



概述:

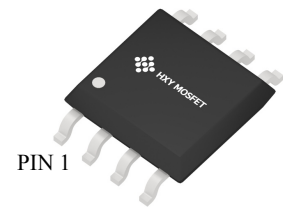
LM358是由两个独立的高增益运算放大器组成。可以是单电源工作，也可以是双电源工作，电源的功耗电流与电源电压大小无关。应用范围包括音频放大器、工业控制、DC 增益部件和所有常规运算放大电路。采用 DIP-8 或 SOP-8 封装形式。

主要特点:

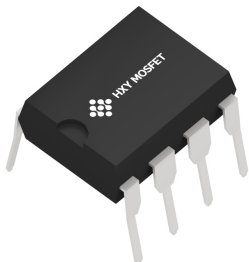
- ✧ 可单电源或双电源工作。
- ✧ 包含两个运算放大器。
- ✧ 逻辑电路匹配。
- ✧ 功耗小。
- ✧ 频率范围宽。

功能框图和管脚排列图

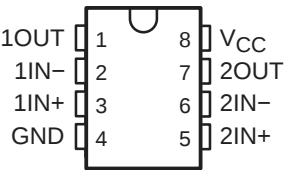
封装外形图



SOP-8
(SOIC-8)



PIN 1
DIP-8



极限值（绝对最大额定值，若无其它规定，Tamb=25℃）

参 数 名 称	数 值	单 位
电源电压	24 或 ± 12	V
差分输入电压	24	V
输入电压	-0.3 ~ 24	V
输出端对地短路电流（1 放大器）（ $V \leq 15V$ 、 $T_a = 25^\circ C$ ）	持续	
输入电流（ $V_{IN} < -0.3V$ ）	50	mA
工作环境温度	0 ~ 70	$^\circ C$
贮存温度	-65 ~ 150	$^\circ C$



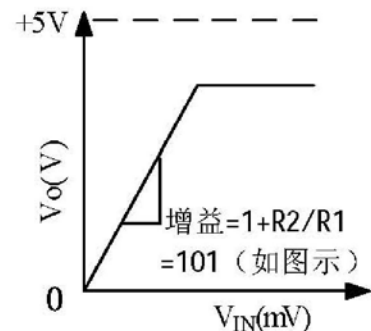
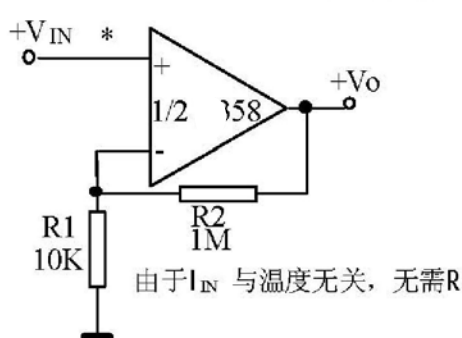
电特性 (若无其它规定, $V^+=5.0V$)

特 性		测试条件	规 范 值			单 位
			最小	典 型	最大	
输入失调电压		$T_a=25^{\circ}C$		2	7	mV
输入偏流		$T_a=25^{\circ}C$, $I_{IN}(+)$ 或 $I_{IN}(-)$, $V_{CM}=0V$		45	150	nA
输入失调电流		$T_a=25^{\circ}C$, $I_{IN}(+) - I_{IN}(-)$, $V_{CM}=0V$		3	30	nA
输入共模电压范围		$T_a=25^{\circ}C$, $V^+=24V$	0		$V^+-1.5$	V
电源电流		在整个温度范围上, $R_L=\infty$ 在所有运算放大器上,	$V^+=24V$	1	2	mA
			$V^+=5V$	0.5	1.2	
大信号电压增益		$V^+=15V$, $T_a=25^{\circ}C$, $R_L \geq 2k\Omega$ (对于 $V_o=1\sim 11V$)	50	100		V/mV
共模抑制比		DC, $T_a=25^{\circ}C$, $V_{CM}=0\sim V^+-1.5V$	65	90		dB
电源抑制比		DC, $T_a=25^{\circ}C$, $V^+=5\sim 24V$	65	100		dB
放大器之间的耦合系数		$T_a=25^{\circ}C$, $f=1\sim 20kHz$ (所有的输入)		-120		dB
输出源电流		$V_{IN}(+)=1V, V_{IN}(-)=0V, V^+=15V, V_o=2V, T_a=25^{\circ}C$	20	40		mA
输出吸电流		$V_{IN}(-)=1V, V_{IN}(+)=0V, V^+=15V, V_o=2V, T_a=25^{\circ}C$	10	20		mA
		$V_{IN}(-)=1V, V_{IN}(+)=0V, V^+=15V, V_o=200mV, T_a=25^{\circ}C$	12	50		μA
对地短路电流		$V^+=15V$, $T_a=25^{\circ}C$		40	60	mA
输入失调电压					7	mV
输入失调电压漂移		$R_s=0\Omega$		7		$\mu V/^{\circ}C$
输入失调电流		$I_{IN}(+) - I_{IN}(-)$			100	nA
输入失调电流漂移		$R_s=0\Omega$		10		$pA/^{\circ}C$
输入偏置电流		$I_{IN}(+)$ 或 $I_{IN}(-)$		40	300	nA
输入共模电压范围		$V^+=24V$	0		V^+-2	V
大信号电压增益		$V^+=15V$, ($V_o=1\sim 11V$), $R_L \geq 2k\Omega$	25			V/mV
输 出 电 压 摆幅	VOH	$V^+=24V$	$R_L=2k\Omega$	20		V
			$R_L=10k\Omega$	21	22	V
	VOL	$V^+=5V, R_L=10k\Omega$		5	20	mV
输出电流		$V_{IN}(+)=1V, V_{IN}(-)=0V, V^+=15V, V_o=2V$	10	20		mA
		$V_{IN}(-)=1V, V_{IN}(+)=0V, V^+=15V, V_o=2V$	5	8		mA

