

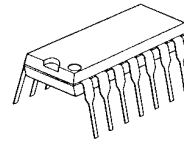
## SINGLE SUPPLY QUAD COMPARATOR

### ■ GENERAL DESCRIPTION

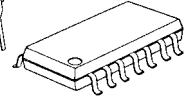
The **NJM12901** is single-supply quad voltage comparator, which can operate from 2V supply. The features are input offset voltage, input bias current and low current consumption. The **NJM12901** compare the input signal to 0V(ground) due to the Darlington PNP input stage.

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

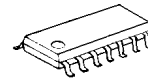
### ■ PACKAGE OUTLINE



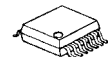
NJM12901D1



NJM12901M



NJM12901E

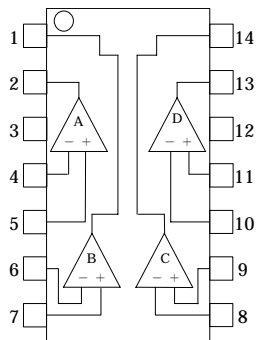


NJM12901V

### ■ FEATURES

- Operating Voltage                   (+2V to +14V)
- Open Collector Output
- Bipolar Technology
- Package Outline                   DIP14,DMP14,EMP14,SSOP14

### ■ PIN CONFIGURATION

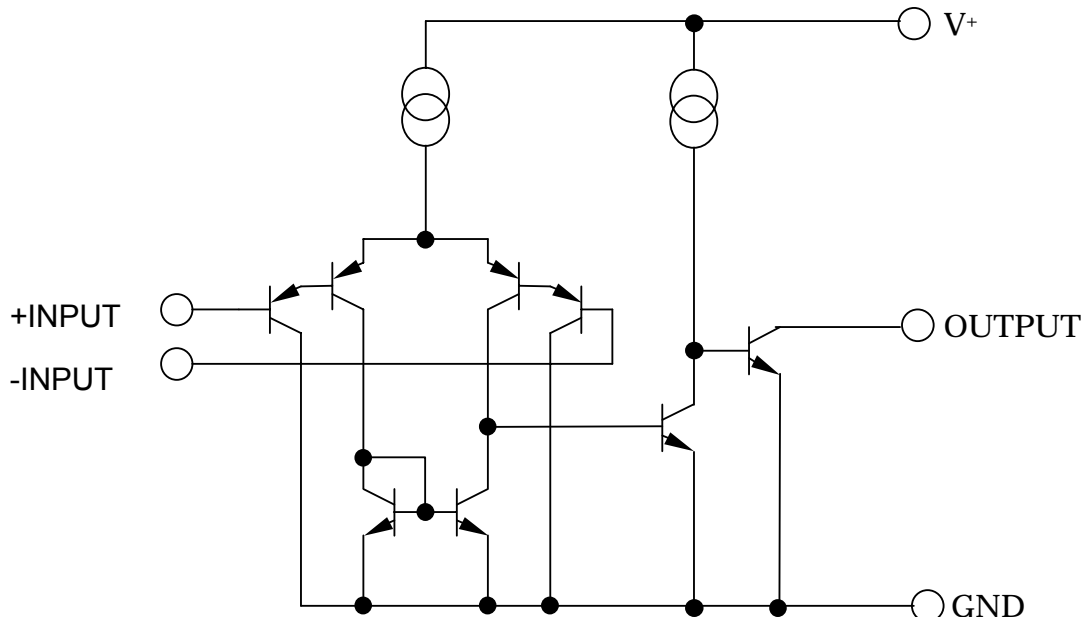


NJM12901D1/12901M  
NJM12901E/12901V

#### PIN FUNCTION

- |                   |              |
|-------------------|--------------|
| 1. B OUTPUT       | 8. C -INPUT  |
| 2. A OUTPUT       | 9. C +INPUT  |
| 3. V <sup>+</sup> | 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)



