

## 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

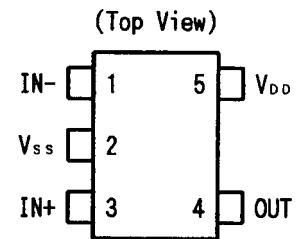


NJU7141F

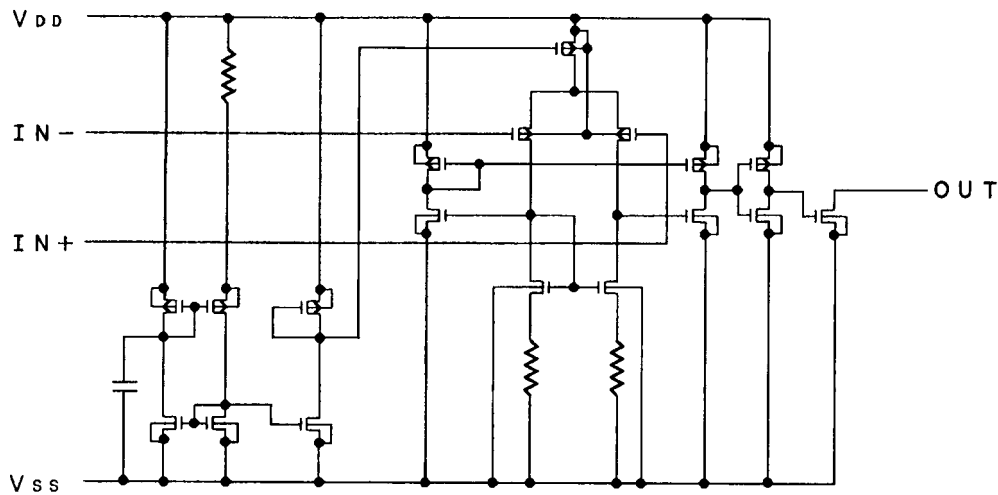
### ■ FEATURES

- 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>=∞ )

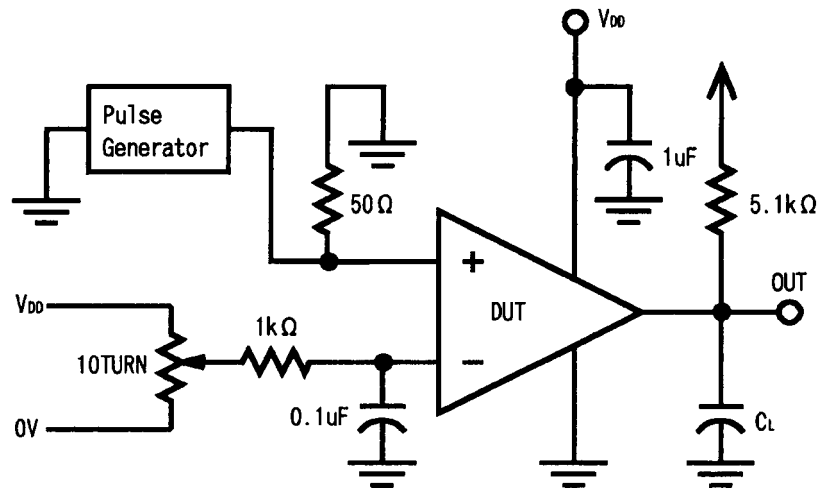
PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Voltage	V <sub>DD</sub>		1.0	-	5.5	V
Input Offset Voltage	V <sub>IO</sub>	V <sub>IN</sub> =1/2V <sub>DD</sub>	-	-	10	mV
Input Offset Current	I <sub>IO</sub>		-	1	-	pA
Input Bias Current	I <sub>IB</sub>		-	1	-	pA
Input Common Mode Voltage Range	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

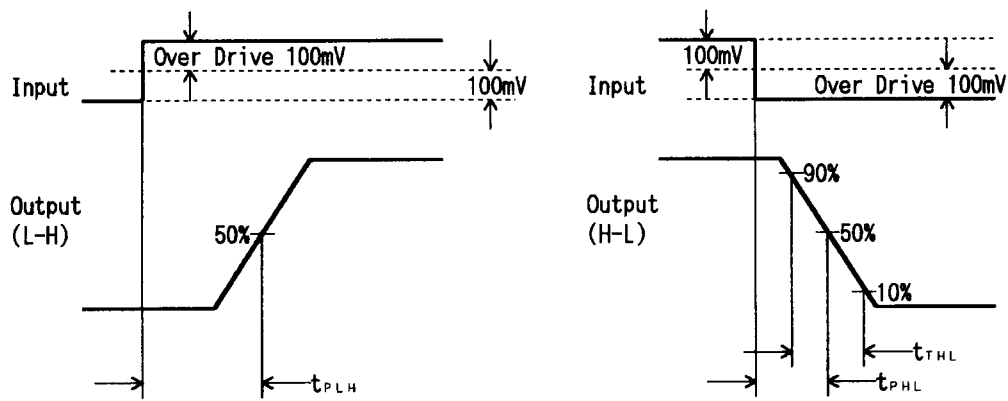
( Ta=25°C, V<sub>DD</sub>=3.0V, f=10kHz, C<sub>L</sub>=15pF )

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

## ■ SWITCHING CHARACTERISTICS MEASUREMENT CIRCUIT



## ■ TIMING WAVEFORM



**[CAUTION]**

The specifications on this databook are only given for information, without any guarantee as regards either mistakes or omissions. The application circuits in this databook are described only to show representative usages of the product and not intended for the guarantee or permission of any right including the industrial rights.