

## 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

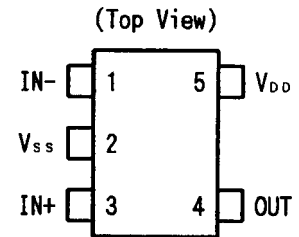


NJU7141F

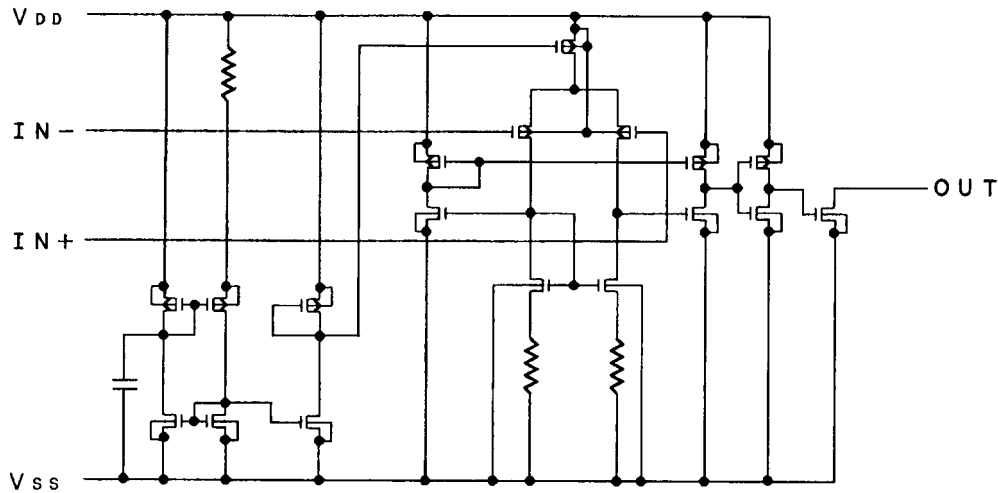
### ■ FEATURES

- 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	$V_{IN}$	7	V
Differential Input Voltage	$V_{ID}$	$\pm 7$ ( note1 )	V
Common Mode Input Voltage	$V_{IC}$	-0.3~7	V
Power Dissipation	$P_D$	200	mW
Operating Temperature Range	$T_{opr}$	-40~+85	°C
Storage Temperature Range	$T_{stg}$	-55~+125	°C

( note1 ) If the supply voltage (  $V_{DD}$  ) is less than 7V, the input voltage must not over the  $V_{DD}$  level though 7V 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

( Ta=25°C,  $V_{DD}$ =3.0V,  $R_L$ =∞ )

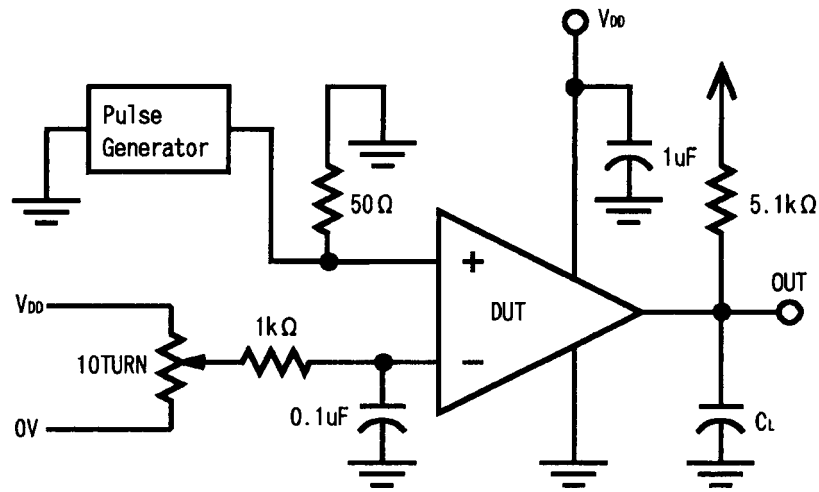
PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Voltage	$V_{DD}$		1.0	-	5.5	V
Input Offset Voltage	$V_{IO}$	$V_{IN}=1/2V_{DD}$	-	-	10	mV
Input Offset Current	$I_{IO}$		-	1	-	pA
Input Bias Current	$I_{IB}$		-	1	-	pA
Input Common Mode Voltage Range	$V_{ICM}$		0~2.5	-	-	V
Output Leakage Current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

## ■ SWITCHING CHARACTERISTICS

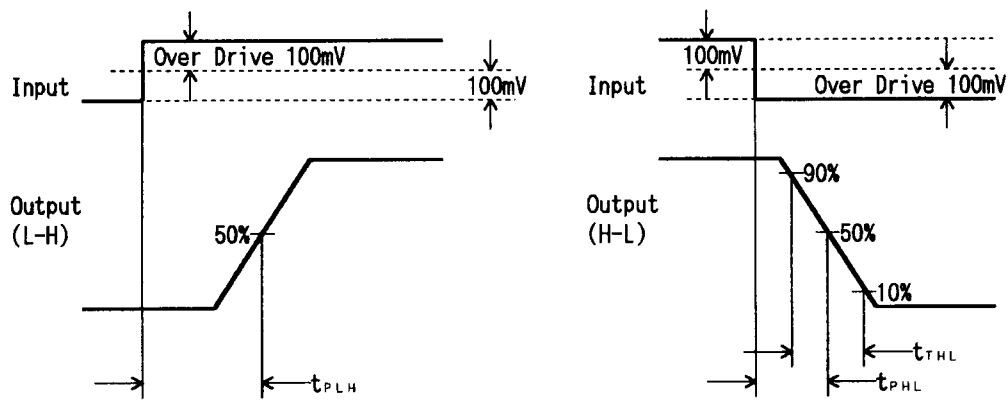
( Ta=25°C,  $V_{DD}$ =3.0V,  $f$ =10kHz,  $C_L$ =15pF )

PARAMETER	SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNIT
Propagation Delay High to Low	$t_{PHL}$	Over Drive=100mV	-	0.35	-	μs
		TTL Level Step				
Propagation Delay Low to High	$t_{PLH}$	Over Drive=100mV	-	0.90	-	μs
		TTL Level Step				
Output Signal Falling Time	$t_{THL}$	Over Drive=100mV	-	30	-	ns

## ■ SWITCHING CHARACTERISTICS MEASUREMENT CIRCUIT



## ■ TIMING WAVEFORM



**[CAUTION]**

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