



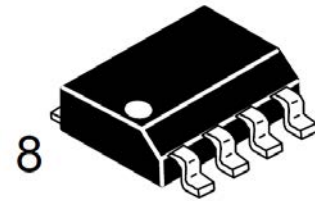
### 概述:

LM2904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(SOIC-8)封装形式。

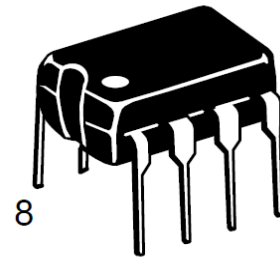
### 主要特点:

- ◇ 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。



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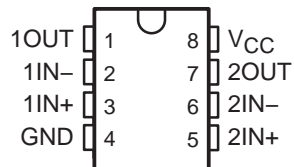
SOP-8  
(SOIC-8)



1

DIP-8

### 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<sub>amb</sub>=25°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 <sub>o</sub> ≤15V、T <sub>a</sub> =25°C)	持续	
输入电流 (V <sub>IN</sub> <-0.3V)	50	mA
工作环境温度	0 ~ 70	°C
贮存温度	-65 ~ 150	°C



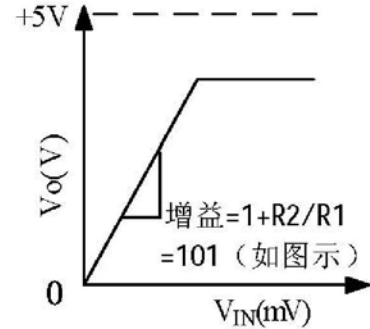
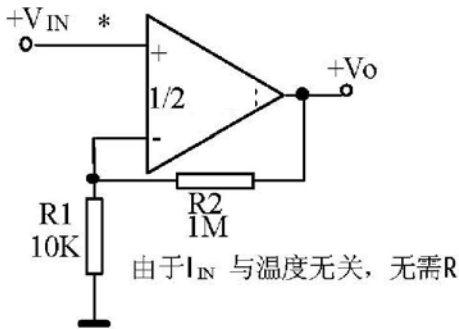
电特性 (若无其它规定,  $V^+ = 5.0V$ )

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 <sup>+</sup> =24V		0		V <sup>+</sup> -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 <sup>+</sup> =24V	1	2	mA
			V <sup>+</sup> =5V	0.5	1.2	
大信号电压增益	V <sup>+</sup> =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 <sup>+</sup> -1.5V		65	90		dB
电源抑制比	DC, Ta=25°C, V <sup>+</sup> =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 <sup>+</sup> =15V, Vo=2V, Ta=25°C		20	40		mA
输出吸电流	VIN(-)=1V, VIN(+)=0V, V <sup>+</sup> =15V, Vo=2V, Ta=25°C		10	20		mA
	VIN(-)=1V, VIN(+)=0V, V <sup>+</sup> =15V, Vo=200mV, Ta=25°C		12	50		μA
对地短路电流	V <sup>+</sup> =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 <sup>+</sup> =24V		0		V <sup>+</sup> -2	V
大信号电压增益	V <sup>+</sup> =15V, (Vo=1~11V), RL≥2kΩ		25			V/mV
输出电压摆幅	VOH	V <sup>+</sup> =24V	RL=2kΩ	20		V
			RL=10kΩ	21	22	V
	VOL	V <sup>+</sup> =5V, RL=10kΩ		5	20	mV
输出电流	VIN(+)=1V, VIN(-)=0V, V <sup>+</sup> =15V, Vo=2V		10	20		mA
	VIN(-)=1V, VIN(+)=0V, V <sup>+</sup> =15V, Vo=2V		5	8		mA



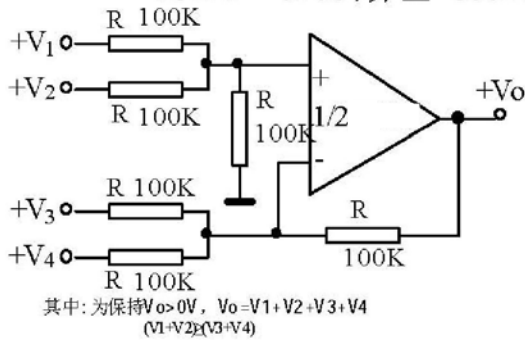
典型应用

同相直流增益 (0V输入=0V输出)

