

LOW POWER AND LOW OFFSET VOLTAGE SUPER SMALL-SIZED SINGLE C-MOS COMPALATOR

■GENERAL DESCRIPTION

The **NJU7108/09** are super small-sized package single C-MOS comparators with push pull output.

The operating voltage is from 1V to 5.5V, and the interface can be connected with most of TTL and C-MOS type standard logic ICs.

Furthermore, The input offset voltage is lower than 4mV and the package is super small-sized SC88A, therefore they can be suitable for battery use items and other portable items.

■PACKAGE INFORMATION



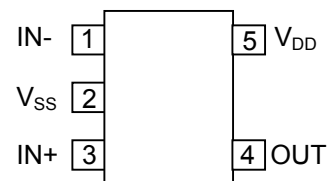
NJU710XF2

■FEATURES

- Single Low Power Supply $V_{DD}=1.0\sim 5.5V$
- Low Offset Voltage $V_{IO}=4mV$ max
- Low Operating Current (See Line-up)
- Push Pull Output
- Package Outline SC88A
- C-MOS Technology

■PIN CONFIGURATION

(Top View)

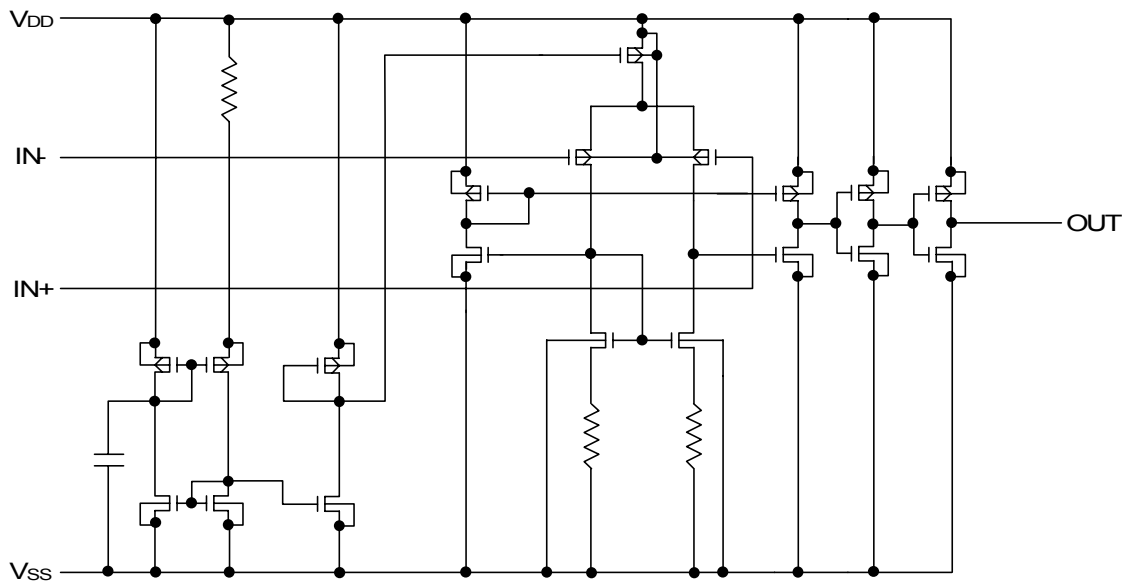


■LINE-UP

($V_{DD}=3.0V, T_a=25^\circ C$)

PARAMETER	NJU7108	NJU7109	UNIT
Operating Current (I_{DD})	10	100	μA (typ)
Propagation Delay (t_{PLH}/t_{PHL})	500/190	110/70	ns(typ)
Output Signal Rising Time Falling Time (t_{TLH}/t_{THL})	10/5	5/4	ns(typ)

■EQUIVALENT CIRCUIT



■ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

PARAMETER	SYMBOL	RATING	UNIT
Supply Voltage	V _{DD}	7.0	V
Differential Input Voltage	V _{ID}	±7.0 (Note1)	V
Common Mode Input Voltage	V _{IC}	-0.3~7.0	V
Power Dissipation	P _D	T.B.D.	mW
Operating Temperature	Topr	-40~+85	°C
Storage Temperature	Tstg	-55~+125	°C

Note1) If the supply voltage (V_{DD}) is less than 7.0V, the input voltage must not over the V_{DD} level though 7.0V is limit specified.

