

SINGLE-SUPPLY DUAL COMPARATOR

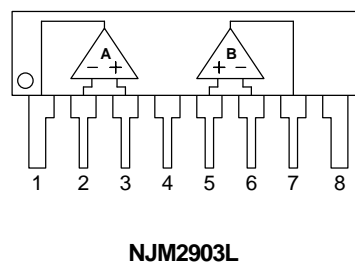
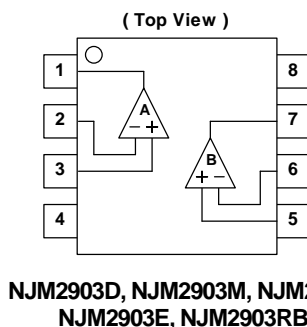
■ GENERAL DESCRIPTION

The NJM2903 consist of two independent precision voltage comparators with an offset voltage specification as low as 5.0mV max for two comparators, 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. The NJM2903 has unique characteristic: the input common-mode voltage range includes ground, even though operated from a single power supply voltage. Application areas include limit comparators, simple analog-to-digital converters; pulse, square-wave and time delay generators; wide range V_{CO} ; MOS clock timers; multivibrators and high voltage digital logic gates. The NJM2903 was designed to directly interface with TTL and MOS. When operated from both plus and minus power supplies, the NJM2903 will directly interface with MOS logic where their low power drain is a distinct advantage over standard comparators.

■ FEATURES

- Operating Voltage +2V~+36V
- Single Supply Operation
- Open Collector Output
- High Output Sink Current 3mA
- Package Outline DIP8, DMP8, SIP8, SSOP8,
SOP8 JEDEC 150mil,
MSOP8 (TVSP8) MEET JEDEC MO-187-DA/ THIN TYPE
- Bipolar Technology

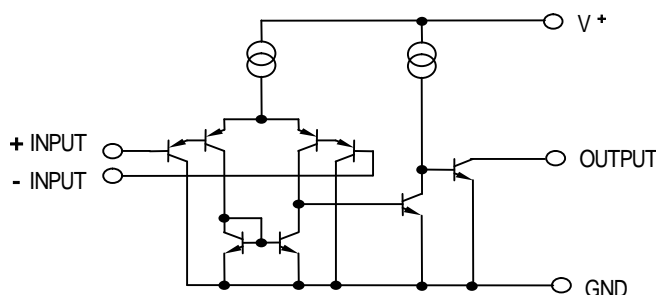
■ PIN CONFIGURATION



PIN FUNCTION

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

■ EQUIVALENT CIRCUIT (1/2 Shown)



NJM2903

■ ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V ⁺	36 (or ±18)	V
Differential Input Voltage	V _{ID}	36	V
Input Voltage	V _{IN}	-0.3~+36	V
Power Dissipation	P _D	(DIP8) 500 (DMP8) 300 (SSOP8) 250 (SIP8) 800 (SOP8) 300 (MSOP8(TVSP8)) 320	mW
Operating Temperature Range	T _{opr}	-40~+85	°C
Storage Temperature Range	T _{stg}	-50~+125	°C

■ ELECTRICAL CHARACTERIS

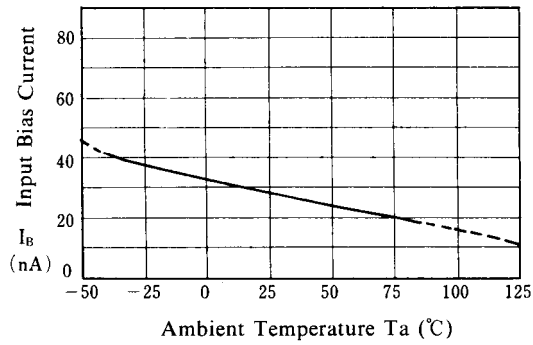
(V⁺=5V, Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Input Offset Voltage	V _{IO}	R _S =0Ω, V _O =1.4V	-	-	7	mV
Input Offset Current	I _{IO}		-	-	50	nA
Input Bias Current	I _B		-	30	250	nA
Input Common Mode Voltage Range	V _{ICM}		0~3.5	-	-	V
Large Signal Voltage Gain	A _V	R _L =15kΩ	-	106	-	dB
Response Time	t _R	R _L =5.1kΩ	-	1.5	-	μs
Output Sink Current	I _{SINK}	V _{IN} ⁻ =1V, V _{IN} ⁺ =0V, V _O =1.5V	6	-	-	mA
Output Saturation Voltage	V _{SAT}	V _{IN} ⁻ =1V, V _{IN} ⁺ =0V, I _{SINK} =3mA	-	200	400	mV
Output Leakage Current	I _{LEAK}	V _{IN} ⁻ =0V, V _{IN} ⁺ =1V, V _O =5V	-	-	1.0	μA
Operating Current	I _{CC}		-	0.4	1.0	mA