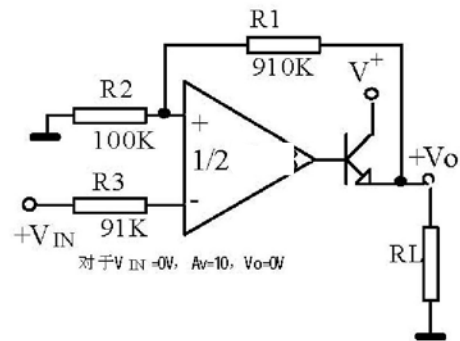


直流求和放大器

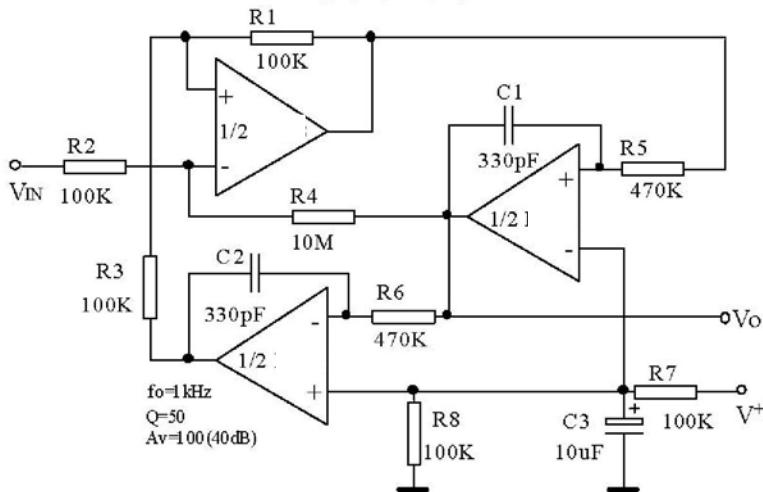
( $V_{INs} \geq 0V$ , 并且  $V_o \geq 0V$ )



