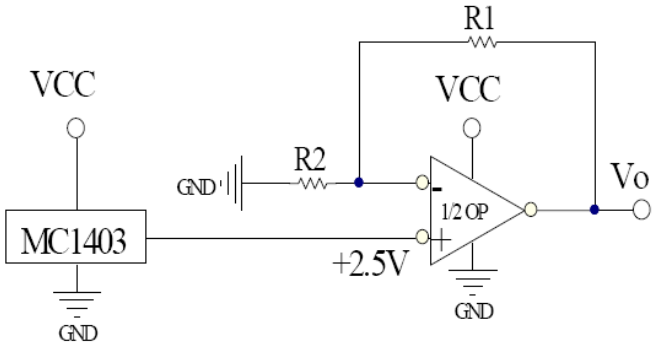
Parameter		Symbol	Value	Unit
Supply Voltage	Dual	V_{CC}	±16	V
	Single		32	
Differential Input Voltage		$V_{I(DIFF)}$	32	V
Common-mode Input Voltage		V_{ICR}	-0.3~32	V
Short-circuit Output Current to Ground (Each channel amplifier,V≤15V)		I_{OG}	Continuous	--
Input Current(V_{IN}≤0.3V)		I_{IN}	50	mA
Junction Temperature		T_J	150	°C
Maximum Power Dissipation		P_D	530	mW
Operating Temperature Range		T_{OPR}	0~70	°C
Storage Temperature Range		T_{STG}	-65~150	°C

Electrical Characteristics

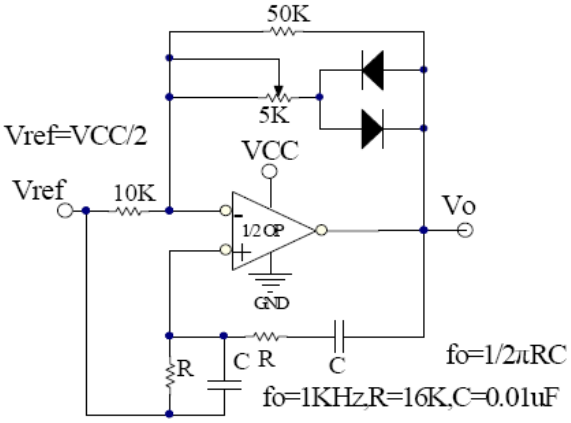
T_a = 25°C, V_{CC}=5V, unless otherwise noted

Parameter	Symbol	Conditions	Value			Unit
			Min.	Typ.	Max.	
Input offset voltage	V_{OS}	Ta=25°C	--	±2	±5	mV
Input offset current	I_{OS}	Ta=25°C, $I_{IN(-)}$or$I_{IN(+)}$,V_{CM}=0V	--	±3	±50	nA
Low input bias current	I_B	Ta=25°C, $I_{IN(-)}$-$I_{IN(+)}$,V_{CM}=0V	--	±45	±250	nA
Common-mode input voltage rang	V_{CM}	Ta=25°C, V^+=30V	0	--	V_{CC}-1.5	V
Large-signal differential voltage amplification	A_{VD}	R_L≥2KΩ, V_{CC}=15V,(V_O=1~11V)	25	100	--	V/mV
Common mode rejection	CMRR	DC,V_{CM}=0~V_{CC}-1.5V	65	90	--	dB
Power supply rejection	PSRR	DC,V_{CC}=5~30V	65	100	--	dB
Output sink current	I_{SINK}	$V_{IN(-)}$ =1V, $V_{IN(+)}$= 0V, V_{CC}=15V,V_O=2V	10	15	--	mA
		$V_{IN(-)}$ =1V, $V_{IN(+)}$= 0V, V_{CC}=15V,V_O=0.2V	12	20	--	μA
Output Current Sourcing	I_{Source}	$V_{IN(+)}$ =1V, $V_{IN(-)}$= 0V, V_{CC}=15V,V_O=2V	20	40	--	mA
Short-circuit current to ground	I_G	V_{CC}=15V	--	40	60	mA
Supply current	I_{CC}	R_L=∞, V_{CC}=5V	--	0.5	1.2	mA
		R_L=∞, V_{CC}=30V	--	1	2	
Output voltage swing	V_{OH}	V_{CC}=30V,R_L=2KΩ	26	--	--	V
		V_{CC}=30V,R_L=10KΩ	27	28	--	V
	V_{OL}	V_{CC}=5V,R_L=10KΩ	--	5	20	mV

