



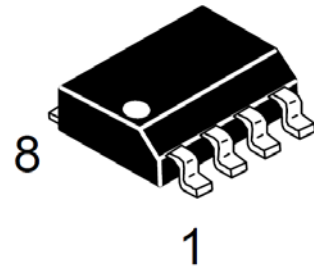
概述:

2904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。

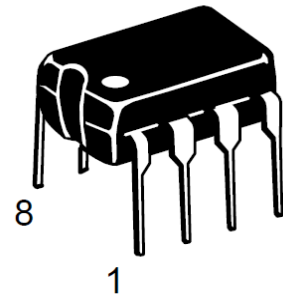
采用 DIP8 或 SOP8 封装形式。

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。

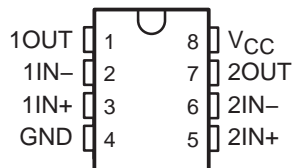


DIP8



SOP8

功能框图和管脚排列图



极限值 (绝对最大额定值, 若无其它规定, $T_{amb}=25^{\circ}C$)

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	$^{\circ}C$



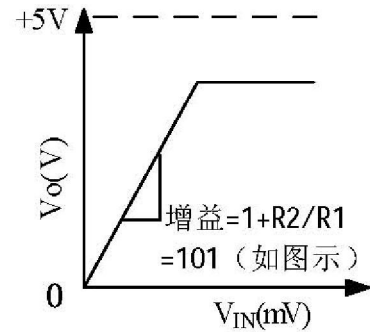
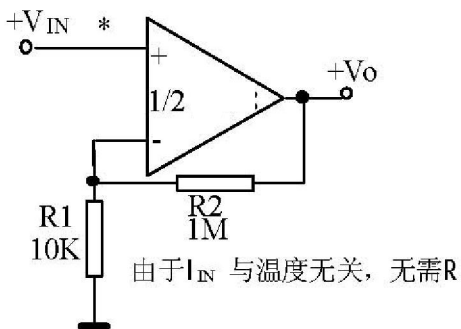
电特性 (若无其它规定, $V^+ = 5.0V$)

特性	测试条件	规范值			单位	
		最小	典型	最大		
输入失调电压	Ta=25°C		2	5	mV	
输入偏流	Ta=25°C, IIN(+)或 IIN (-), VCM=0V		45	150	nA	
输入失调电流	Ta=25°C, IIN(+) - IIN (-), VCM=0V		3	30	nA	
输入共模电压范围	Ta=25°C, V ⁺ =24V	0		V ⁺ -1.5	V	
电源电流	在整个温度范围上, RL=∞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, Ta=25°C, RL≥2kΩ(对于 Vo=1~11V)	50	100		V/mV	
共模抑制比	DC, Ta=25°C, VCM=0~V ⁺ -1.5V	65	90		dB	
电源抑制比	DC, Ta=25°C, V ⁺ =5~24V	65	100		dB	
放大器之间的耦合系数	Ta=25°C, f=1~20kHz(所有的输入)		-120		dB	
输出源电流	VIN(+)=1V, VIN(-)=0V, V ⁺ =15V, Vo=2V, Ta=25°C	20	40		mA	
输出吸电流	VIN(-)=1V, VIN(+)=0V, V ⁺ =15V, Vo=2V, Ta=25°C	10	20		mA	
	VIN(-)=1V, VIN(+)=0V, V ⁺ =15V, Vo=200mV, Ta=25°C	12	50		μA	
对地短路电流	V ⁺ =15V, Ta=25°C		40	60	mA	
输入失调电压				7	mV	
输入失调电压漂移	Rs=0Ω		7		μV/°C	
输入失调电流	IIN(+) - IIN (-)			100	nA	
输入失调电流漂移	Rs=0Ω		10		pA/°C	
输入偏置电流	IIN(+)或 IIN (-)		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, (Vo=1~11V), RL≥2kΩ	25			V/mV	
输出电压摆幅	VOH	V ⁺ =24V	RL=2kΩ	20		V
			RL=10kΩ	21	22	V
	VOL	V ⁺ =5V, RL=10kΩ		5	20	mV
输出电流	VIN(+)=1V, VIN(-)=0V, V ⁺ =15V, Vo=2V	10	20		mA	
	VIN(-)=1V, VIN(+)=0V, V ⁺ =15V, Vo=2V	5	8		mA	