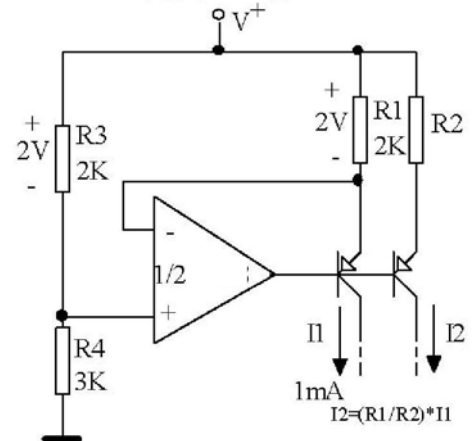
功率放大器



RC 有源带通滤波器

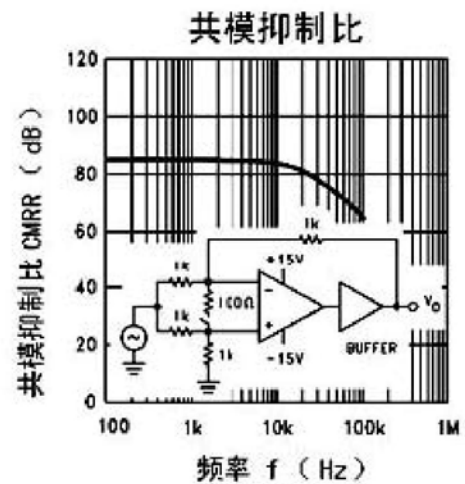
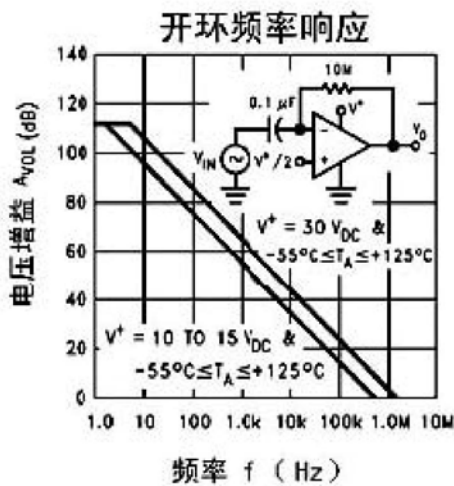
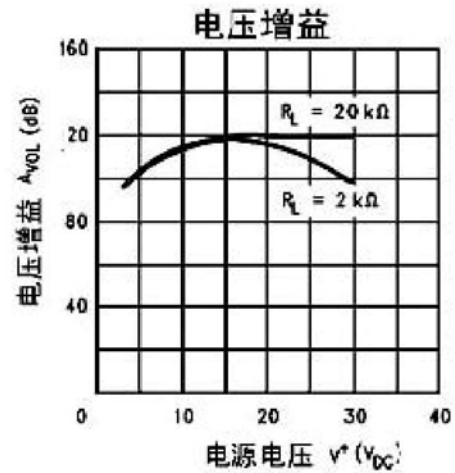
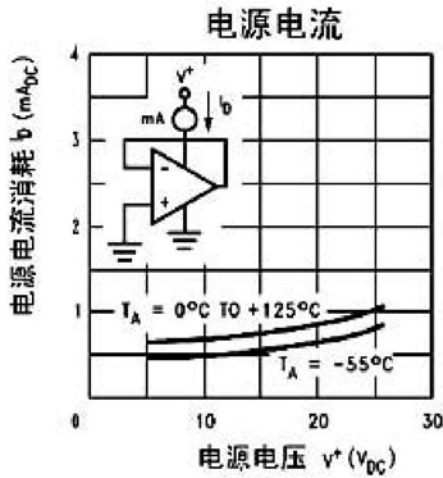
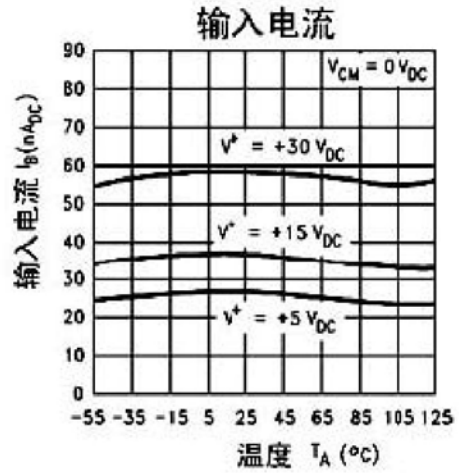
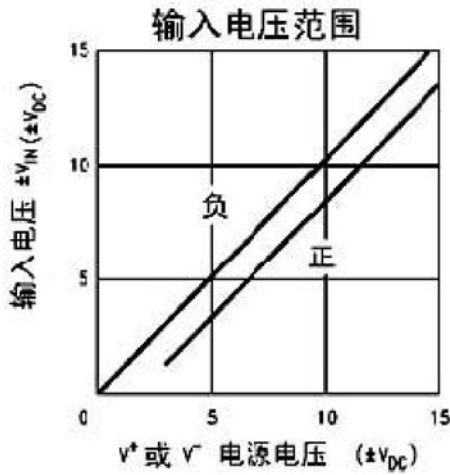


