

## SINGLE SUPPLY DUAL COMPARATOR

### ■ GENERAL DESCRIPTION

The NJM12903 is single-supply dual voltage comparator, which can operate from 2V supply. The features are input offset voltage, input bias current and low current consumption.

The NJM12903 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 NJM12903 is suitable for any kind of signal comparator.

### ■ PACKAGE OUTLINE



NJM12903D



NJM12903M



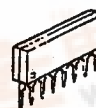
NJM12903E



NJM12903V



NJM12903R



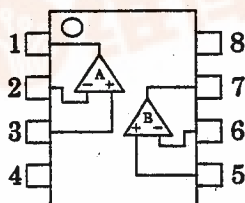
NJM12903L

### ■ FEATURES

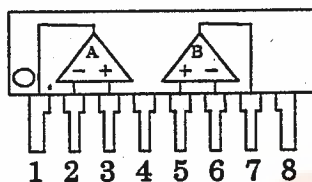
- Operating Voltage (+2V~+14V)
- Open Collector Output
- Bipolar Technology
- Package Outline

DIP8,DMP8,EMP8,SSOP8,  
VSP8,SIP8,SON8(PRELIMINARY)

### ■ PIN CONFIGURATION



NJM12903D/12903M  
NJM12903E/12903V/12903R  
NJM12903x(PRELIMINARY)

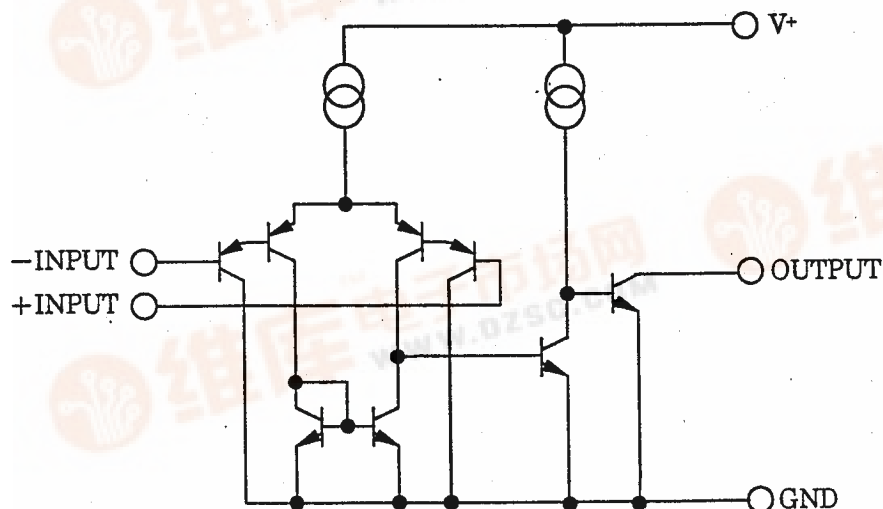


NJM12903L

### PIN FUNCTION

1. A -INPUT
2. A +INPUT
3. A -INPUT
4. GND
5. B +INPUT
6. B -INPUT
7. B OUTPUT
8. V<sup>+</sup>

### ■ EQUIVALENT CIRCUIT (1/2Shown)



**■ ABSOLUTE MAXIMUM RATINGS**

(Ta=25°C)

| PARAMETER                   | SYMBOL           | RATINGS                                                                                          | UNIT |
|-----------------------------|------------------|--------------------------------------------------------------------------------------------------|------|
| Supply Voltage              | V <sup>+</sup>   | 15                                                                                               | V    |
| Differential Input Voltage  | V <sub>IO</sub>  | 14                                                                                               | V    |
| Input Voltage               | V <sub>IC</sub>  | -0.3~+14                                                                                         | V    |
| Power Dissipation           | P <sub>D</sub>   | (DIP8) 500<br>(DMP8) 300<br>(EMP8) 300<br>(SSOP8) 250<br>(VSP8) 320<br>(SIP8) 800<br>(SON8) U.D. | mW   |
| Operating Temperature Range | T <sub>opr</sub> | -40~+85                                                                                          | °C   |
| Storage Temperature Range   | T <sub>stg</sub> | -50~+125                                                                                         | °C   |

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

| PARAMETER                       | SYMBOL            | TEST CONDITION                                                                             | MIN.  | TYP. | MAX. | UNIT |
|---------------------------------|-------------------|--------------------------------------------------------------------------------------------|-------|------|------|------|
| Operating Voltage               | V <sub>opr</sub>  |                                                                                            | 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 Current            | I <sub>IO</sub>   |                                                                                            | —     | 5    | 50   | nA   |
| Input Bias Current              | I <sub>B</sub>    |                                                                                            | —     | 30   | 200  | nA   |
| Large Signal Voltage Gain       | A <sub>V</sub>    | R <sub>L</sub> =15kΩ                                                                       | —     | 106  | —    | dB   |
| Input Common Mode Voltage Range | V <sub>ICM</sub>  |                                                                                            | 0~3.5 | —    | —    | V    |
| 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               | 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   |
| Output Leakage Current          | I <sub>LEAK</sub> | V <sub>IN</sub> <sup>+</sup> =0V, V <sub>IN</sub> <sup>-</sup> =1V, V <sub>O</sub> =5V     | —     | 0.1  | 1.0  | μA   |
| Operating Current               | I <sub>CC</sub>   |                                                                                            | —     | 0.4  | 1.0  | mA   |

# NJM12903

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## MEMO

[CAUTION]  
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