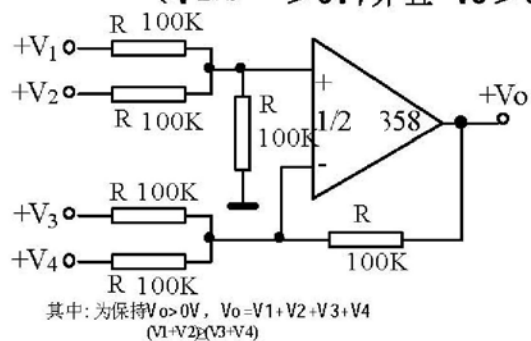


典型应用

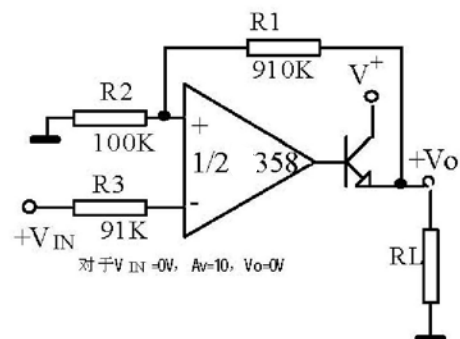
同相直流增益 (0V输入=0V输出)



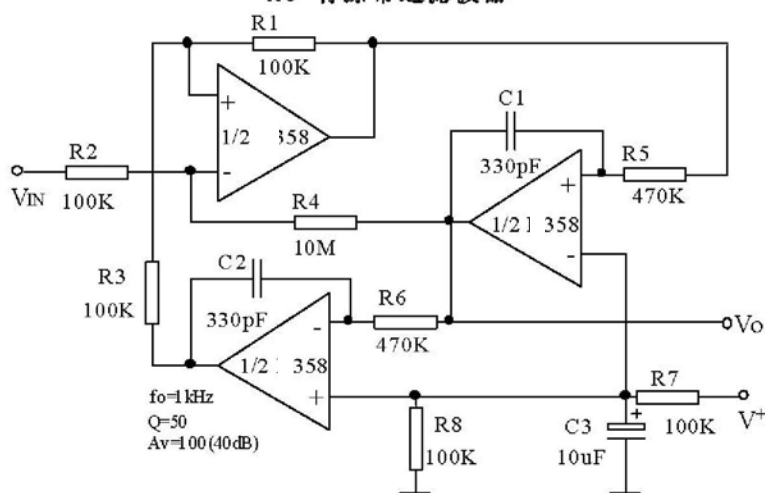
直流求和放大器 ($V_{IN's} \geq 0V$, 并且 $V_O \geq 0V$)