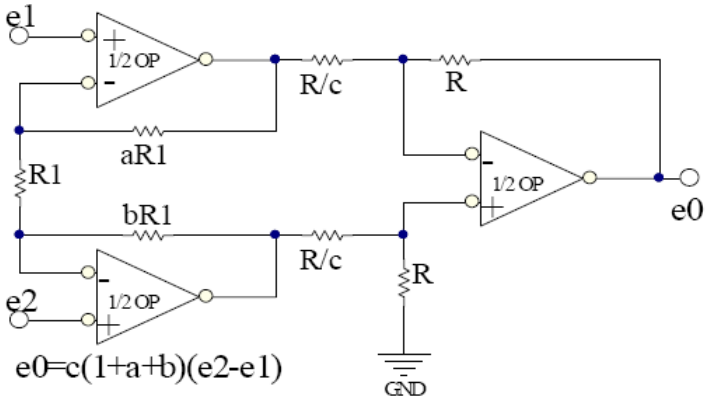
Typical Application Circuit



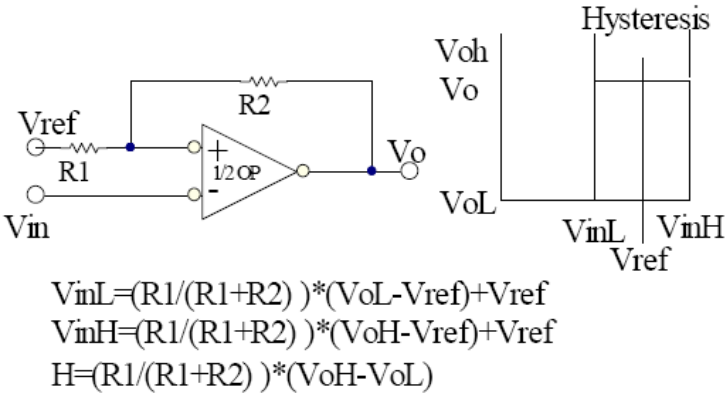
Voltage reference，V_O=2.5V(1+R1/R2)



