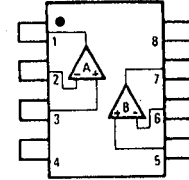
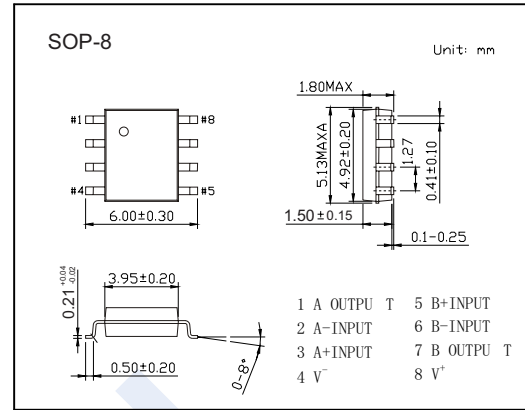
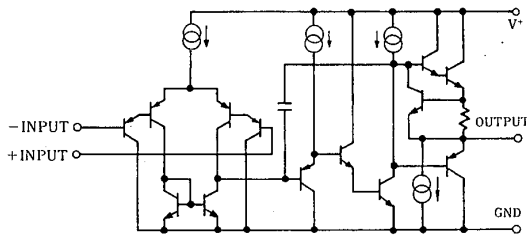


Single-Supply Dual Operating Comparators

LM2904

■ Features

- Operating Voltage :3V~32V
- Single Supply Operation
- Slow Rate
- Bipolar Technology

■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit
Supply Voltage	V_+	32 or ± 16	V
Differential Input Voltage	V_{ID}	32	
Input Voltage	V_{IN}	-0.3 to 32	
Power Dissipation	P_D	300	mW
Junction Temperature	T_J	125	$^\circ\text{C}$
Operating Temperature Range	T_{opr}	-40 to 85	
Storage Temperature range	T_{stg}	-50 to 125	

■ Electrical Characteristics $T_a = 25^\circ\text{C}$

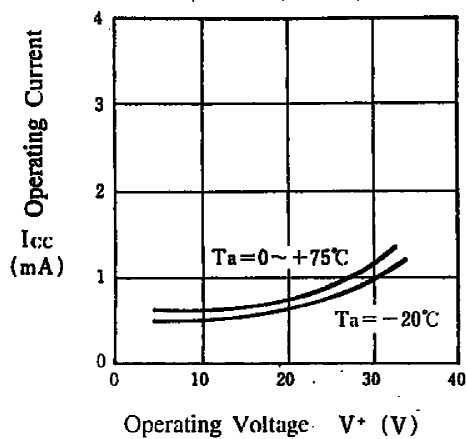
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Input Offset Voltage	V_{IO}	$R_S = 0$		2	7	mV
Input Common Mode Voltage Range	V_{ICM}		0~3.5			V
Output Voltage Swing	V_{OM}	$R_L = 2\text{k}\Omega$	3.5			
Input Offset Current	I_{IO}			5	50	nA
Input Bias Current	I_B			25	250	
Output Sink Current	I_{SINK}	$V_{IN-} = 1\text{V}, V_{IN+} = 0$	8	20		mA
Output Source Current	I_{SOURCE}	$V_{IN-} = 0, V_{IN+} = 1\text{V}$	20	30		
Operating Current	I_{CC}	$R_L = \infty$		0.7	1.2	mA
Leakage Signal Voltage Gain	A_V	$R_L \geq 2\text{k}\Omega$		100		dB
Common Mode Rejection Ratio	CMR			85		
Supply Voltage Rejection Ratio	SVR			100		
Channel Separation	CS	$f = 1\text{K} \sim 20\text{KHz}$, Input Referred		120		
Slew Rate	SR	$V_+/V_- = \pm 15$		0.5		V/ μs
Unity Gain Bandwidth	f_T			0.2		MHz