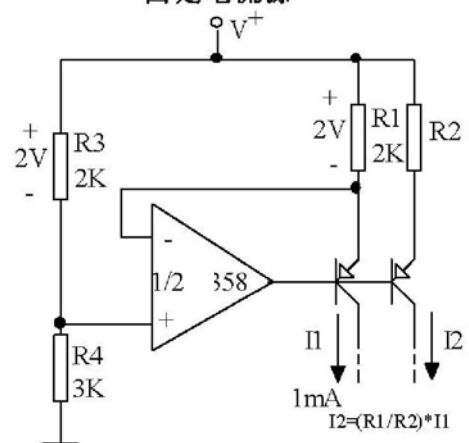
功率放大器



RC 有源带通滤波器

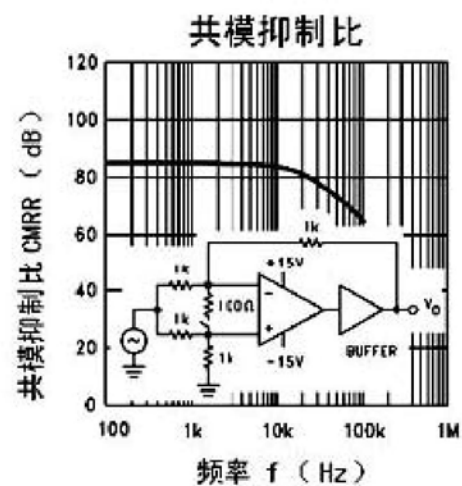
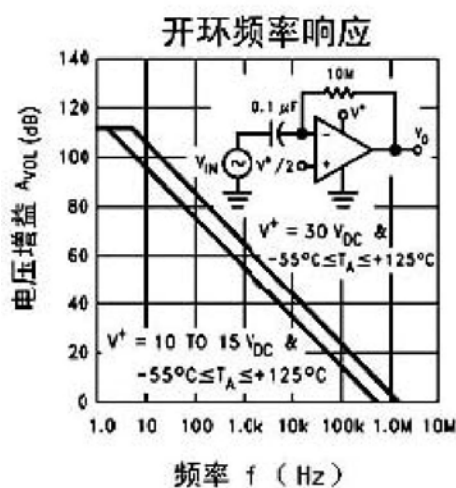
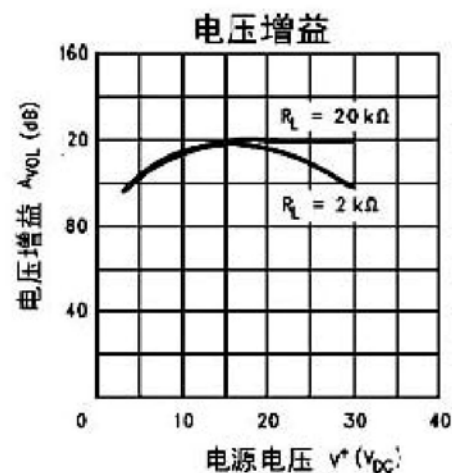
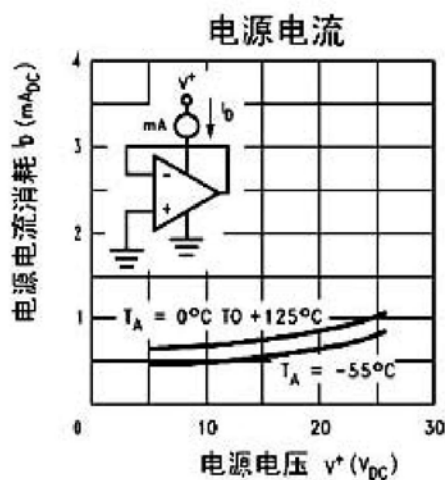
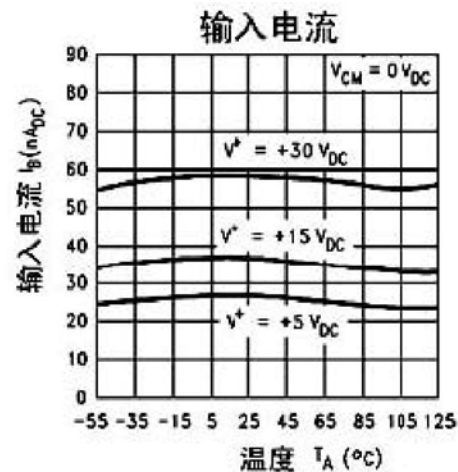
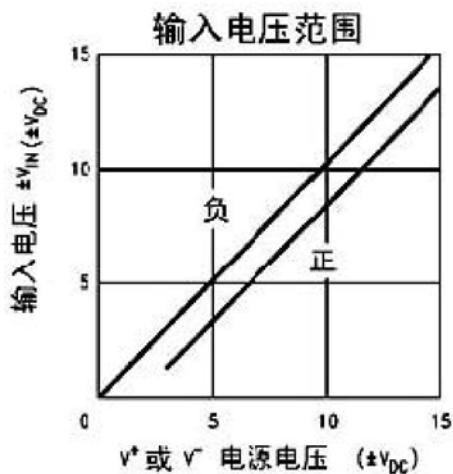