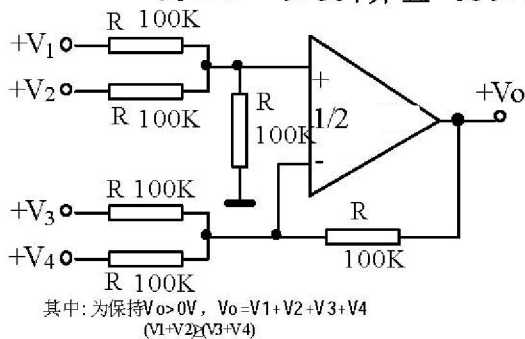
典型应用

同相直流增益 (0V输入=0V输出)

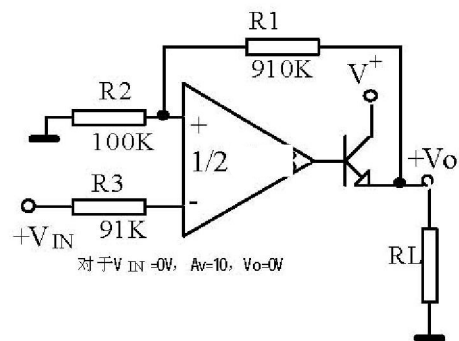


直流求和放大器

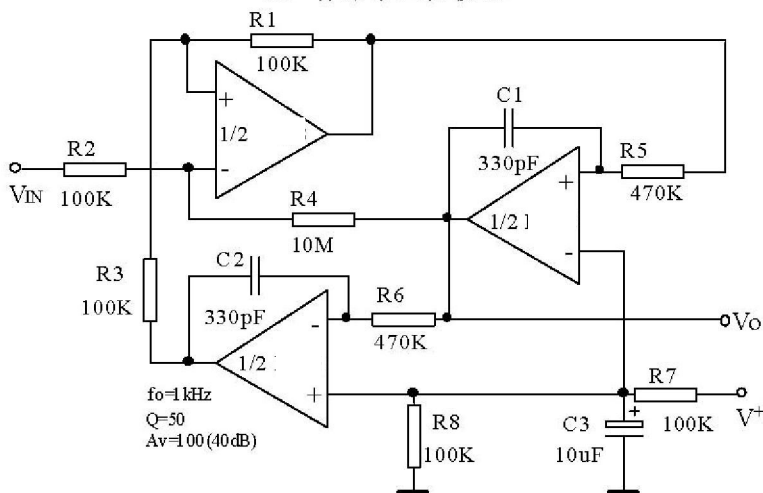
($V_{INs} \geq 0V$, 并且 $V_o \geq 0V$)