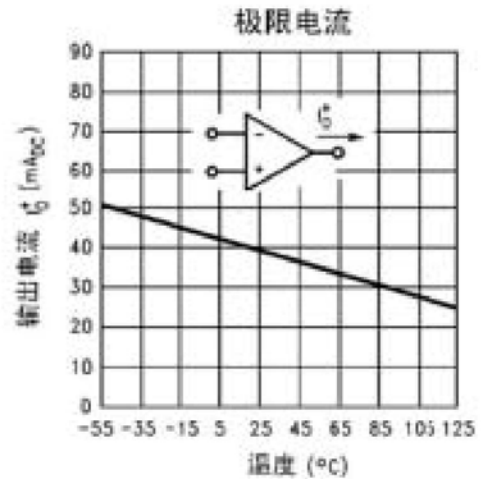
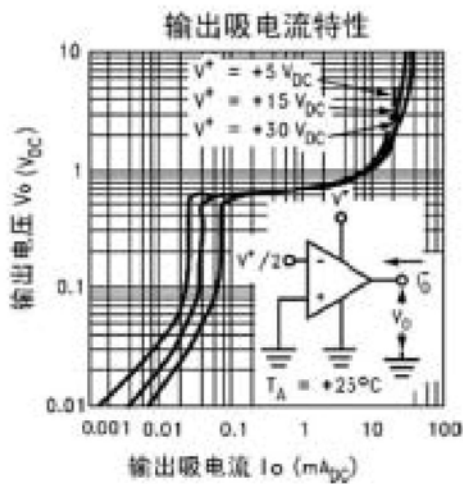
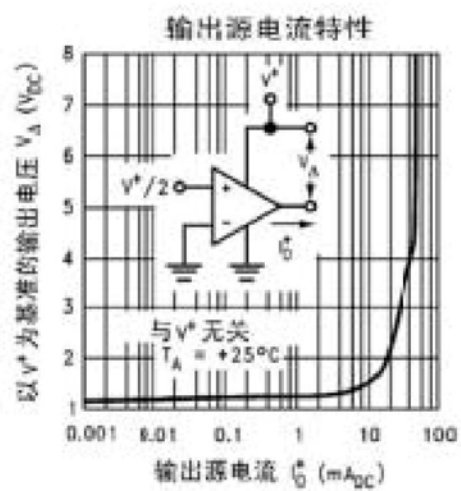
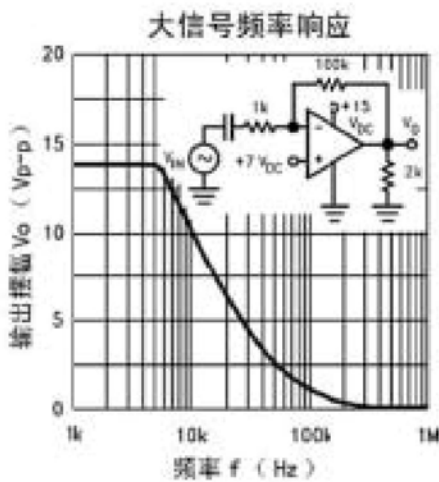
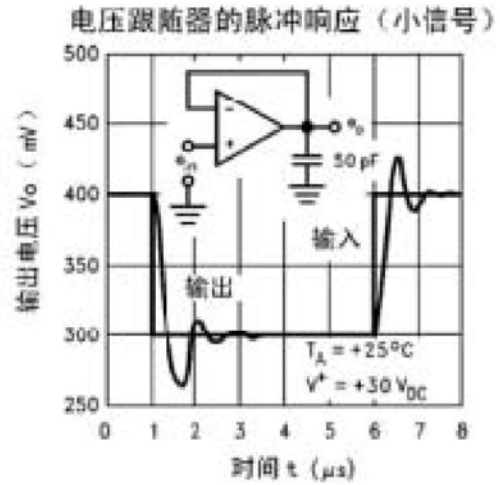
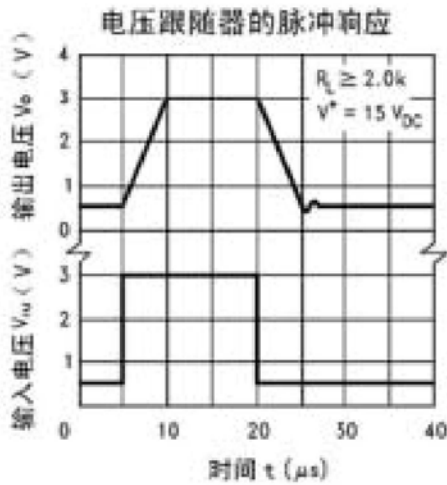
固定电流源