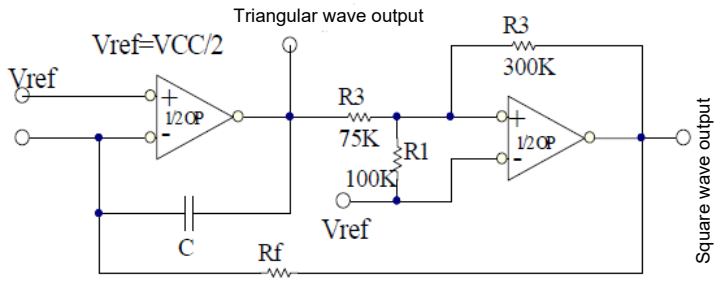
Wien bridge oscillator circuit



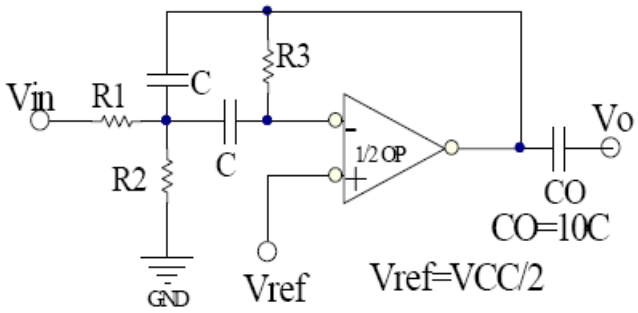
High impedance differential amplifier



Hysteresis comparator

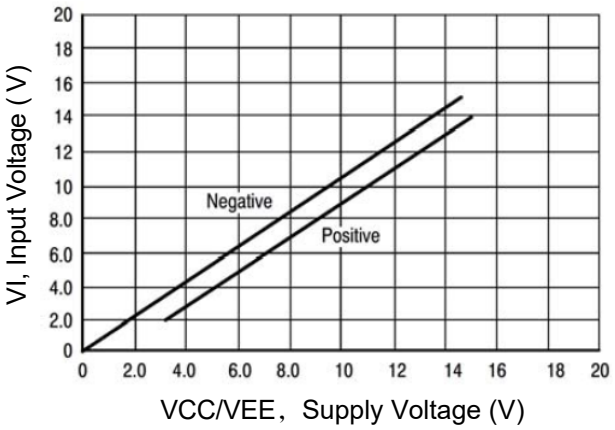


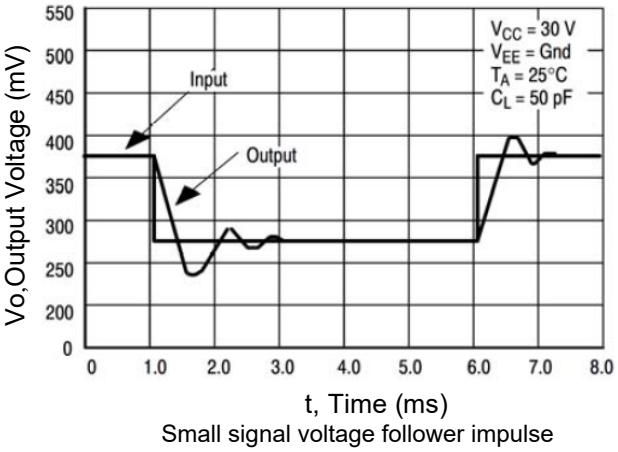
Function Generator



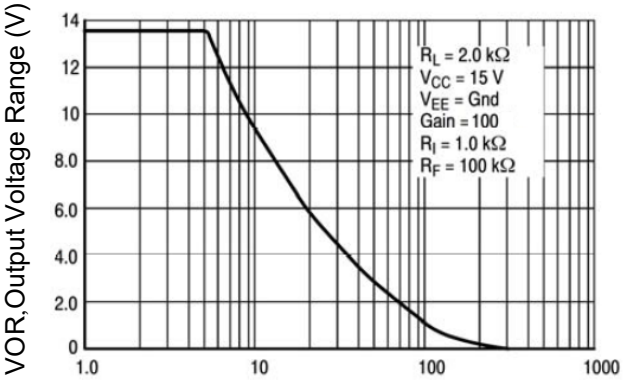
fo=center frequency
Multiple-feedback bandpass filter

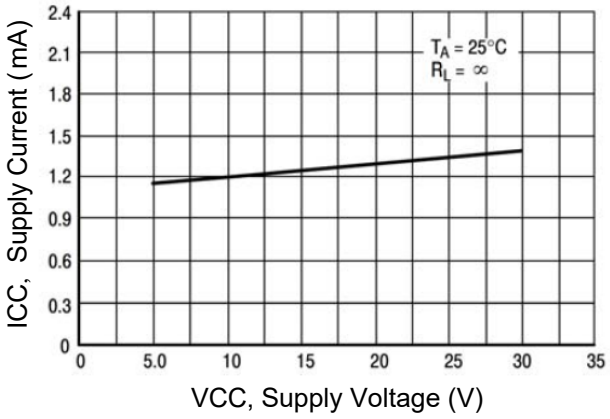
Typical characteristic curve





Small signal voltage follower impulse response (same direction)