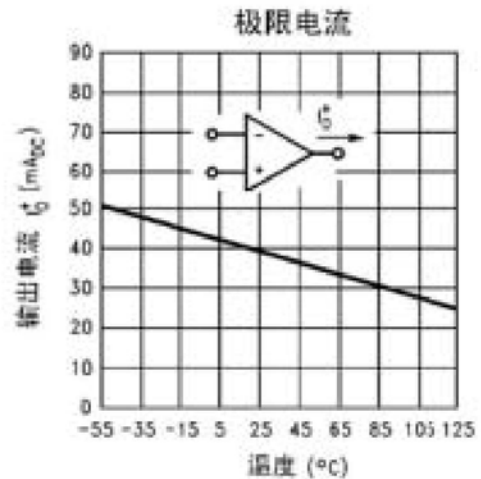
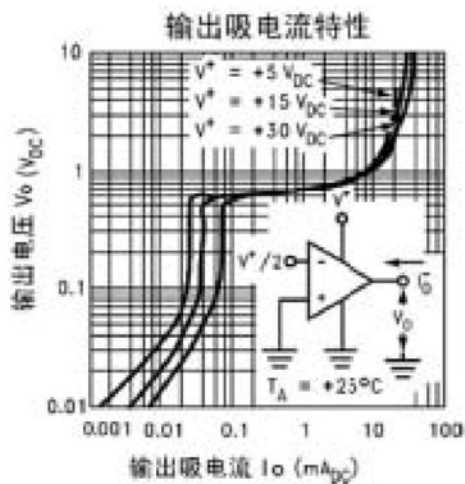
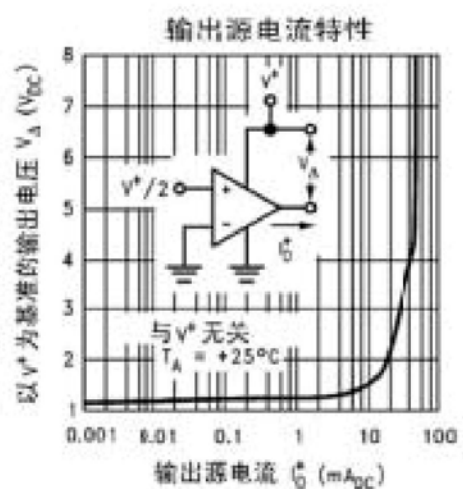
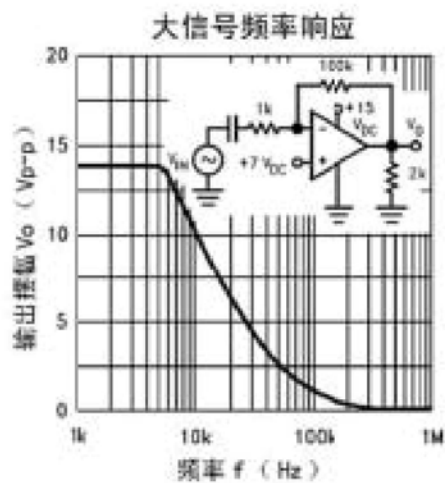
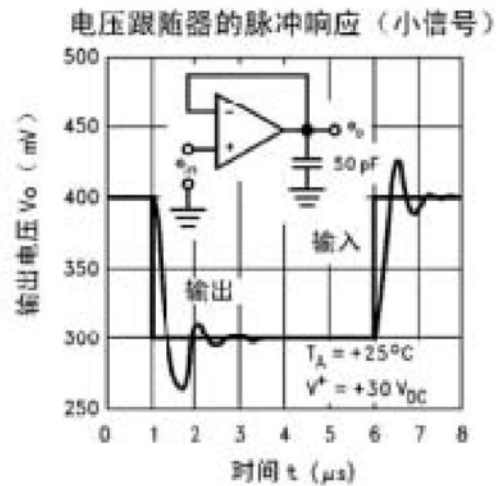
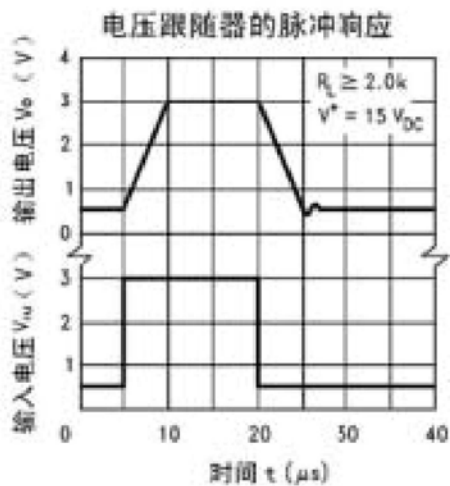
固定电流源