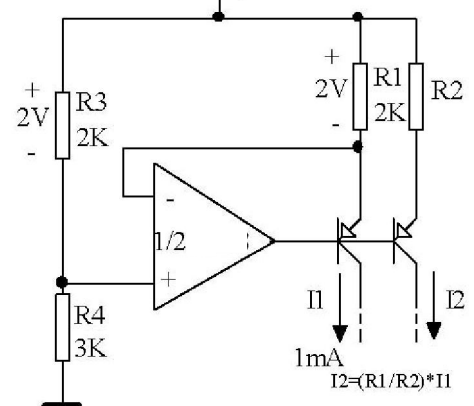
功率放大器



RC 有源带通滤波器

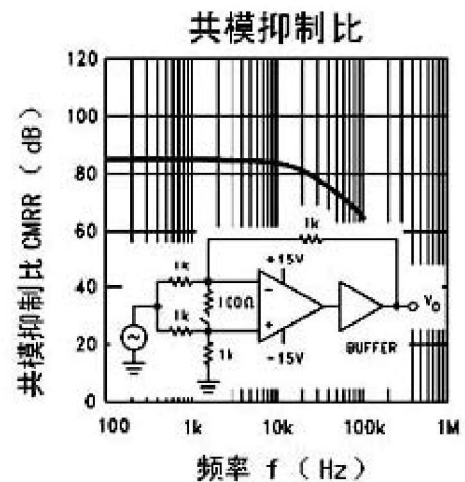
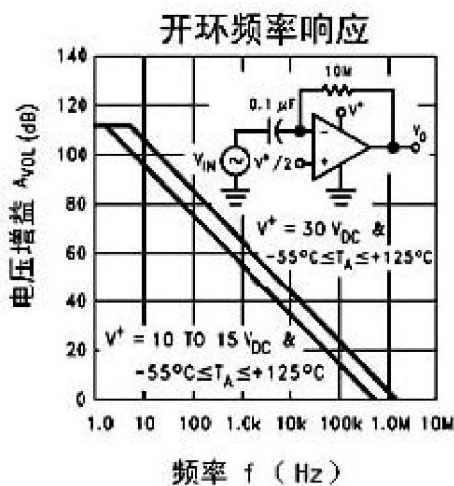
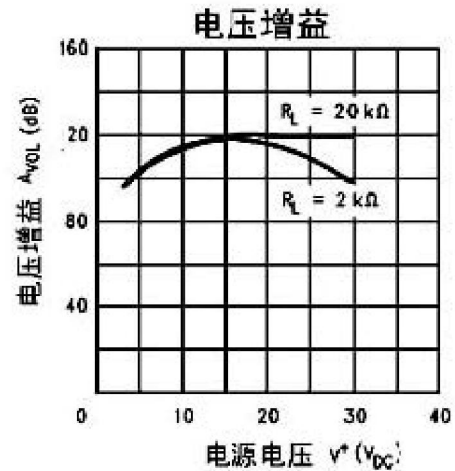
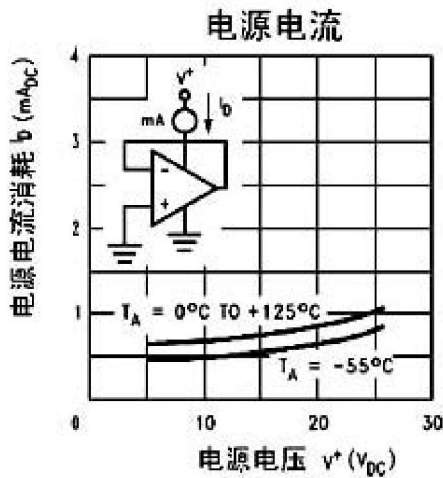
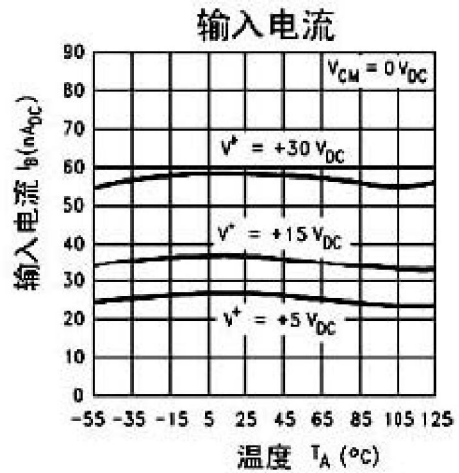
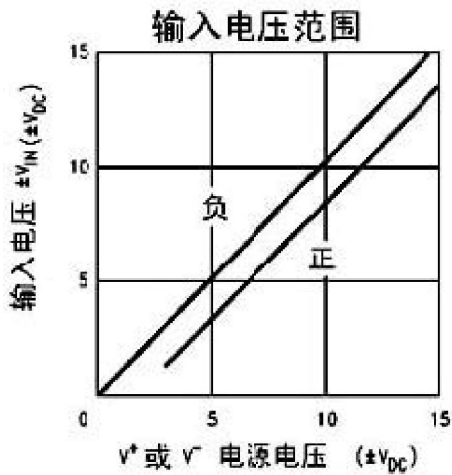


