

## SINGLE-SUPPLY DUAL COMPARATOR

### ■ FEATURES

- Operating Temperature       $T_a = -40^{\circ}\text{C}$  to  $+125^{\circ}\text{C}$
  - Operating Voltage             $(+2\text{V}$  to  $+36\text{V})$
  - Single Supply Operation
  - Open Collector Output
  - High Output Sink Current
  - Bipolar Technology
  - Package Outline                SSOP8
  - AEC-Q100                        MSOP8 (VSP8) MEET JEDEC MO-187-DA
- This product meets the reliability level required by AEC-Q100.

### ■ PACKAGE OUTLINE

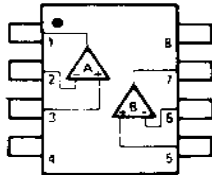


**NJM2903V-T1**  
**(SSOP8)**



**NJM2903R-T1**  
**(MSOP8 (VSP8))**

### ■ PIN CONFIGURATION

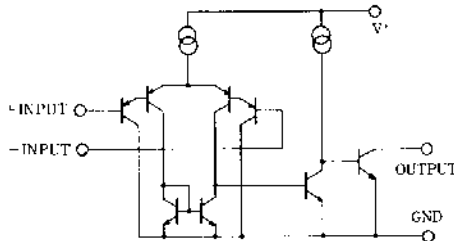


**NJM2903V-T1**  
**NJM2904R-T1**

#### 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 )



# Automotive NJM2903

## ■ ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

PARAMETER	SYMBOL	RATINGS		UNIT
Supply Voltage	V <sup>+</sup> (V <sup>+</sup> /V)	36 (or ±18)		V
Differential Input Voltage	V <sub>ID</sub>	36		V
Input Voltage	V <sub>IN</sub>	-0.3 to +36		V
Power Dissipation	P <sub>D</sub>	SSOP8	410	mW
		VSP8	495	
Operating Temperature Range	T <sub>opr</sub>	-40 to +125		°C
Storage Temperature Range	T <sub>stg</sub>	-50 to +150		°C