Single-Supply Dual Operating Comparators

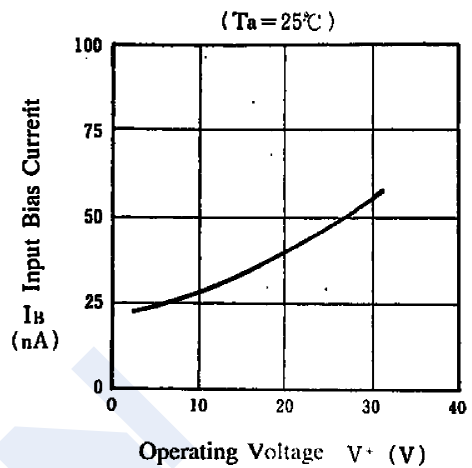
LM2904

■ Typical Characteristics

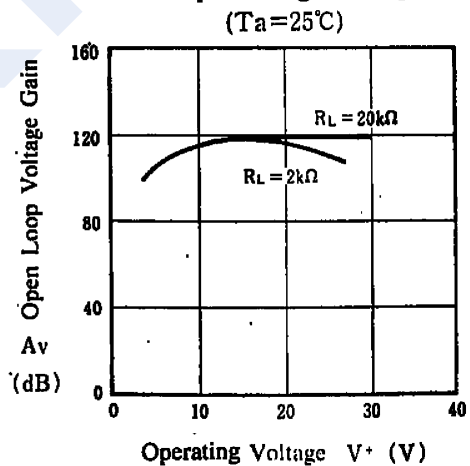
Operating Current vs. Operating Voltage



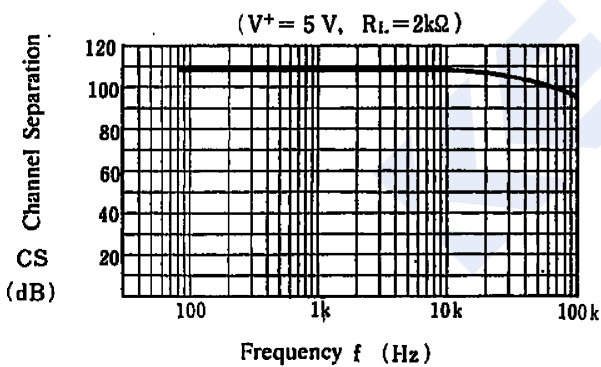
Input Bias Current vs. Operating Voltage



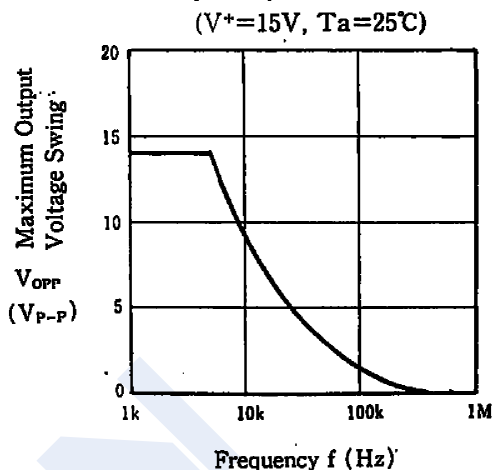
Voltage Gain vs. Operating Voltage



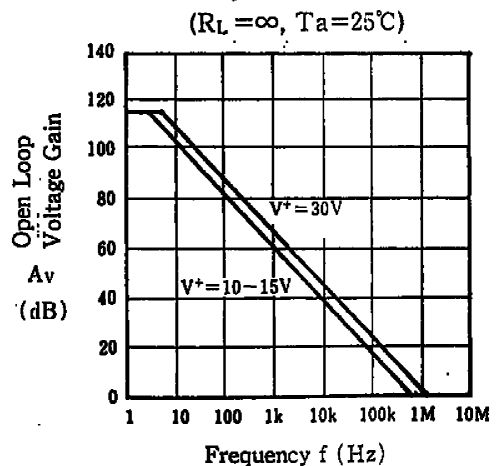
Channel Separation vs. Frequency



Maximum Output Voltage Swing vs. Frequency



Open Loop Voltage Gain vs. Frequency



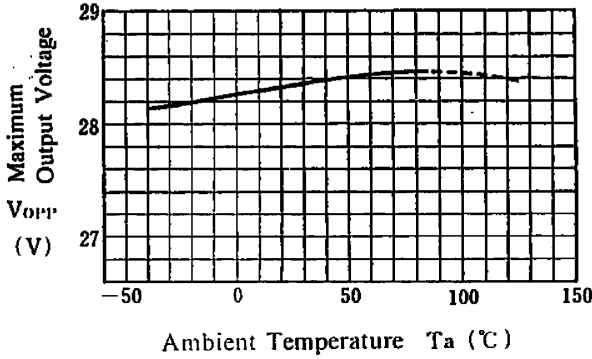
Single-Supply Dual Operating Comparators