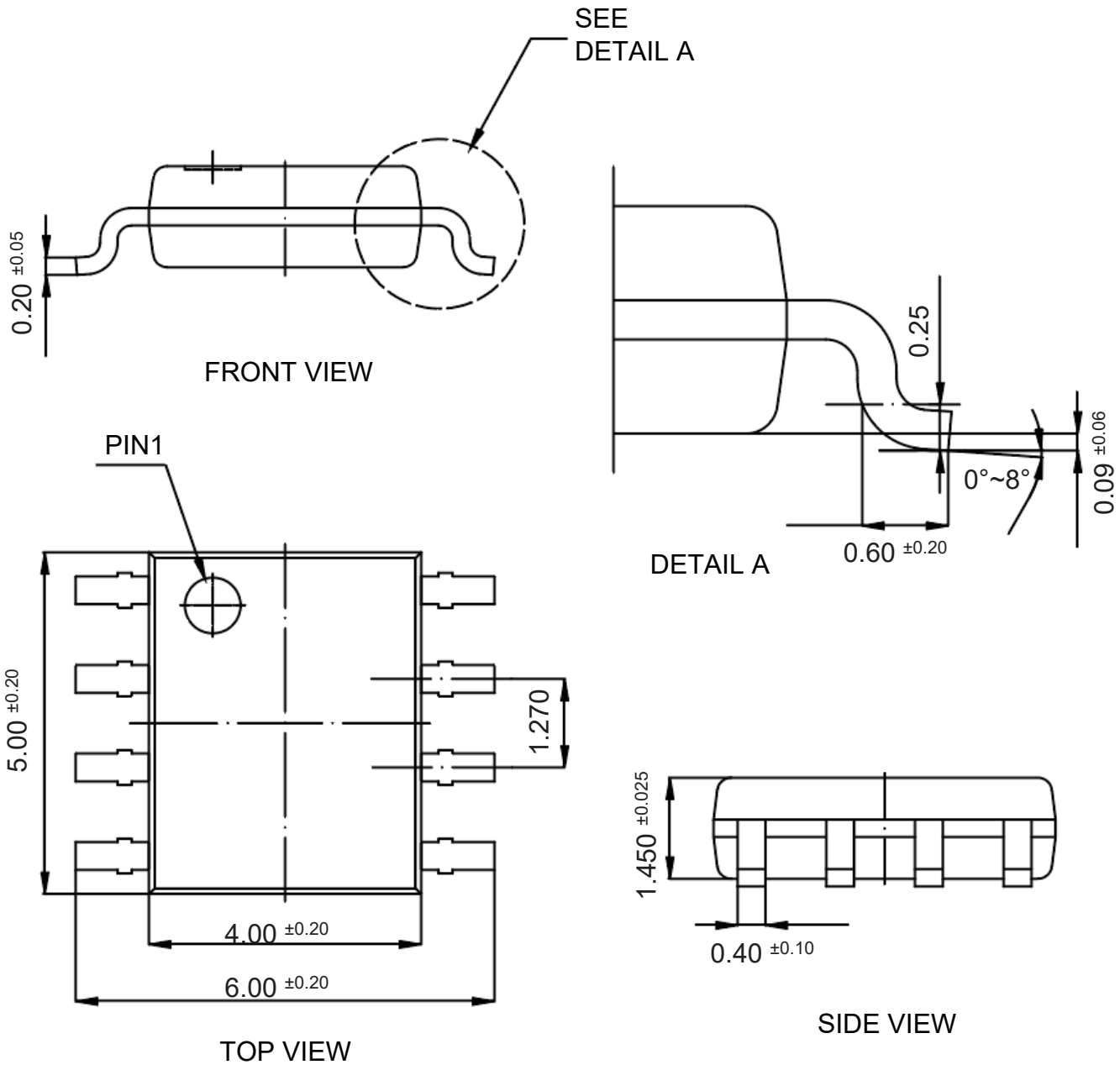




Package Outline

SOP-8

Dimensions in mm



Ordering Information

Device	Package	Shipping
LM358	SOP-8	4,000PCS/Reel&13inches

Contact Information

TANI website: **http://www.tanisemi.com** Email:tani@tanisemi.com

For additional information, please contact your local Sales Representative.

Product Specification Statement

The product specification aims to provide users with a reference regarding various product parameters, performance, and usage. It presents certain aspects of the product's performance in graphical form and is intended solely for users to select product and make product comparisons, enabling users to better understand and evaluate the characteristics and advantages of the product. It does not constitute any commitment, warranty, or guarantee.

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