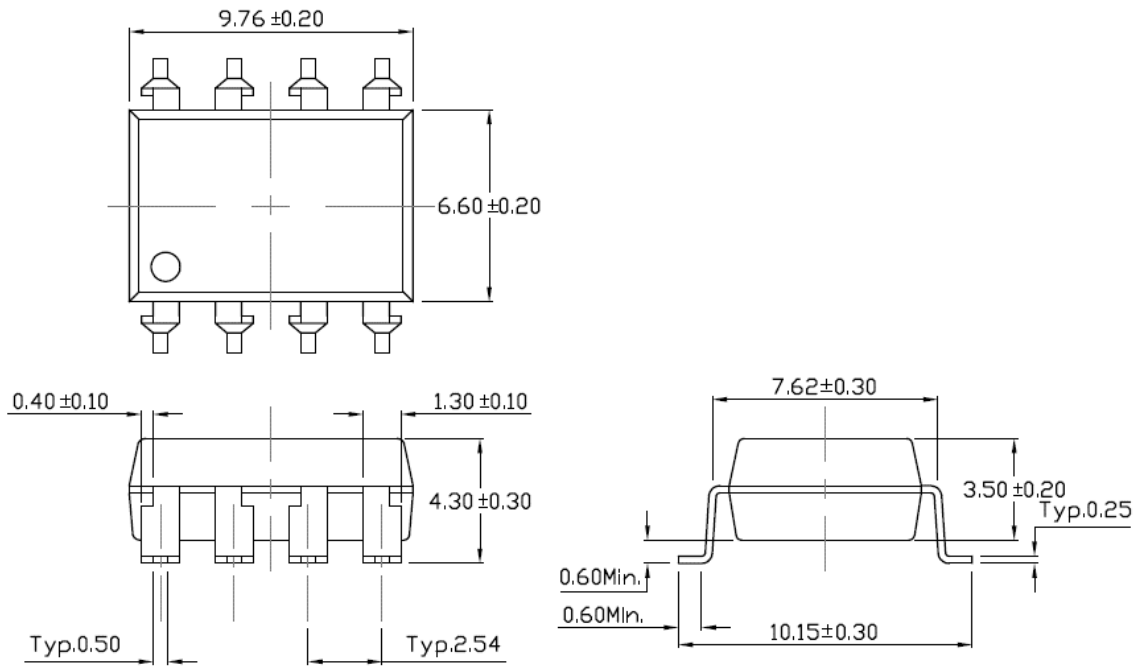
典型特性曲线



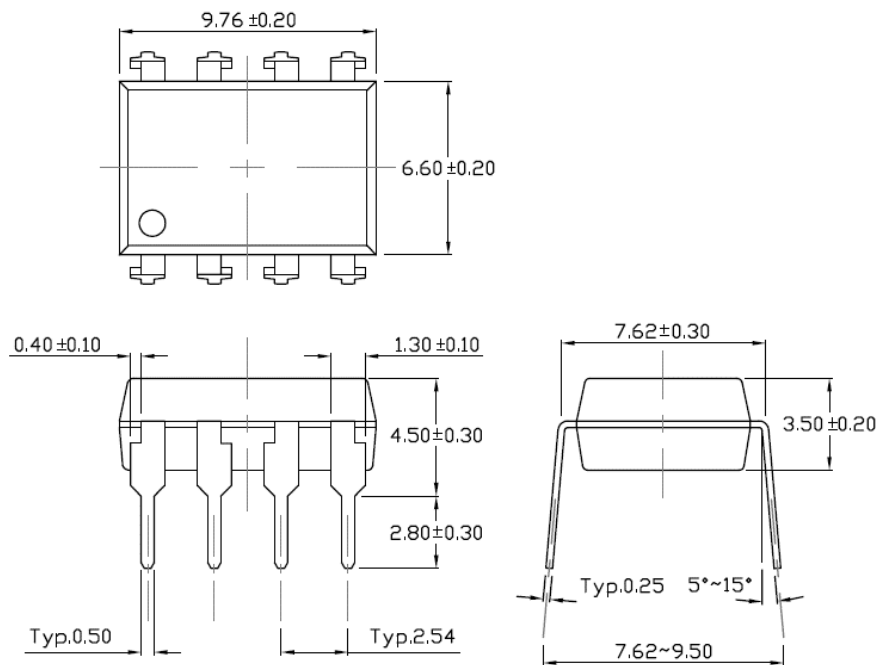




SOP-8(SOIC-8)



DIP-8





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