LM2904

■ Typical Characteristics

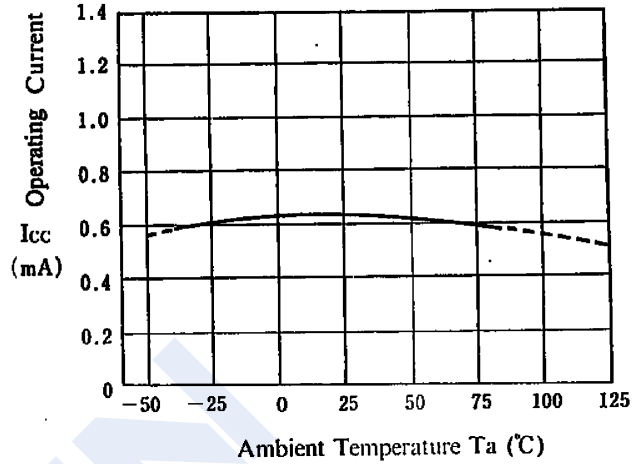
Maximum Output Voltage Swing vs. Temperature

($V^+ = 30V, R_L = 2k\Omega$)



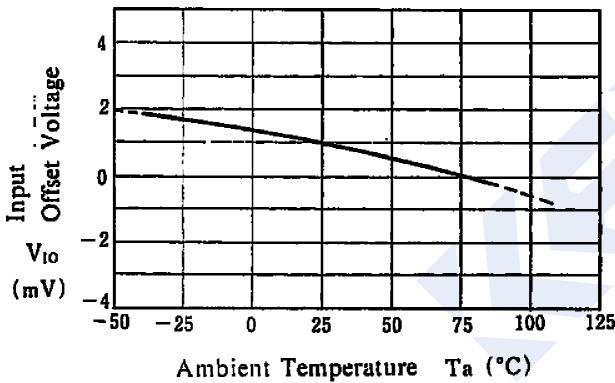
Operating Current vs. Temperature

($V^+ = 5V$)



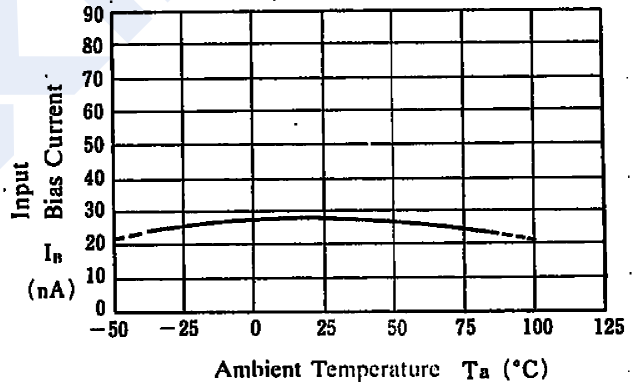
Input Offset Voltage vs. Temperature

($V^+ = 5V$)



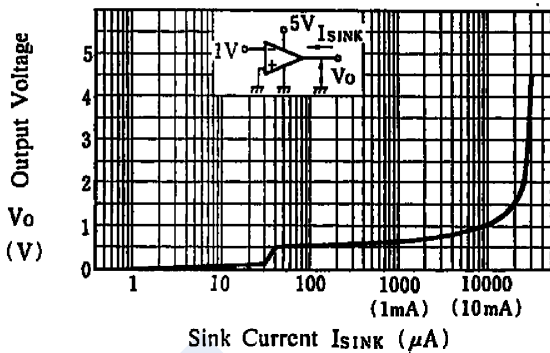
Input Bias Current vs. Temperature

($V^+ = 5V$)



