Nisshinbo Micro Devices Inc.

NJM12903 SIP8 is the NRND product as of February,2023

SINGLE SUPPLY DUAL COMPARATOR

FEATURES

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

DIP8, SIP8, DMP8, SSOP8,
MSOP-8-BM MEET JEDEC MO-187-DA
MSOP8 (VSP8) MEET JEDEC MO-187-DA
MSOP8 (TVSP8) MEET JEDEC MO-187-DA / THIN TYPE

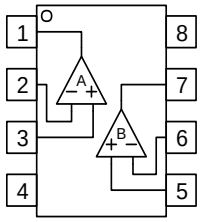
GENERAL DESCRIPTION

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

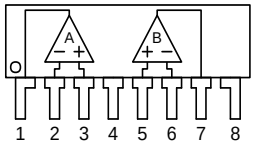
The NJM12903 compare the input signal to 0V (ground) due to the Darlington PNP input stage. In addition, small packages TVSP, VSP, MSOP and SSOP are available. The NJM12903 is suitable for any kind of signal comparator.

PIN CONFIGURATION

(Top View)



NJM12903D/NJM12903M
NJM12903E/NJM12903V
NJM12903R/NJM12903RB1
NJM12903BM



NJM12903L

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

NJM12903RB1
(MSOP8(TVSP8))

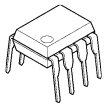
NJM12903R
(MSOP8(VSP8))

NJM12903BM
(MSOP-8-BM)

NJM12903M
(DMP8)

NJM12903E
(SOP8)

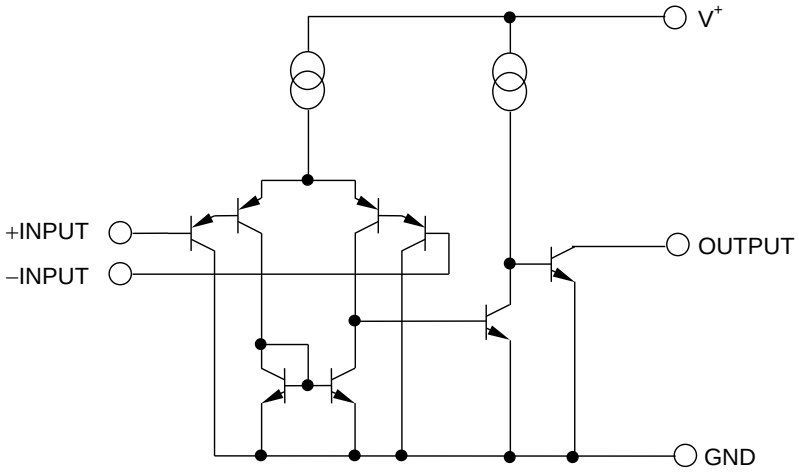
NJM12903V
(SSOP8)



NJM12903D
(DIP8)

NJM12903L
(SIP8)

EQUIVALENT CIRCUIT (1/2 Shown)



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■ ABSOLUTE MAXIMUM RATINGS(Ta=25˚C)

PARAMETER	SYMBOL	RATING	UNIT
Supply Voltage	V^+	15	V
Differential Input Voltage	V_{ID}	14 (note1)	V
Common Mode Input Voltage	V_{IC}	-0.3~+14 (note1)	V
Power Dissipation *	P_D	DIP8 500	mW
		DMP8 300	
		EMP8 300	
		SSOP8 250	
		MSOP8(VSP8/TVSP8)/MSOP-8-BM 320	
		SIP8 800	
Operating Temperature Range	Topr	-40~+85	˚C
Storage Temperature Range	Tstg	-50~+125	˚C

(Note1) For supply voltage less than 14V, the maximum input voltage is equal to the supply voltage.