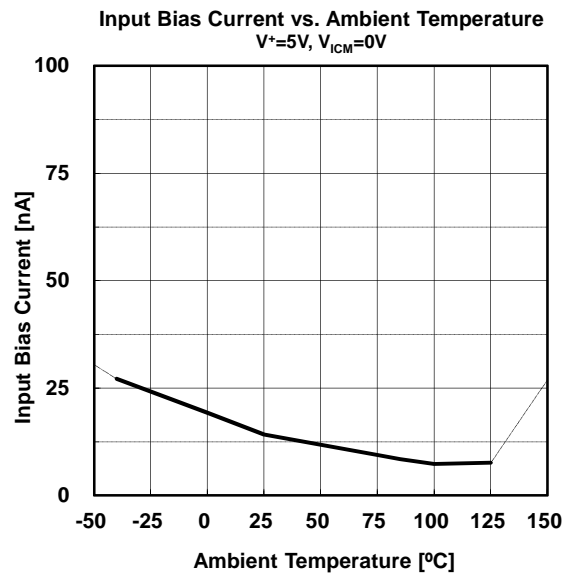
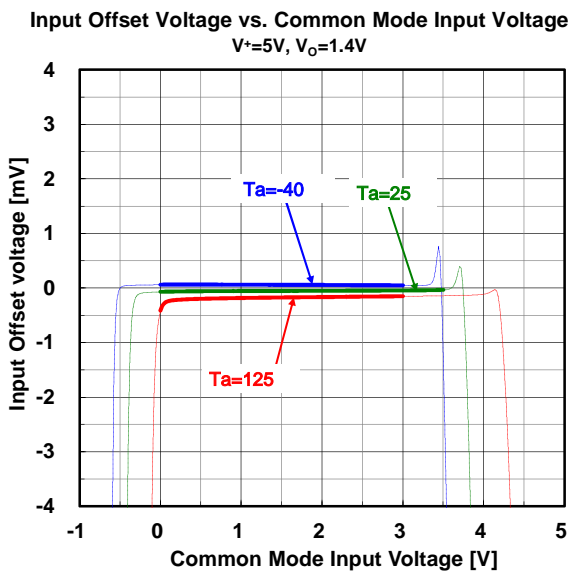
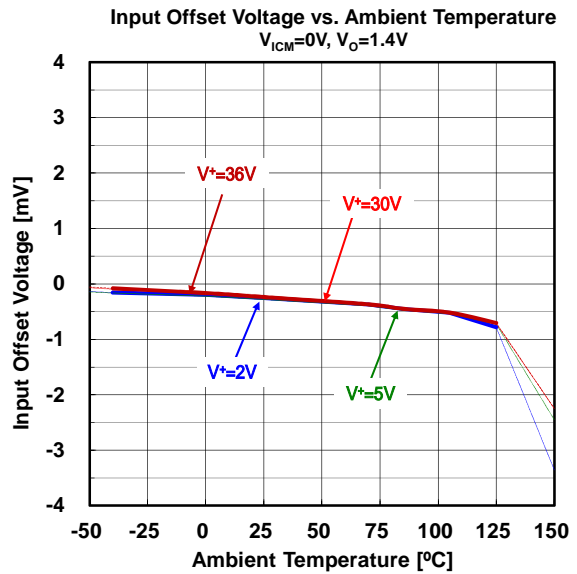
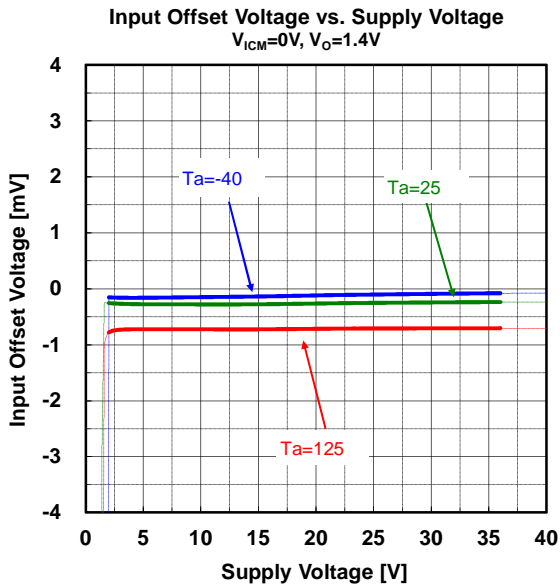
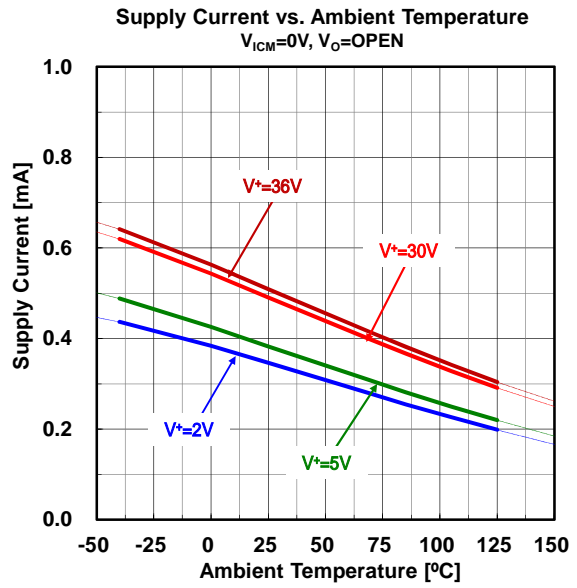
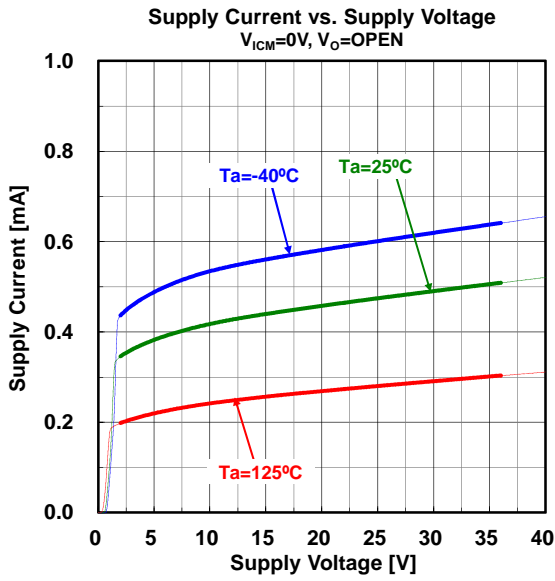
P<sub>D</sub>: EIA/JEDEC STANDARD Test board (76.2 x 114.3 x 1.6mm, 2layers, FR-4) mounting

