

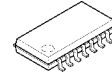
SINGLE SUPPLY QUAD COMPARATOR

■ GENERAL DESCRIPTION

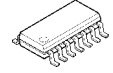
The NJM12901 is single-supply quad voltage comparator, which can operate from 2V supply. The features are low input offset voltage, low input bias current and low current consumption. The NJM12901 compare the input signal to 0V (ground) due to the Darlington PNP input stage.

The package lineup is DMP and others compact, so that the NJM12901 is suitable for any kind of signal comparator.

■ PACKAGE OUTLINE



NJM12901M



NJM12901E

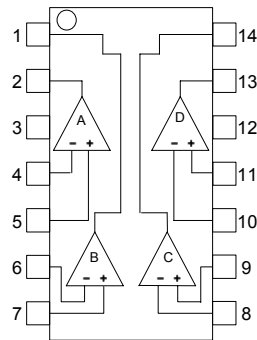


NJM12901V

■ FEATURES

- Operating Voltage (+2V ~ +14V)
- Open Collector Output
- Bipolar Technology
- Package Outline DMP14,EMP14,SSOP14

■ PIN CONFIGURATION



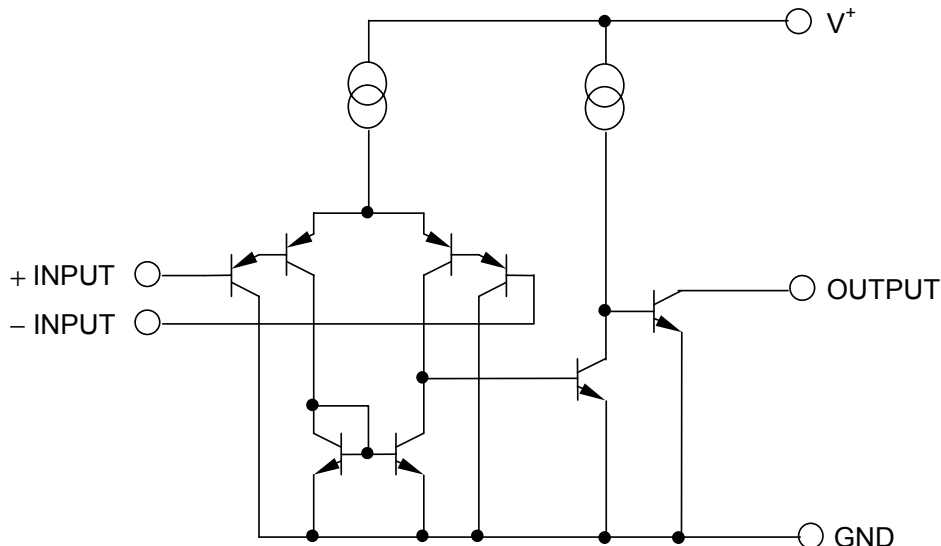
NJM12901M

NJM12901E/12901V

PIN FUNCTION

- | | |
|-------------------|---------------|
| 1. B OUTPUT | 8. C - INPUT |
| 2. A OUTPUT | 9. C +INPUT |
| 3. V ⁺ | 10. D - INPUT |
| 4. A - INPUT | 11. D +INPUT |
| 5. A +INPUT | 12. GND |
| 6. B - INPUT | 13. D OUTPUT |
| 7. B +INPUT | 14. C OUTPUT |

■ EQUIVALENT CIRCUIT (1/4 Shown)



NJM12901

■ ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V^+	15	V
Differential Input Voltage	V_{ID}	14	V
Input Voltage	V_{IC}	-0.3~+14	V
Power Dissipation	P_D	(DMP14) 300 (EMP14) 300 (SSOP14) 300	mW
Operating Temperature Range	T_{opr}	-40~+85	°C
Storage Temperature Range	T_{stg}	-50~+125	°C