* IC alone

■ ELECTRICAL CHARACTERISTICS(V^+=5V,Ta=25˚C unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Voltage	V_{OPR}		2	-	14	V
Input Offset Voltage	V_{IO}	Rs=0Ω,Vo≈1.4V	-	1	4	mV
Input Offset Current	I_{IO}		-	5	50	nA
Input Bias Current	I_B		-	30	200	nA
Large Signal Voltage Gain	A_V	R_L=15kΩ	-	106	-	dB
Common Mode Input Voltage Range	V_{ICM}		0~3.5	-	-	V
Response Time	t_R	R_L=5.1kΩ	-	0.5	-	μs
Output Sink Current	I_{SINK}	V_{IN}+=0V,V_{IN}-=1V,Vo=1.5V	6	10	-	mA
Output Saturation Voltage	V_{SAT}	V_{IN}+=0V,V_{IN}-=1V,I_{SINK}=3mA	-	80	300	mV
Output Leakage Current	I_{LEAK}	V_{IN}+=0V,V_{IN}-=1V,Vo=5V	-	0.1	1	μA
Supply Current	I_{CC}		-	0.4	1	mA

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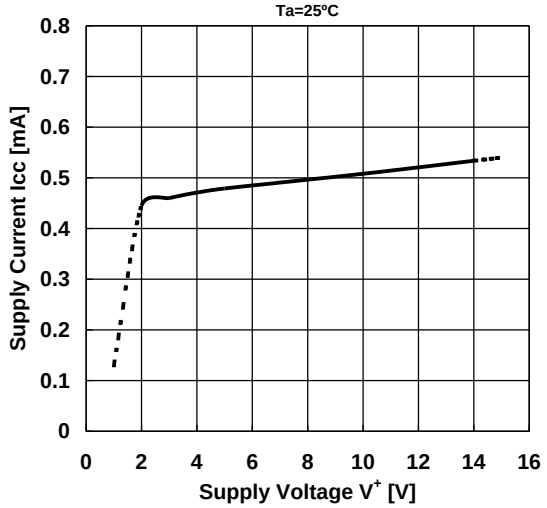
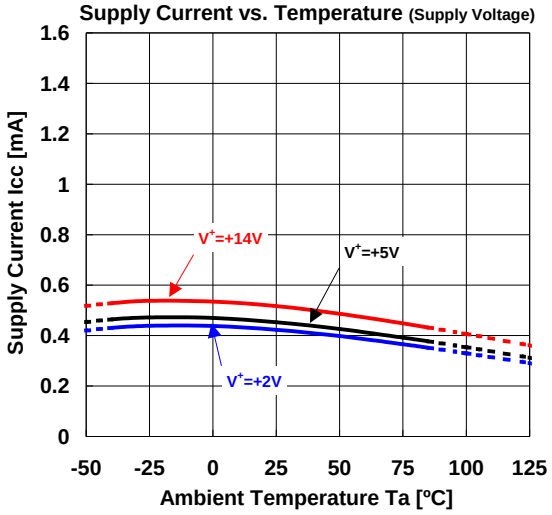
■ TYPICAL CHARACTERISTICS

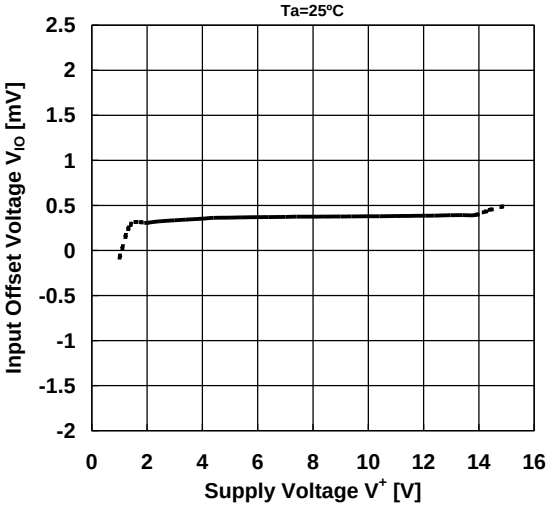
Supply Current vs. Supply Voltage
Ta=25°C



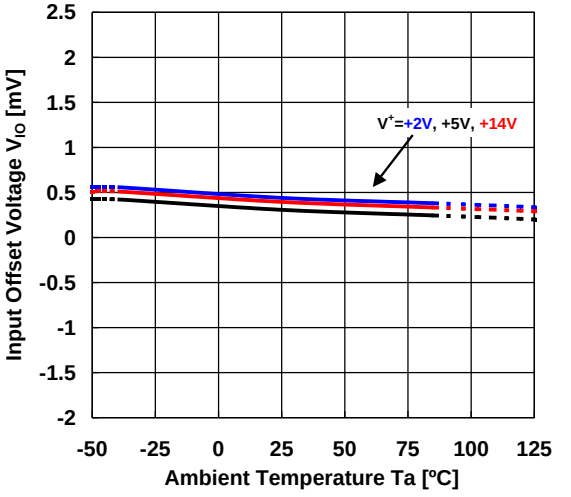
Supply Current vs. Temperature (Supply Voltage)



