

NJM2904

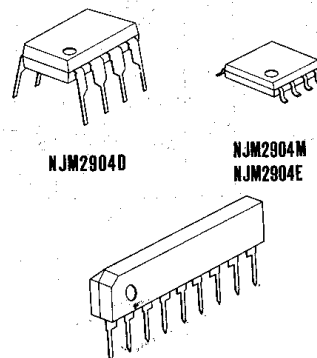
The NJM2904 consists of two independent, high gain, internally frequency compensated operation amplifiers which were designed specifically to operate from a single power supply over a wide range of voltages. Operation from split power supplies is also possible and the low power supply current drain is independent of the magnitude of the power supply voltage.

Application areas include transducer amplifiers, DC gain blocks, and all the conventional op amp circuits which now can be more easily implemented in single power supply systems. For example, the NJM2904 can be directly operated off of the standard +5V power supply voltage which is used in digital systems and will easily provide the required interface electronics without requiring the additional $\pm 15V$ power supplies.

Absolute Maximum Ratings ($T_a=25^\circ C$)

Supply Voltage	V^+	32V (or $\pm 16V$)
Differential Input Voltage	V_{ID}	32V
Input Voltage	V_I	$-0.3 \sim +32V$
Power Dissipation	P_D (D-Type)	500mW
	(M,E-Type)	300mW
	(S-Type)	500mW
Operating Temperature Range	T_{opr}	$-40 \sim +85^\circ C$
Storage Temperature Range	T_{stg}	$-50 \sim +125^\circ C$

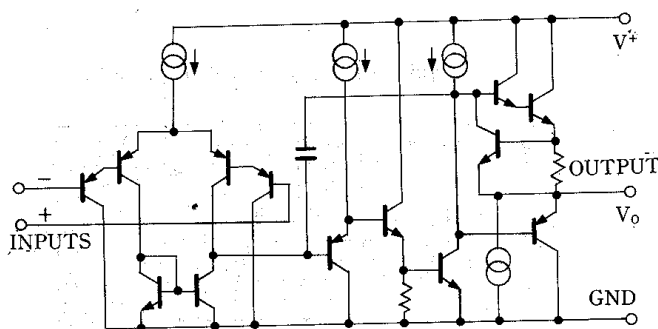
Package Outline



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

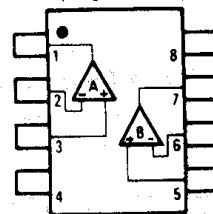
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Input Offset Voltage	V_{IO}	$R_S=0\Omega$	—	2	7	mV
Input Offset Current	I_{IO}		—	5	50	nA
Input Bias Current	I_{IB}		—	25	250	nA
Large Signal Voltage Gain	A_V	$R_L \geq 2k\Omega$	—	100	—	V/mV
Maximum Output Voltage Swing	V_{OPP}	$R_L=2k\Omega$	3.5	—	—	V_{PP}
Input Common Mode Voltage Range	V_{ICM}		3.5	—	—	V
Common Mode Rejection Ratio	CMR		—	85	—	dB
Supply Voltage Rejection Ratio	SVR		—	100	—	dB
Output Source Current	I_{SOURCE}	$V_{IN(+)}=1V$, $V_{IN(-)}=0V$	20	30	—	mA
Output Sink Current	I_{SINK}	$V_{IN(+)}=0V$, $V_{IN(-)}=1V$	8	20	—	mA
Channel Separation	CS	$f=1k \sim 20kHz$, Input Referred	—	-120	—	dB
Supply Current	I_{CC}	$R_L=\infty$	—	0.7	1.2	mA

Equivalent Circuit (1/2 Shown)



Connection Diagrams

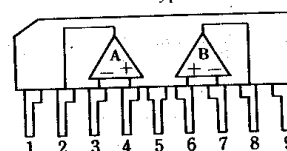
D.M.E Type
(Top View)



PIN FUNCTION

1. A OUTPUT
2. A-INPUT
3. A+INPUT
4. GND
5. B+INPUT
6. B-INPUT
7. B OUTPUT
8. V^+

S-Type



PIN FUNCTION

1. V^+
2. A OUTPUT
3. A-INPUT
4. A+INPUT
5. GND
6. B+INPUT
7. B-INPUT
8. B OUTPUT
9. V^+