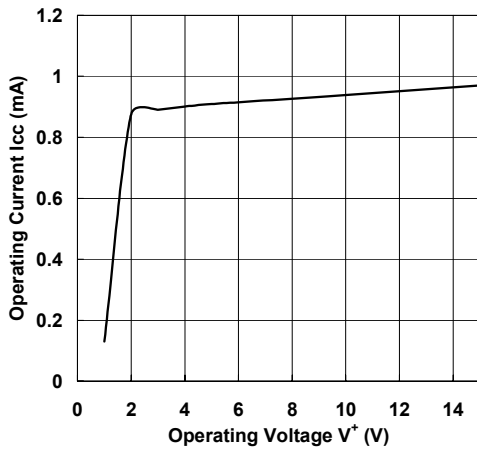
■ ELECTRICAL CHARACTERISTICS

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

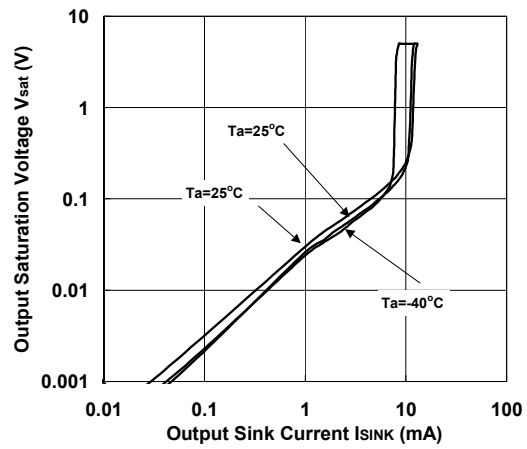
PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Voltage	V_{opr}		2	-	14	V
Input Offset Voltage	V_{IO}	$R_S=0\Omega, V_O=1.4V$	-	1	4	mV
Input Offset Current	I_{IO}		-	5	50	nA
Input Bias Current	I_B		-	30	200	nA
Input Common Mode Voltage Range	V_{ICM}		0~3.5	-	-	V
Large Signal Voltage Gain	A_V	$R_L=15k\Omega$	-	106	-	dB
Response Time	t_R	$R_L=5.1k\Omega$	-	0.5	-	μs
Output Sink Current	I_{SINK}	$V_{IN}^-=1V, V_{IN}^+=0V, V_O=1.5V$	6	10	-	mA
Output Saturation Voltage	V_{SAT}	$V_{IN}^-=1V, V_{IN}^+=0V, I_{SINK}=3mA$	-	80	300	mV
Leakage Current	I_{LEAK}	$V_{IN}^-=0V, V_{IN}^+=1V, V_O=5V$	-	0.1	1.0	μA
Operating Current	I_{CC}	$R_L=\infty$	-	0.8	1.8	mA

■ TYPICAL CHARACTERISTICS

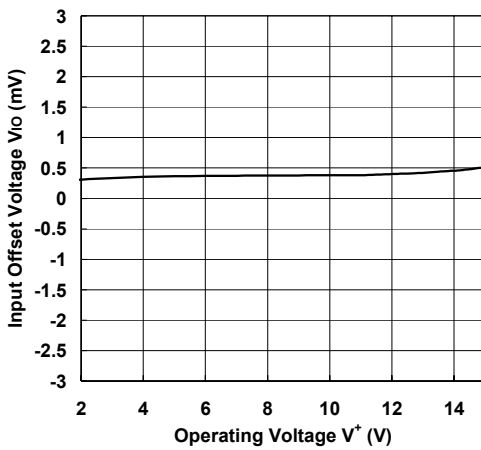
Operating Current v.s Operating Voltage
($R_L = \infty$)



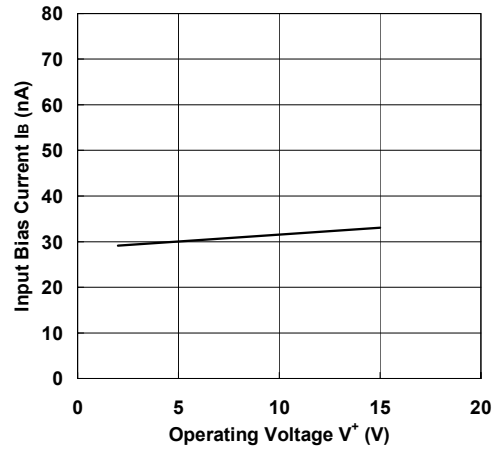
Output Saturation Voltage vs. Output sink Current
($V^+ = 5V$)



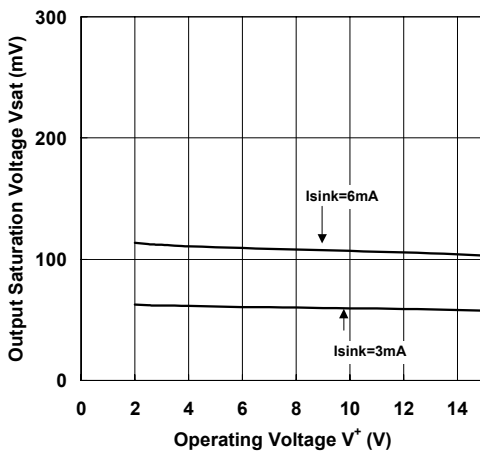
Input Offset Voltage vs. Operating Voltage



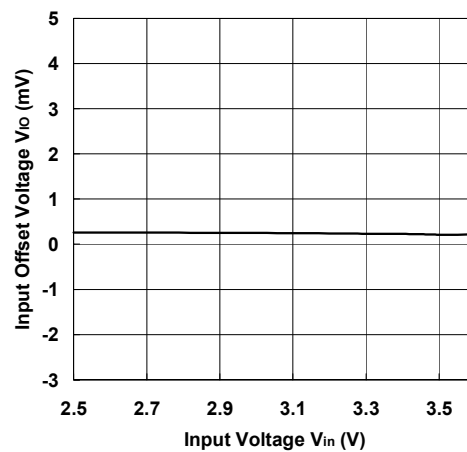
Input Bias Current vs. Operating Voltage