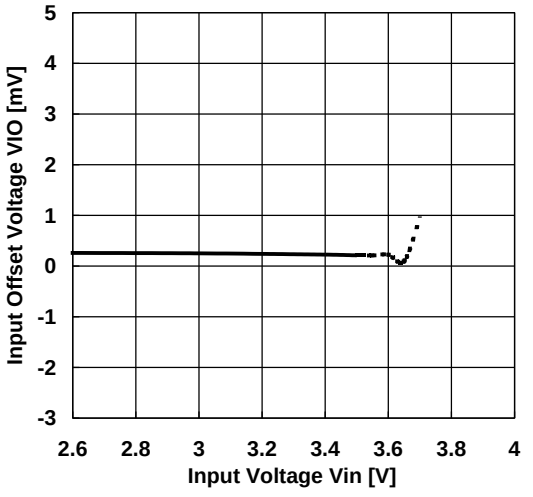
Input Offset Voltage vs. Supply Voltage
Ta=25°C



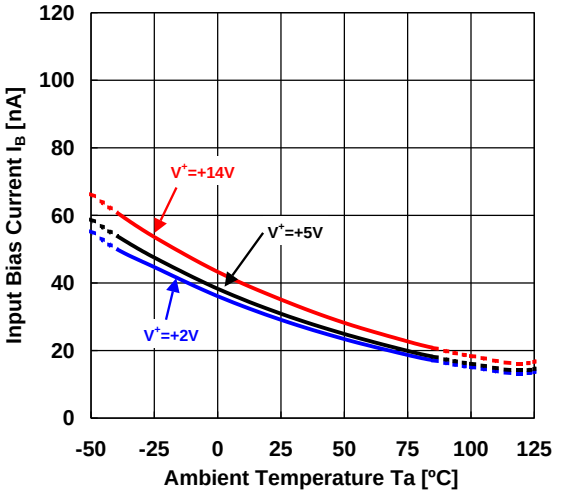
Input Offset Voltage vs. Temperature (Supply Voltage)



Common Mode Input Voltage Range
V+=+5V



Input Bias Current vs. Temperature (Supply Voltage)



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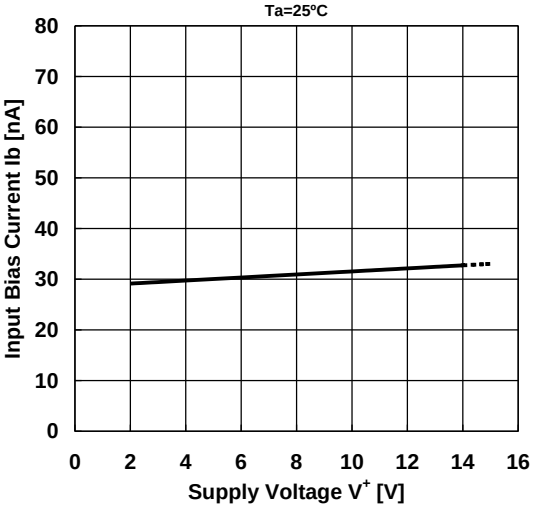
■ TYPICAL CHARACTERISTICS

Input Bias Current vs. Supply Voltage

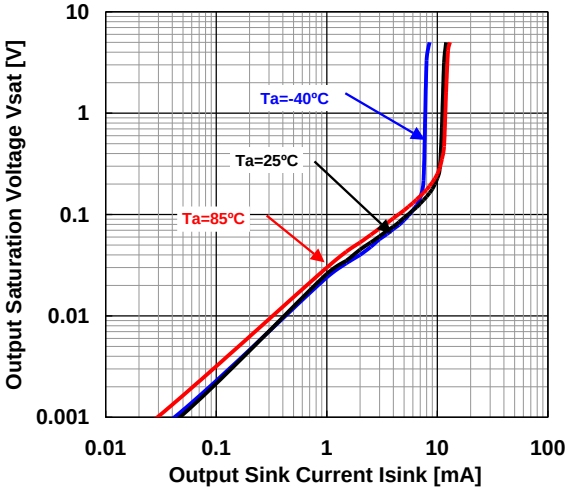
Ta=25°C



Output Saturation Voltage vs. Output Sink Current

(Temperature)