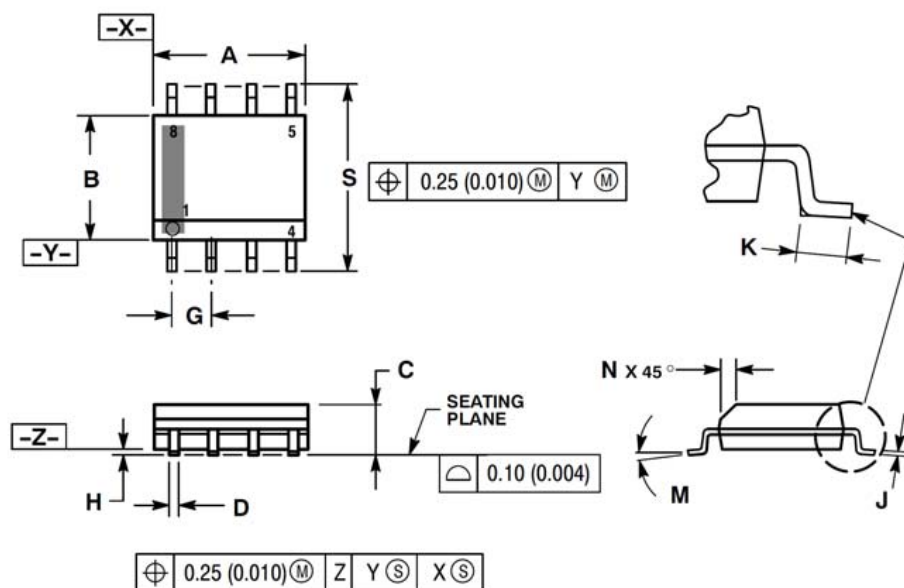
典型特性曲线







SOP-8(SOIC-8)

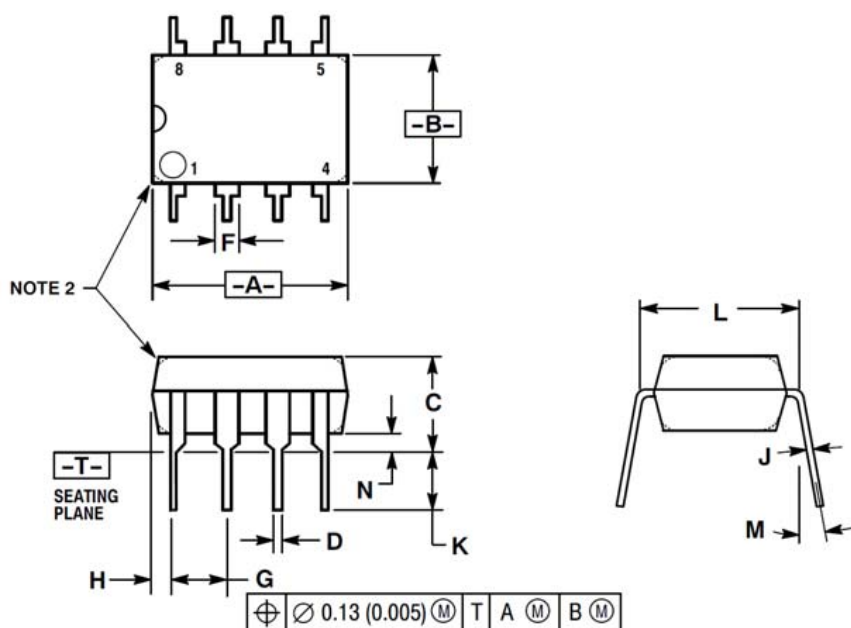


NOTES:

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.

DIM	MILLIMETERS		INCHES	
	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

DIP-8



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.

DIM	MILLIMETERS		INCHES	
	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



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