## ■ ELECTRICAL CHARACTERISTICS

(V<sup>+</sup>=5V, Ta=25 °C, unless otherwise noted)

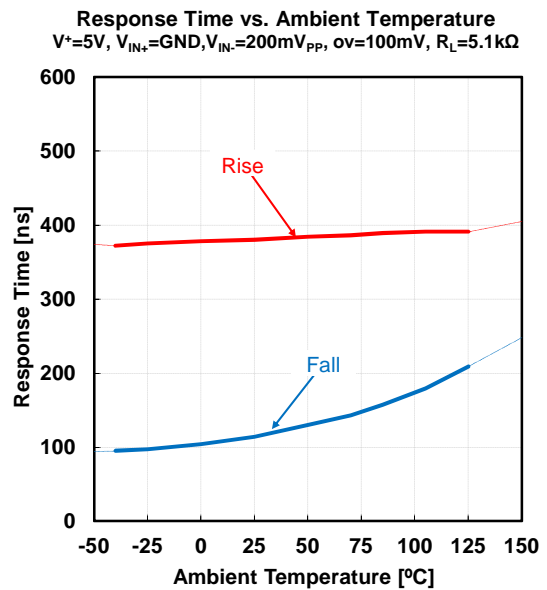
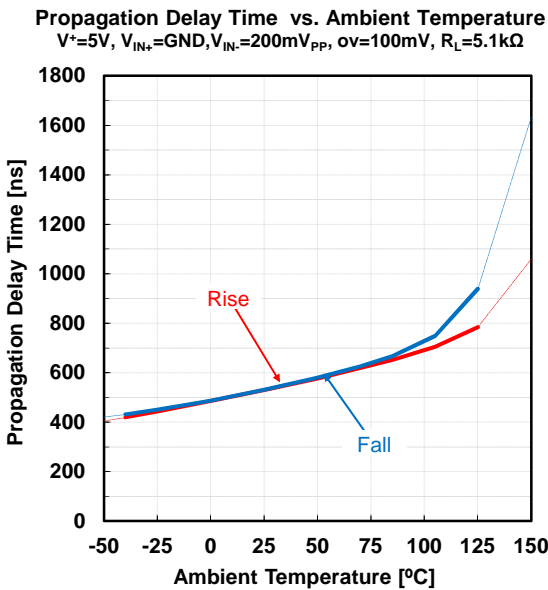
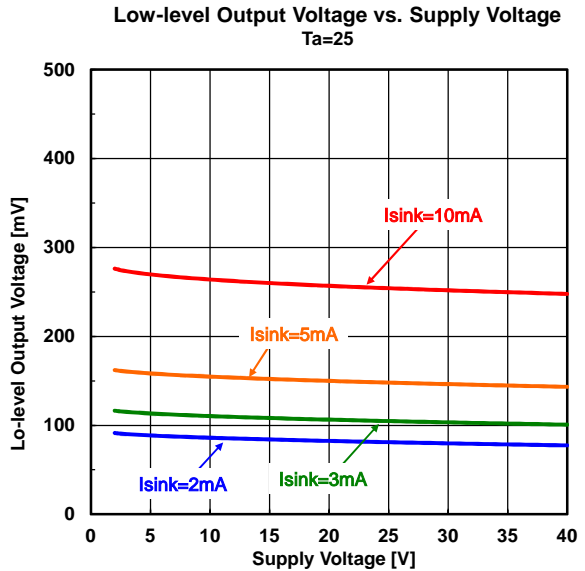
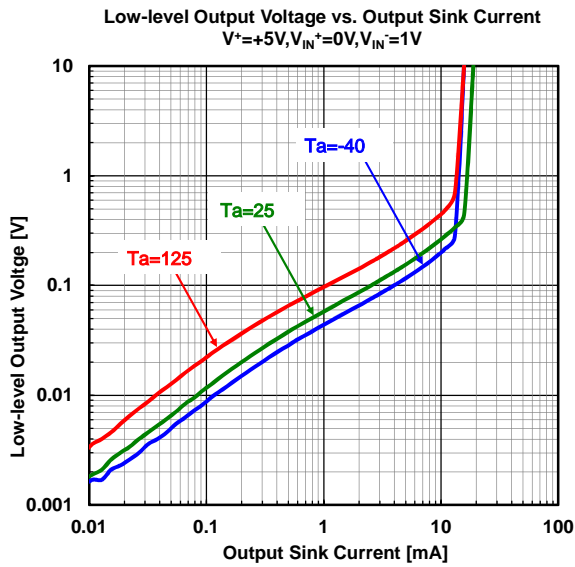
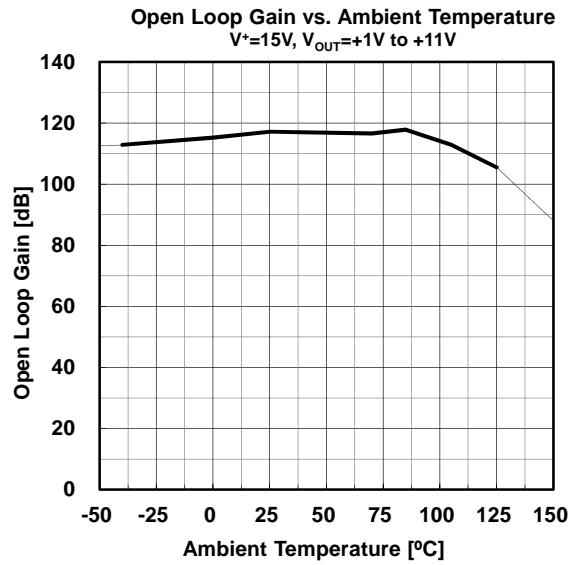
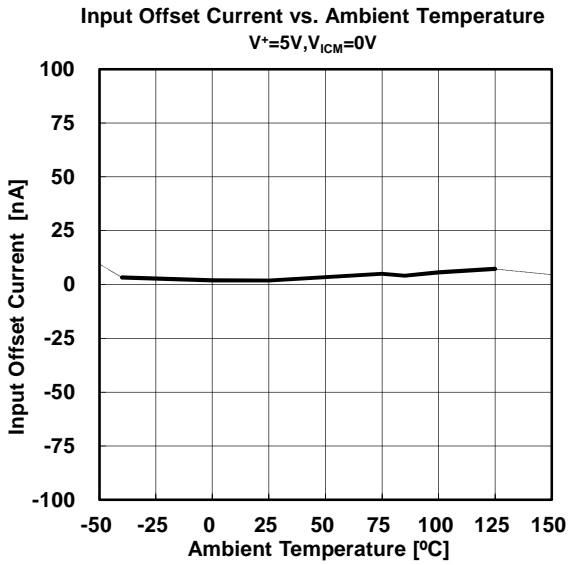
PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Input Offset Voltage	V <sub>IO</sub>	R <sub>S</sub> =0Ω, V <sub>O</sub> =1.4V	-	-	7	mV
		R <sub>S</sub> =0Ω, V <sub>O</sub> =1.4V, Ta=-40°C to +125°C	-	-	14	
Input Offset Current	I <sub>IO</sub>	Ta=-40°C to +125°C	-	-	50	nA
		Ta=-40°C to +125°C	-	-	50	
Input Bias Current	I <sub>B</sub>	Ta=-40°C to +125°C	-	30	250	nA
		Ta=-40°C to +125°C	-	-	275	
Common Mode Input Voltage Range	V <sub>ICM</sub>	Ta=-40°C to +125°C	0	-	3.5	V
		Ta=-40°C to +125°C	0	-	3.0	
Open-Loop Voltage Gain	A <sub>V</sub>	R <sub>L</sub> =15kΩ	-	106	-	dB