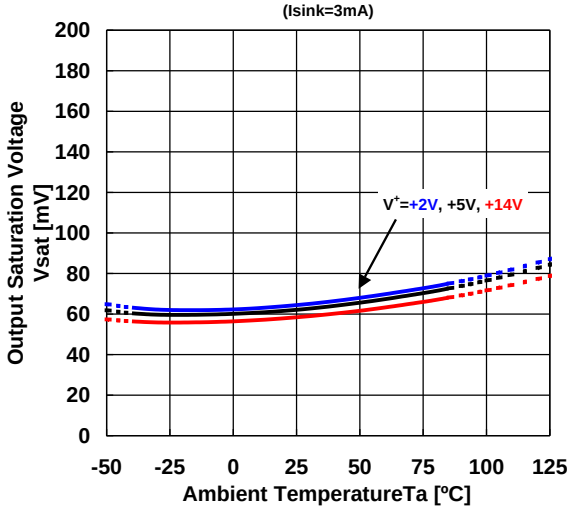
V+=+5V



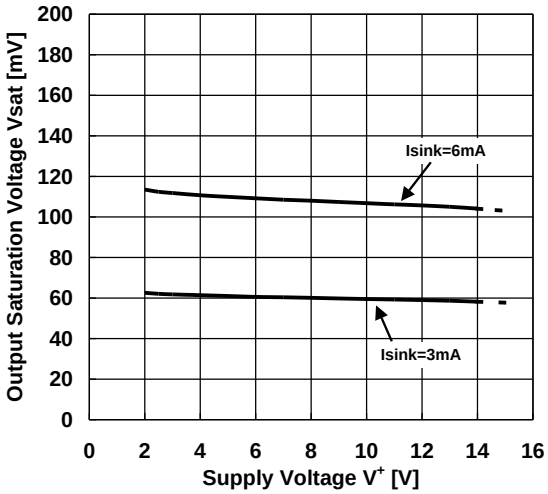
Output Saturation Voltage vs. Temperature

(Supply Voltage)

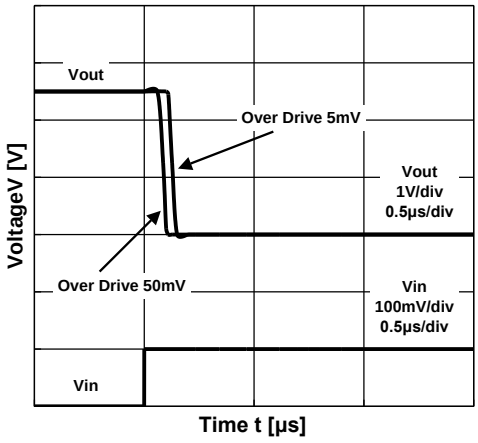
(Isink=3mA)



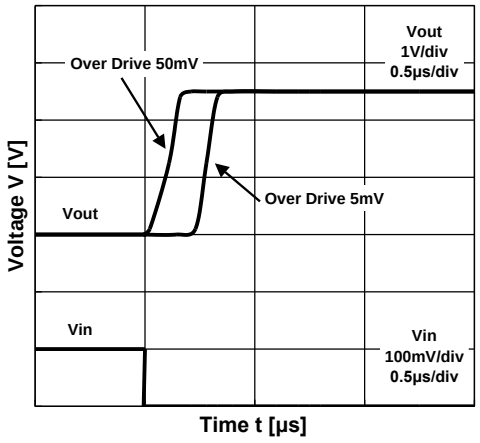
Output Saturation Voltage vs. Supply Voltage



Pulse Response



Pulse Response



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REVISION HISTORY

Date	Revision	Changes
October 13, 2023	Ver. 1.0	・Change of company name and design form ・Revision number (Ver.2014-11-27 → Ver.1.0) ・Added revision history ・Added new package (MSOP-8-BM) ・Added absolute maximum rating power dissipation condition.(IC alone)