Note2) Decoupling capacitor should be connected between V_{DD} and V_{SS} due to the stabilized operation for the circuit.

■ ELECTRICAL CHARACTERISTICS

NJU7108

($V_{DD}=3.0V, R_L=\infty, T_a=25^\circ C$)

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Operating Voltage	V_{DD}		1.0	-	5.5	V
Input Offset Voltage	V_{IO}	$V_{IN}=V_{DD}/2$	-	-	4	mV
Input Offset Current	I_{IO}		-	1	-	pA
Input Bias Current	I_{IB}		-	1	-	pA
Input Common Mode Voltage Range	V_{ICM}		0~2.5	-	-	V
High Level Output Voltage	V_{OH}	$I_{OH}=-5mA$	2.7	-	-	V
Low Level Output Voltage	V_{OL}	$I_{OL}=+5mA$	-	-	0.3	V
Operating Current	I_{DD}		-	10	20	uA

($V_{DD}=3.0V, f=10kHz, C_L=15pF, T_a=25^\circ C$)

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Propagation Delay Low to High	t_{PLH}	Over Drive=100mV	-	500	-	ns
Propagation Delay High to Low	t_{PHL}	Over Drive=100mV	-	190	-	ns
Output Signal Rising Time	t_{TLH}	Over Drive=100mV	-	10	-	ns
Output Signal Falling Time	t_{THL}	Over Drive=100mV	-	5	-	ns

NJU7109

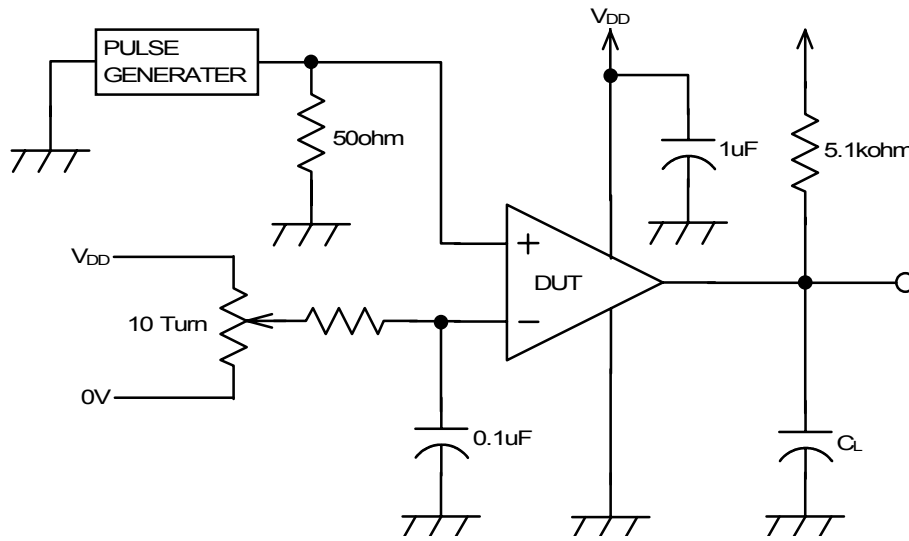
($V_{DD}=3.0V, R_L=\infty, T_a=25^\circ C$)

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Operating Voltage	V_{DD}		1.0	-	5.5	V
Input Offset Voltage	V_{IO}	$V_{IN}=V_{DD}/2$	-	-	4	mV
Input Offset Current	I_{IO}		-	1	-	pA
Input Bias Current	I_{IB}		-	1	-	pA
Input Common Mode Voltage Range	V_{ICM}		0~2.5	-	-	V
High Level Output Voltage	V_{OH}	$I_{OH}=-5mA$	2.7	-	-	V
Low Level Output Voltage	V_{OL}	$I_{OL}=+5mA$	-	-	0.3	V
Operating Current	I_{DD}		-	100	200	uA