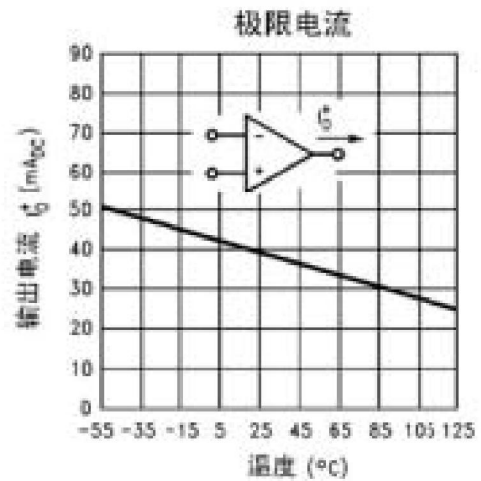
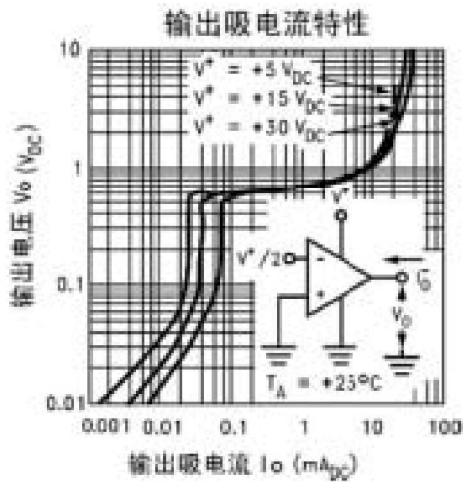
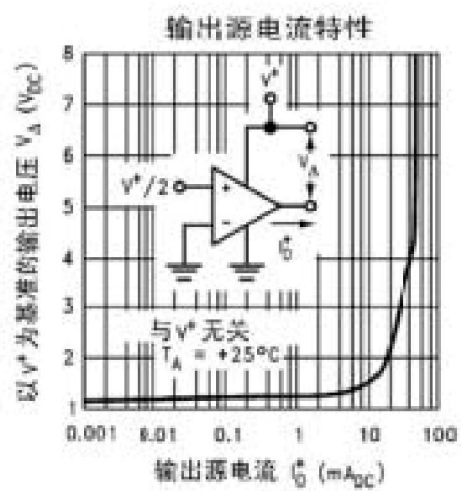
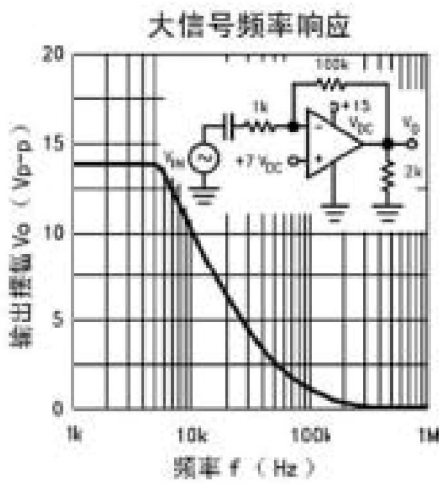
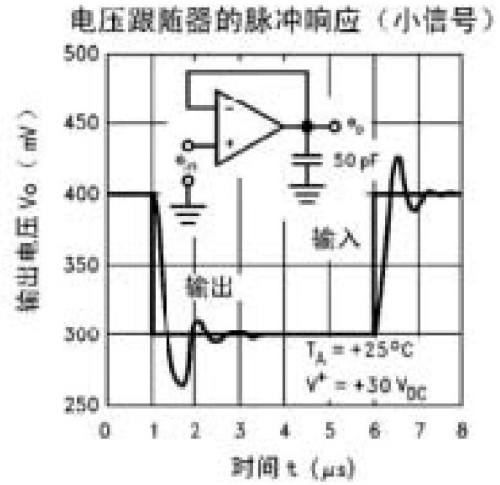
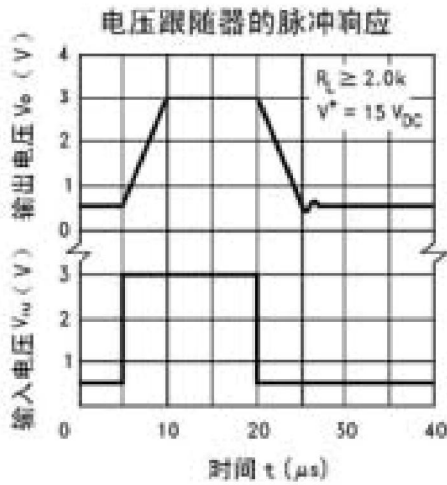
固定电流源