Output Saturation Voltage vs. Operating Voltage



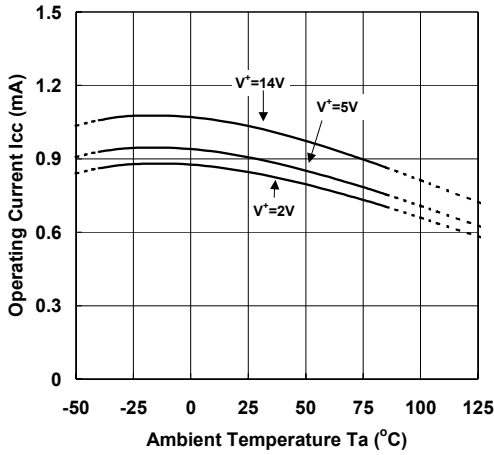
Input Common Mode Voltage Range



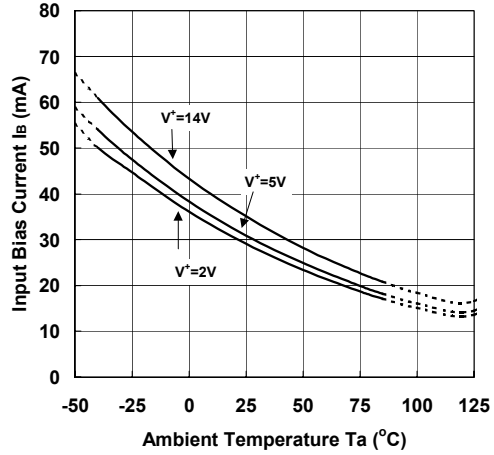
NJM12901

■ TYPICAL CHARACTERISTICS

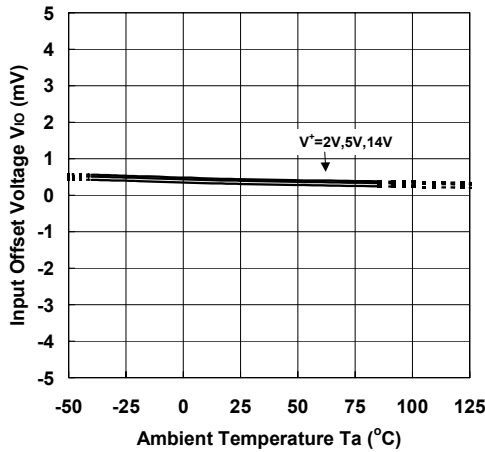
Operating Current vs. Ambient Temperature



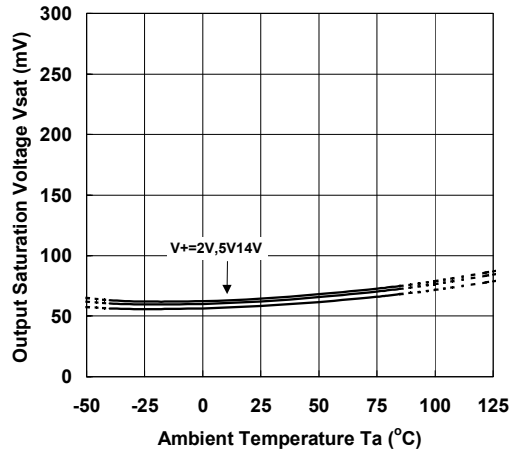
Input Bias Current vs. Ambient Temperature



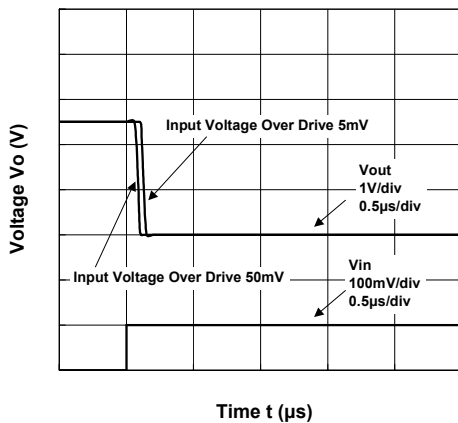
Input Offset Voltage vs. Ambient Temperature



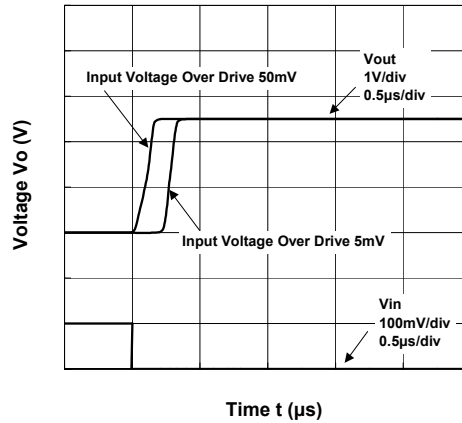
Output Saturation Voltage vs. Ambient Temperature
($I_{sink}=3\text{mA}$)



Pulse Response
($V^+=5\text{V}$, $R_L=5.1\text{k}\Omega$, $T_a=25^{\circ}\text{C}$)



Pulse Response
($V^+=5\text{V}$, $R_L=5.1\text{k}\Omega$, $T_a=25^{\circ}\text{C}$)



[CAUTION]

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