($V_{DD}=3.0V, f=10kHz, C_L=15pF, T_a=25^\circ C$)

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Propagation Delay Low to High	t_{PLH}	Over Drive=100mV	-	110	-	ns
Propagation Delay High to Low	t_{PHL}	Over Drive=100mV	-	70	-	ns
Output Signal Rising Time	t_{TLH}	Over Drive=100mV	-	5	-	ns
Output Signal Falling Time	t_{THL}	Over Drive=100mV	-	4	-	ns

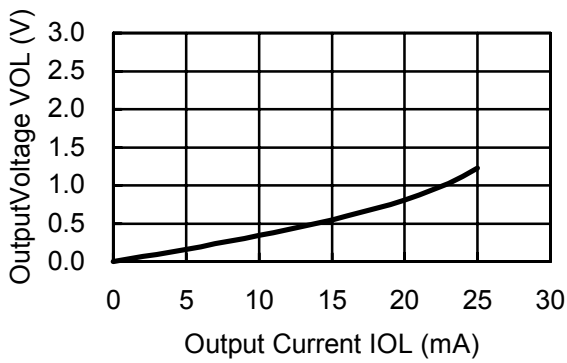
SWITCHING CHARACTERISTICS MEASUREMENT CIRCUIT



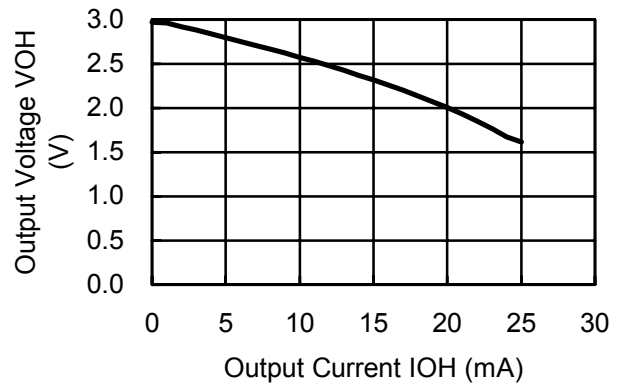
TYPICAL CHARACTERISTICS

(1) NJU7108

Output Voltage vs. Output Current (Sink)

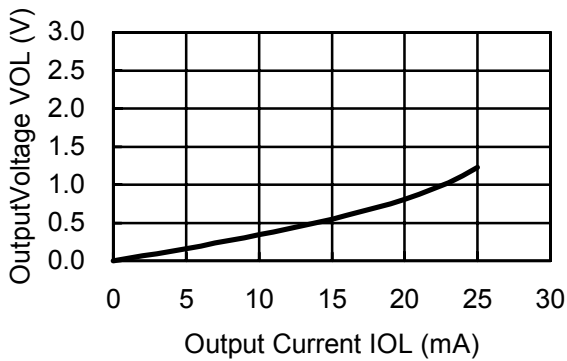


Output Voltage vs. Output Current (Source)

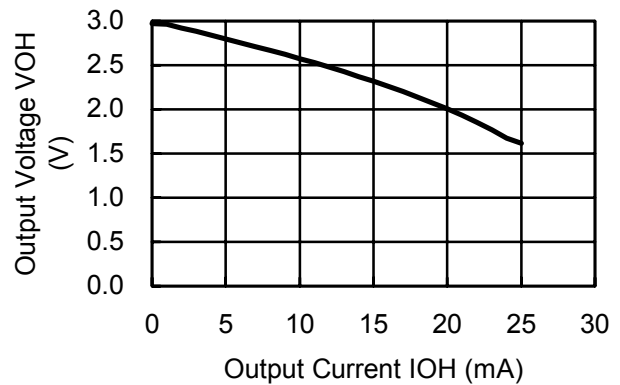


(2) NJU7109

Output Voltage vs. Output Current (Sink)



Output Voltage vs. Output Current (Source)



MEMO

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