

## LOW-VOLTAGE OPERATION TINY SINGLE CMOS COMPARATOR

### ■ GENERAL DESCRIPTION

The NJU7141 is a low voltage single-power-supply operation single CMOS comparator with open drain output.

The NJU7141 operated from 1 to 5.5V supply and interface with most of TTL and CMOS type standard logic ICs.

The NJU7141 is in SOT-23-5 package, and it is suitable for battery use items and other portable system.

### ■ PACKAGE OUTLINE

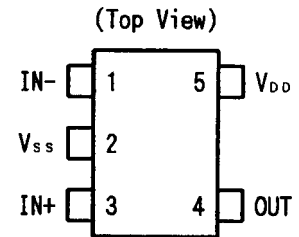


NJU7141F

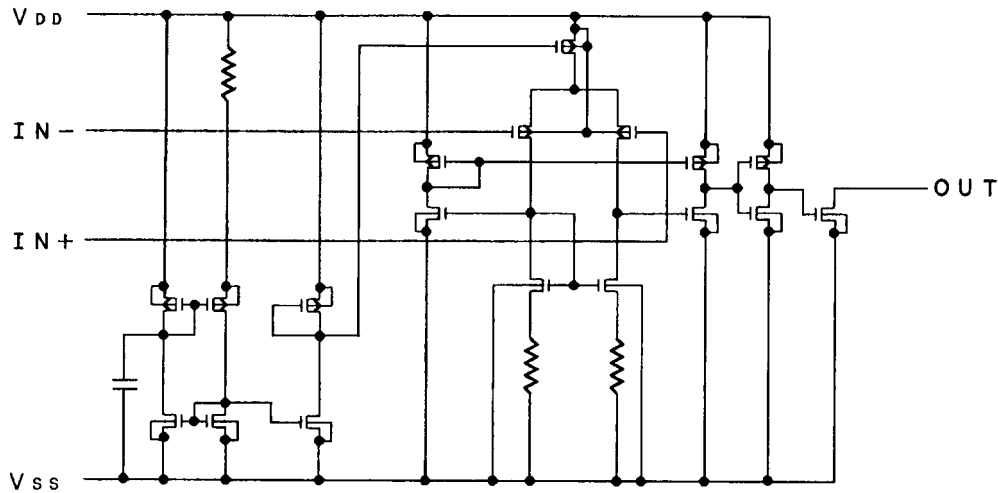
### ■ FEATURES

- Single-Power-Supply ( $V_{DD}=1$  to  $5.5V$ )
- Input Offset Voltage ( $V_{IO}=10mV$  max.@  $3.0V$ )
- Low Operating Current ( $I_{DD}=5\mu A$  typ.)
- Low Input Bias Current ( $I_{IB}=1pA$  typ.)
- Open Drain Output
- Output Signal Falling Time ( $30ns$  typ.)
- C-MOS Technology
- Package Outline SOT-23-5

### ■ PIN CONFIGURATION



### ■ EQUIVALENT CIRCUIT



# NJU7141

## ■ ABSOLUTE MAXIMUM RATINGS

( Ta=25°C )

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V <sub>IN</sub>	7	V
Differential Input Voltage	V <sub>ID</sub>	± 7 ( note1 )	V
Common Mode Input Voltage	V <sub>IC</sub>	-0.3~7	V
Power Dissipation	P <sub>D</sub>	200	mW
Operating Temperature Range	T <sub>opr</sub>	-40~+85	°C
Storage Temperature Range	T <sub>stg</sub>	-55~+125	°C

( note1 ) If the supply voltage ( V<sub>DD</sub> ) is less than 7V, the input voltage must not over the V<sub>DD</sub> level though 7V is limit specified.

( note2 ) Decoupling capacitor should be connected between V<sub>DD</sub> and V<sub>SS</sub> due to the stabilized operation for the circuit.