Response Time	t <sub>R</sub>	R <sub>L</sub> =5.1kΩ	-	1.5	-	μs
Output Sink Current	I <sub>SINK</sub>	V <sub>IN</sub> <sup>-</sup> =1V, V <sub>IN</sub> <sup>+</sup> =0V, V <sub>O</sub> =1.5V	6	-	-	mA
		V <sub>IN</sub> <sup>-</sup> =1V, V <sub>IN</sub> <sup>+</sup> =0V, V <sub>O</sub> =1.5V, Ta=-40°C to +125°C	3	-	-	
Low-level Output Voltage	V <sub>OL</sub>	V <sub>IN</sub> <sup>-</sup> =1V, V <sub>IN</sub> <sup>+</sup> =0V, I <sub>SINK</sub> =3mA	-	200	400	mV
		V <sub>IN</sub> <sup>-</sup> =1V, V <sub>IN</sub> <sup>+</sup> =0V, I <sub>SINK</sub> =3mA, Ta=-40°C to +125°C	-	-	800	
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	-	-	1.0	μA
		V <sub>IN</sub> <sup>-</sup> =0V, V <sub>IN</sub> <sup>+</sup> =1V, V <sub>O</sub> =5V, Ta=-40°C to +125°C	-	-	10.0	
Supply Current (all comparators)	I <sub>SUPPLY</sub>	Ta=-40°C to +125°C	-	0.4	1.0	mA
		Ta=-40°C to +125°C	-	-	2.0	