■ TYPICAL CHARACTERISTICS

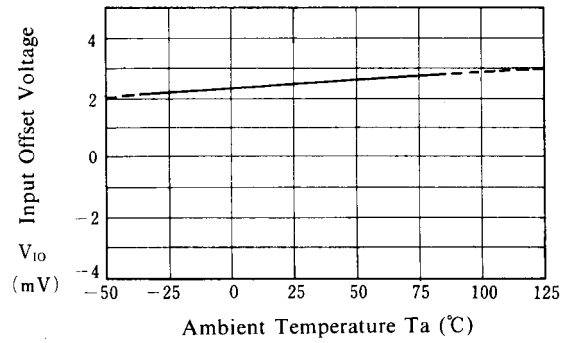
Input Bias Current vs. Temperature

($V^+ = 5\text{ V}$)



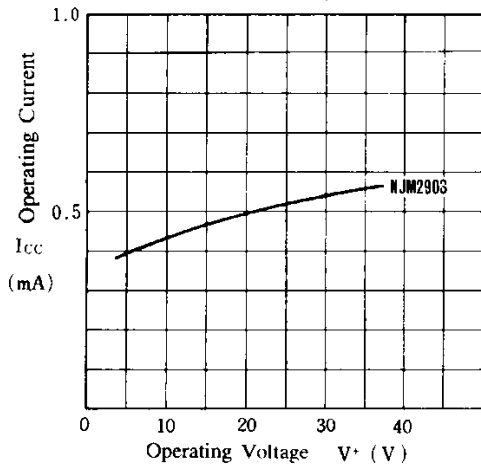
Input Offset Voltage vs. Temperature

($V^+ = 5\text{ V}$)



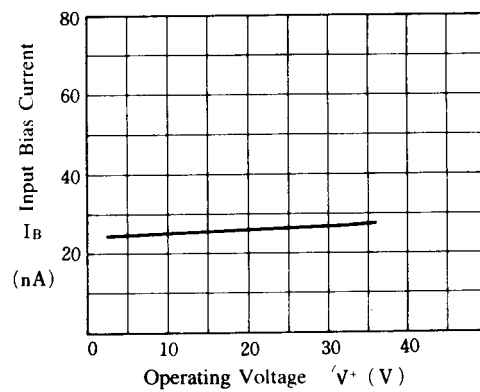
Operating Current vs. Operating Voltage

($T_a = 25^\circ\text{C}$)



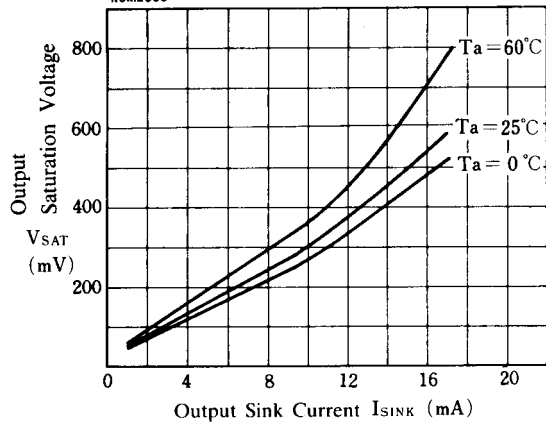
Input Bias Current vs. Operating Voltage