## ■ ABSOLUTE MAXIMUM RATING

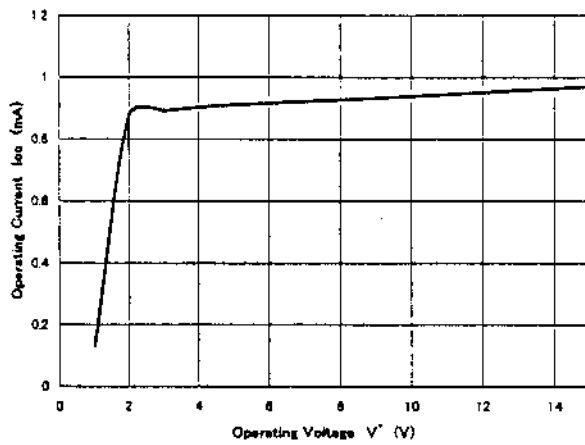
(Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V <sup>+</sup>	15	V
Differential Input Voltage	V <sub>ID</sub>	14	V
Input Voltage	V <sub>IC</sub>	- 0.3 to +14	V
Power Dissipation	P <sub>D</sub>	(DIP14) 700 (DMP14) 300 (EMP14) 300 (SSOP14) 300	mW
Operating Temperature Range	Topr	- 40 to +85	°C
Storage Temperature Range	Tstg	- 50 to +125	°C

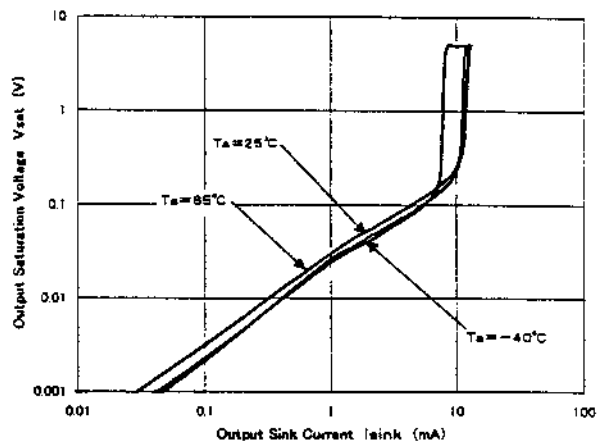
## ■ ELECTRICAL CHARACTERISTICS (V<sup>+</sup>=5V, Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT.
Operating Voltage	Vopr		2	-	14	V
Input Offset Voltage	V <sub>IO</sub>	R <sub>S</sub> =0Ω, V <sub>O</sub> ≈1.4V	-	1	4	mV
Input Offset Voltage	I <sub>IO</sub>		-	5	50	nA
Input Bias Current	I <sub>B</sub>		-	30	200	nA
Input Common Mode Voltage Range	V <sub>ICM</sub>		0 to 3.5	-	-	V
Large Signal Voltage Range	A <sub>V</sub>	R <sub>L</sub> =15kΩ	-	106	-	dB
Response Time	t <sub>R</sub>	R <sub>L</sub> =5.1kΩ	-	0.5	-	μs
Output Sink Current	I <sub>SINK</sub>	V <sub>IN</sub> <sup>+</sup> =0V, V <sub>IN</sub> <sup>-</sup> =1V, V <sub>O</sub> =1.5V	6	10	-	mA
Output Saturation Voltage	V <sub>SAT</sub>	V <sub>IN</sub> <sup>+</sup> =0V, V <sub>IN</sub> <sup>-</sup> =1V, I <sub>SINK</sub> =3mA	-	80	300	mV
Leakage Current	I <sub>LEAK</sub>	V <sub>IN</sub> <sup>+</sup> =1V, V <sub>IN</sub> <sup>-</sup> =0V, V <sub>O</sub> =5V	-	0.1	1.0	μA
Operating Current	I <sub>CC</sub>	R <sub>L</sub> =∞	-	0.8	1.8	mA

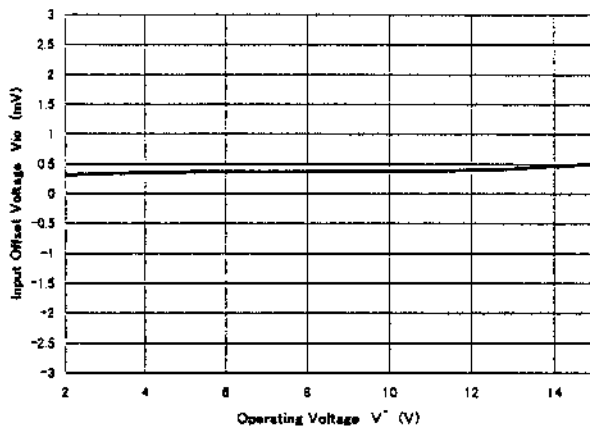
NJM12901 Operating Current vs. Operating Voltage