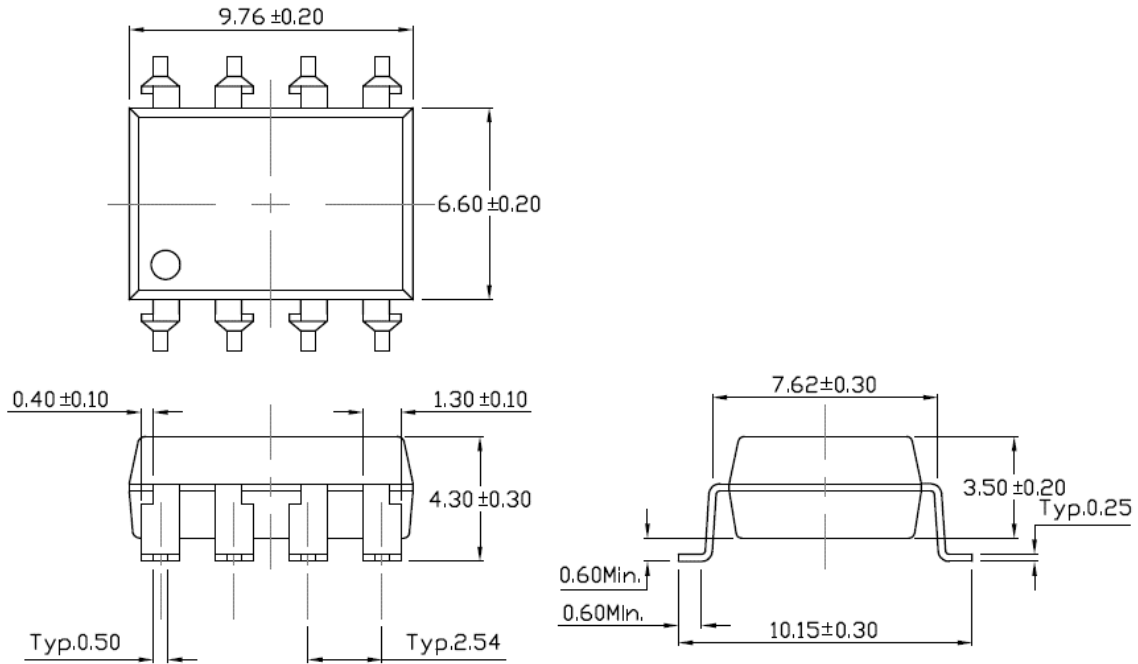
典型特性曲线



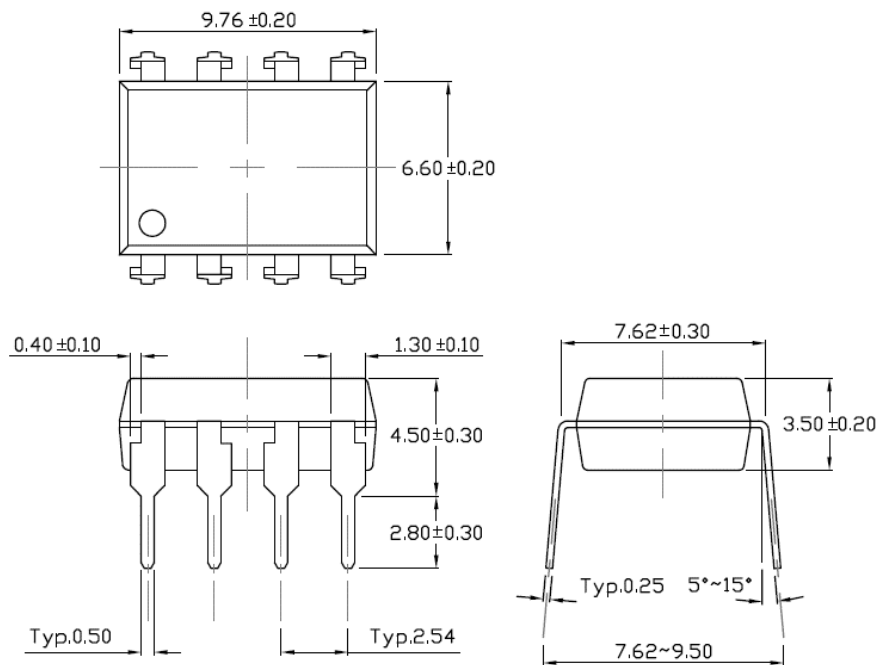




SOP-8



DIP-8





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