($T_a = 25^\circ\text{C}$)



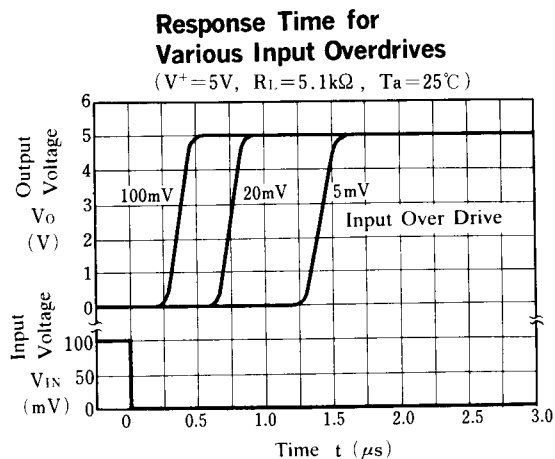
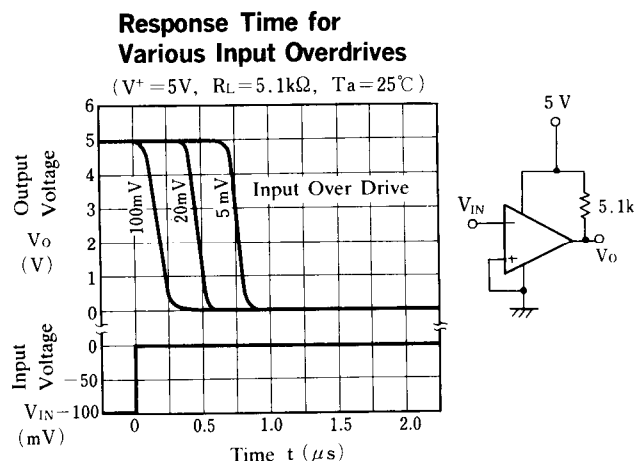
NJM2903 Output Saturation Voltage vs. Output Sink Current

NJM2903 ($V^+ = 5\text{ V}$)

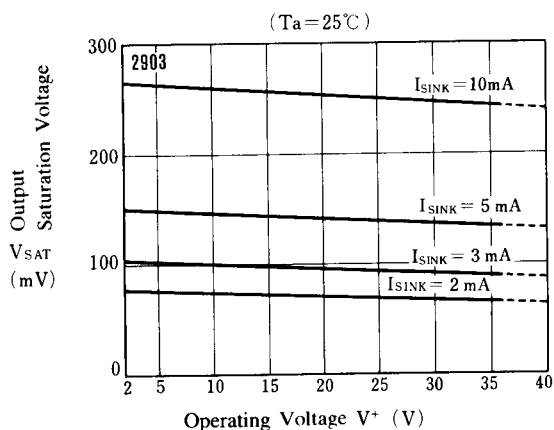


NJM2903

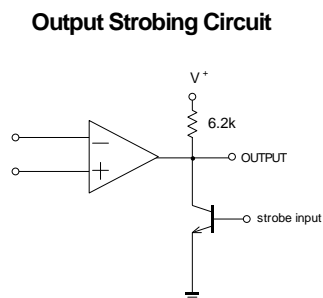
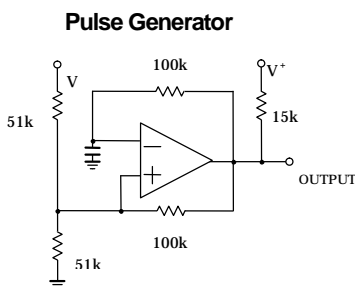
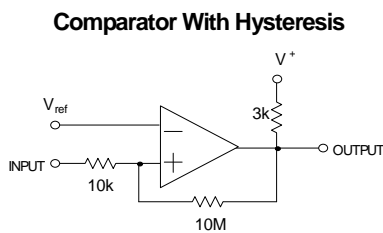
■ TYPICAL CHARACTERISTICS



NJM2903 Output Saturation Voltage vs. Operating Voltage



■ TYPICAL APPLICATIONS



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