## ■ TYPICAL CHARACTERISTICS

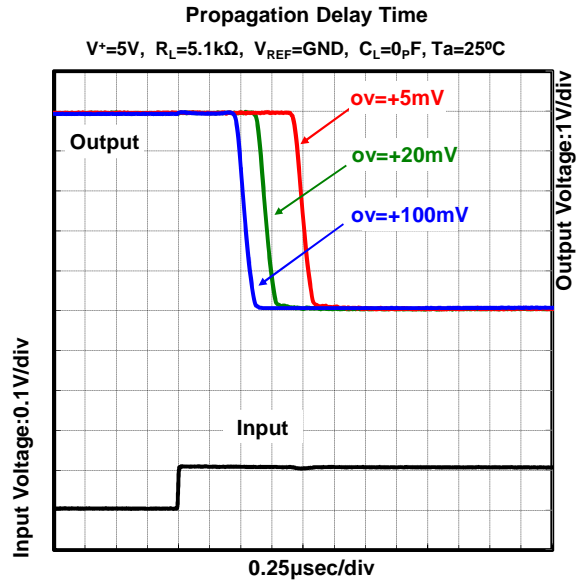
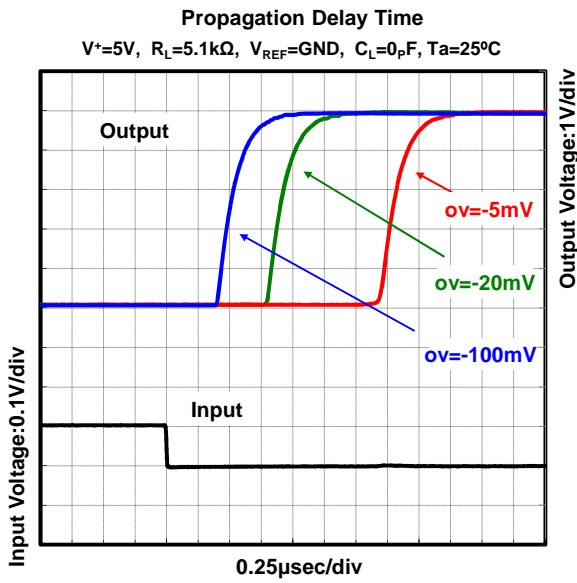


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## ■ TYPICAL CHARACTERISTICS

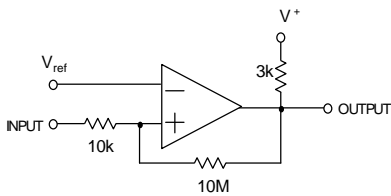


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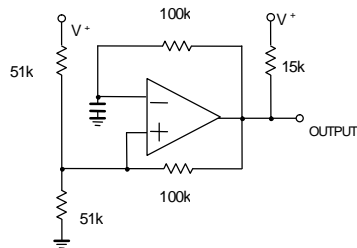


## ■ TYPICAL APPLICATIONS

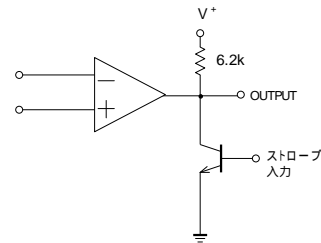
Comparator With Hysteresis



Pulse Generator



Output Strobing Circuit



**[CAUTION]**

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