## ■ ELECTRICAL CHARACTERISTICS

( Ta=25°C, V<sub>DD</sub>=3.0V, R<sub>L</sub>=∞ )

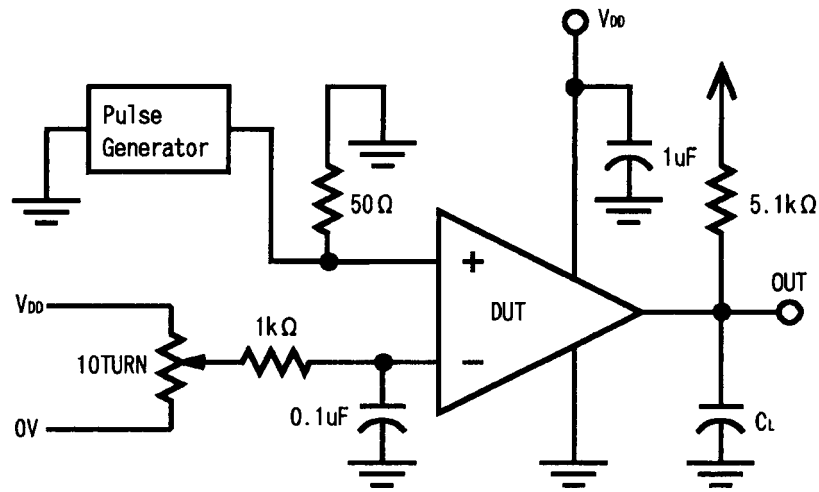
PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Voltage	V <sub>DD</sub>		1.0	-	5.5	V
Input Offset Voltage	V <sub>IO</sub>	V <sub>IN</sub> =1/2V <sub>DD</sub>	-	-	10	mV
Input Offset Current	I <sub>IO</sub>		-	1	-	pA
Input Bias Current	I <sub>IB</sub>		-	1	-	pA
Input Common Mode Voltage Range	V <sub>ICM</sub>		0~2.5	-	-	V
Output Leakage Current	I <sub>OFF</sub>	V <sub>OH</sub> =V <sub>DD</sub>	-	-	1	μA
Low Level Output Voltage	V <sub>OL</sub>	I <sub>OL</sub> =2mA	-	-	0.3	V
Common Mode Rejection Ratio	CMR	V <sub>IC</sub> =1/2V <sub>DD</sub>	55	-	-	dB
Supply Voltage Rejection Ratio	SVR	V <sub>DD</sub> =3~5V	60	-	-	dB
Operating Current	I <sub>DD</sub>	No Load, V <sub>O</sub> =0V	-	5	12	μA

## ■ SWITCHING CHARACTERISTICS

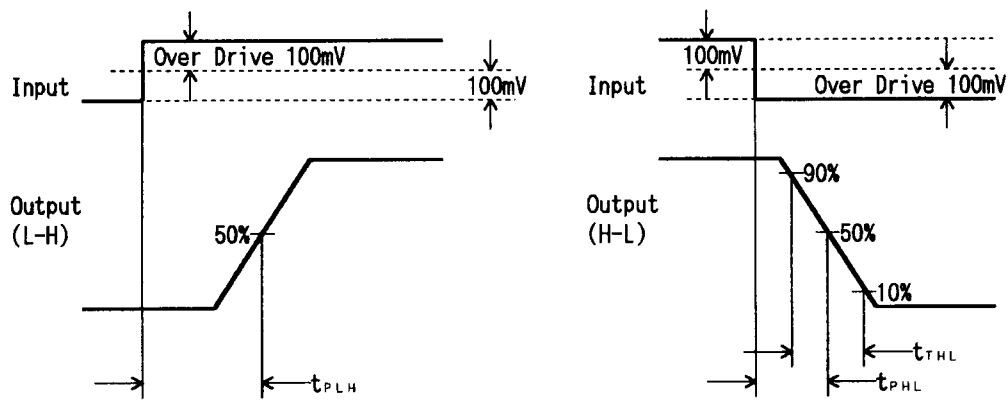
( Ta=25°C, V<sub>DD</sub>=3.0V, f=10kHz, C<sub>L</sub>=15pF )

PARAMETER	SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNIT	
Propagation Delay High to Low	t <sub>PHL</sub>	Over Drive=100mV	V <sub>IC</sub> =0V	-	0.35	-	μs
		TTL Level Step		-	0.10	-	
Propagation Delay Low to High	t <sub>PLH</sub>	Over Drive=100mV	V <sub>IC</sub> =0V	-	0.90	-	μs
		TTL Level Step		-	0.60	-	
Output Signal Falling Time	t <sub>THL</sub>	Over Drive=100mV	-	30	-	ns	

## ■ SWITCHING CHARACTERISTICS MEASUREMENT CIRCUIT



## ■ TIMING WAVEFORM



**[CAUTION]**

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