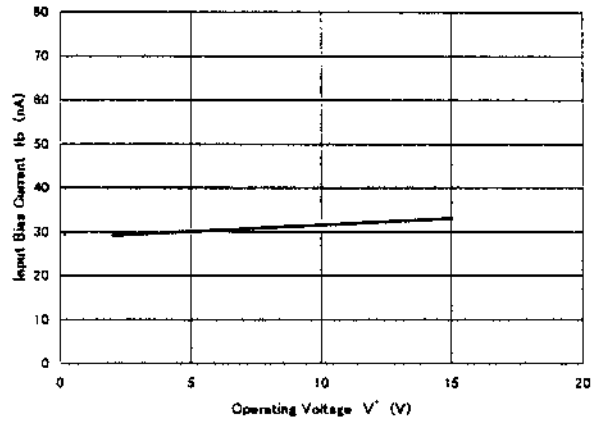
NJM12901 Output Saturation Voltage vs. Output sink Current



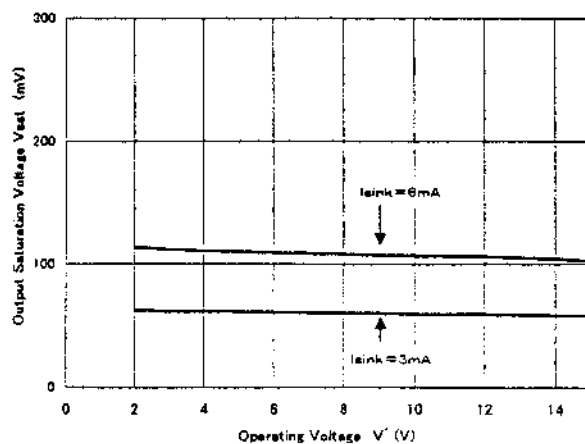
NJM12901 Input Offset Voltage vs. Operating Voltage



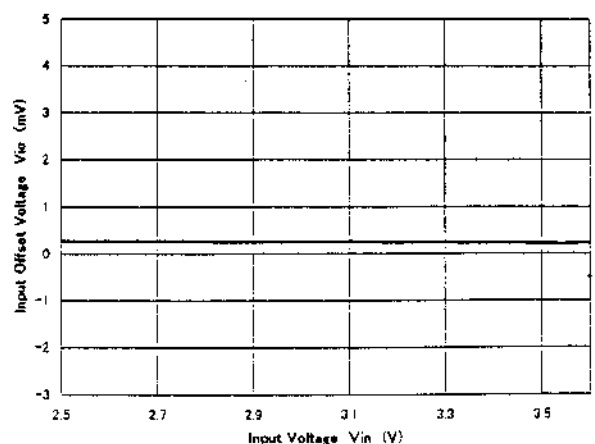
NJM12901 Input Bias Current vs. Operating Voltage