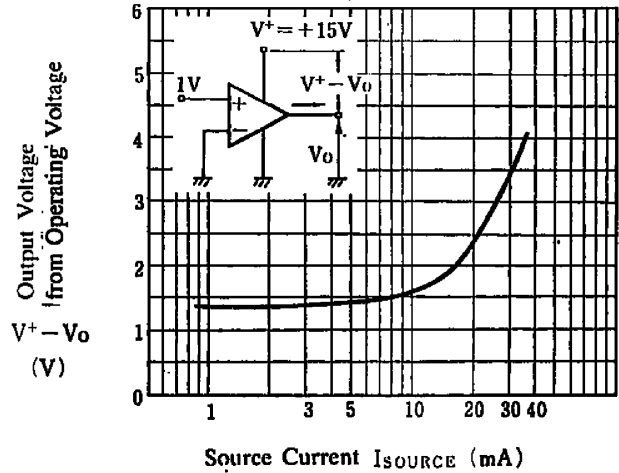
Output Voltage vs. Sink Current

($V^+ = 5V, T_a = 25^\circ C$)



Source Current

($V^+ = 15V, T_a = 25^\circ C$)

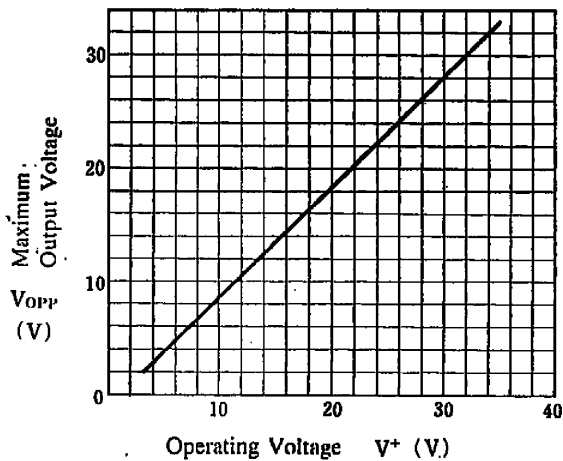
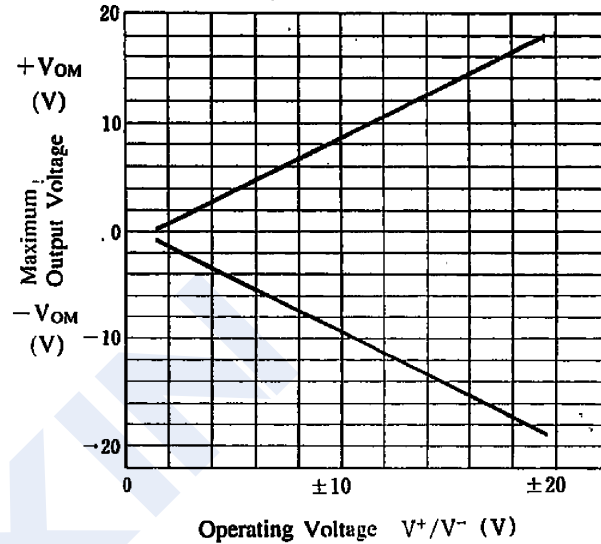
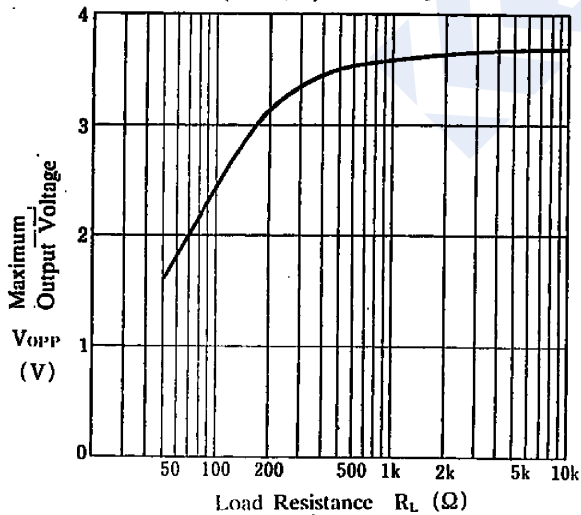


Single-Supply Dual Operating Comparators

LM2904

■ Typical Characteristics

Maximum Output Voltage

 $(R_L = 2k\Omega, T_a = 25^\circ\text{C})$ Maximum Output Voltage
vs. Operating Voltage $(R_L = 2k\Omega, T_a = 25^\circ\text{C})$ Maximum Output Voltage Swing
vs. Load resistance $(V^+ = 5V, T_a = 25^\circ\text{C})$ 

Input Offset Voltage vs. Temperature

 $(V^+ = 5V)$ 