NJM12901 Output Saturation Voltage vs. Operating Voltage

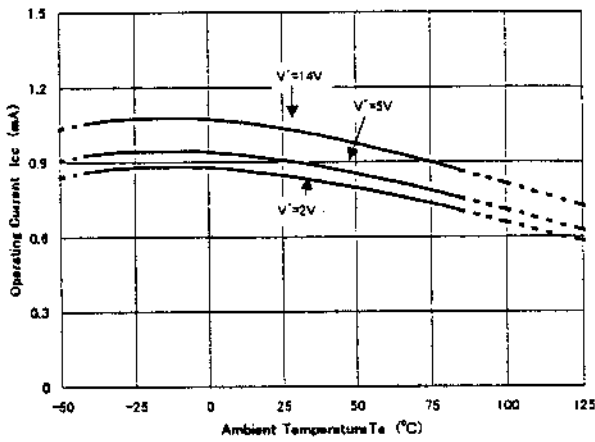


NJM12901 Input Common Mode Voltage Range

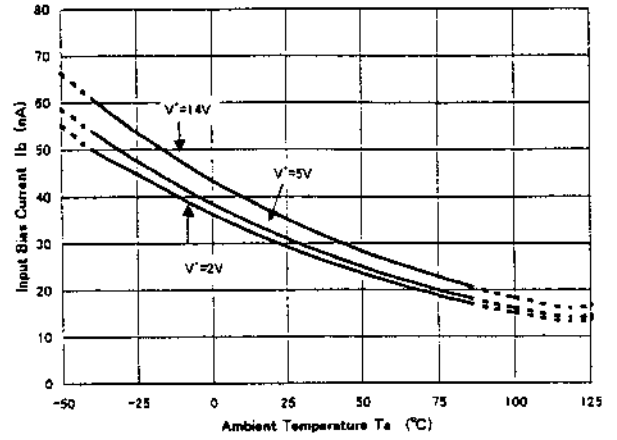


# NJM12901

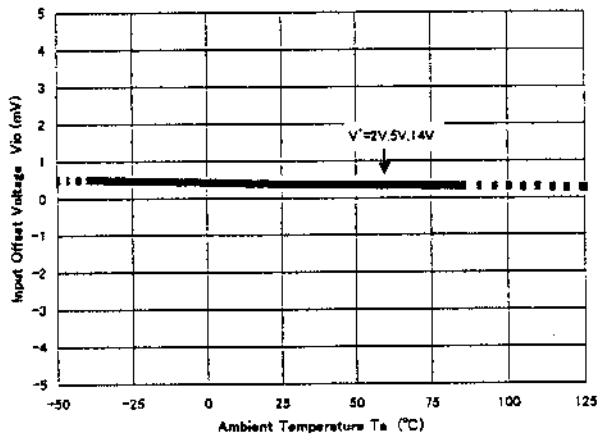
NJM12901 Operating Current vs. Temperature



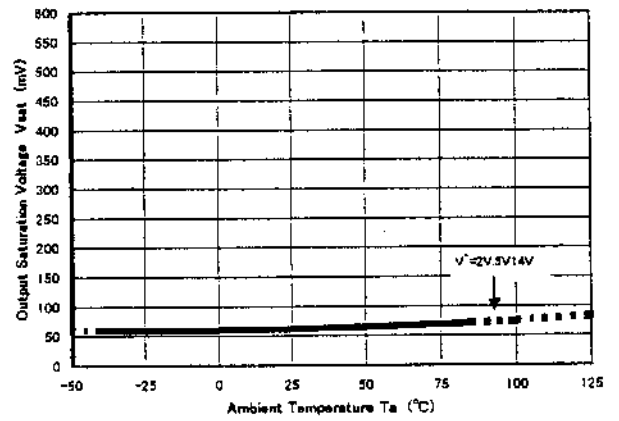
NJM12901 Input Bias Current vs. Temperature



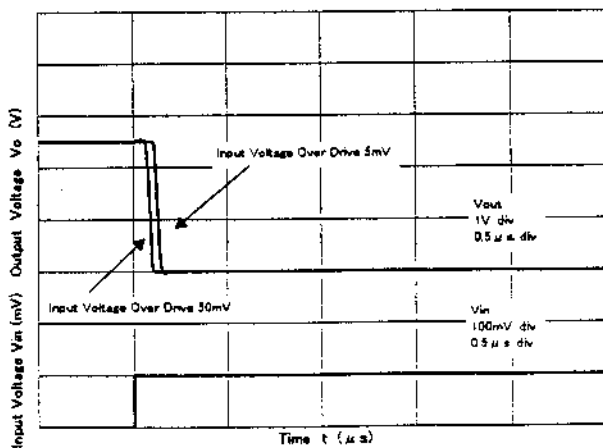
NJM12901 Input Offset Voltage vs. Temperature



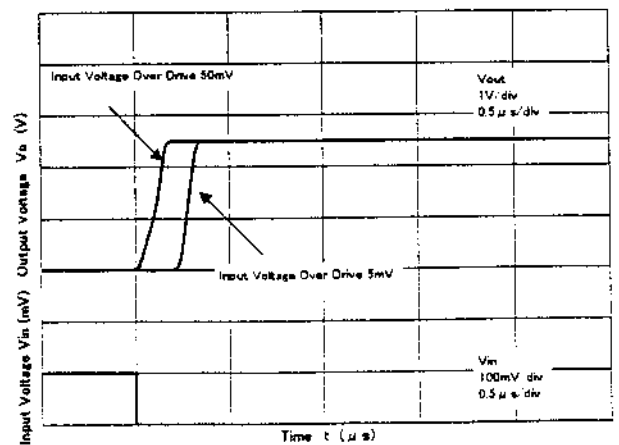
NJM12901 Output Saturation Voltage vs. Temperature  
( $I_{sink}=3mA$ )



NJM12901 Pulse Response



NJM12901 Pulse Response



# MEMO

[CAUTION]  
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