

SUPER LOW OPERATING CURRENT AND LOW OFFSET VOLTAGE TINY SINGLE C-MOS COMPARATOR

■ GENERAL DESCRIPTION

The NJU7116 is a super low operating current and low offset voltage tiny single C-MOS comparator with C-MOS output.

The operating current is 1 μ A(typ), and the operating of 1.8V to 3.6V.

The input offset voltage is lower than 2.5mV(max).

Furthermore, the NJU7116 is packaged with very small MTP-5, therefore it can be especially applied to battery operated portable items.

■ PACKAGE OUTLINE



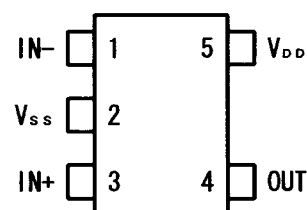
NJU7116F

■ FEATURES

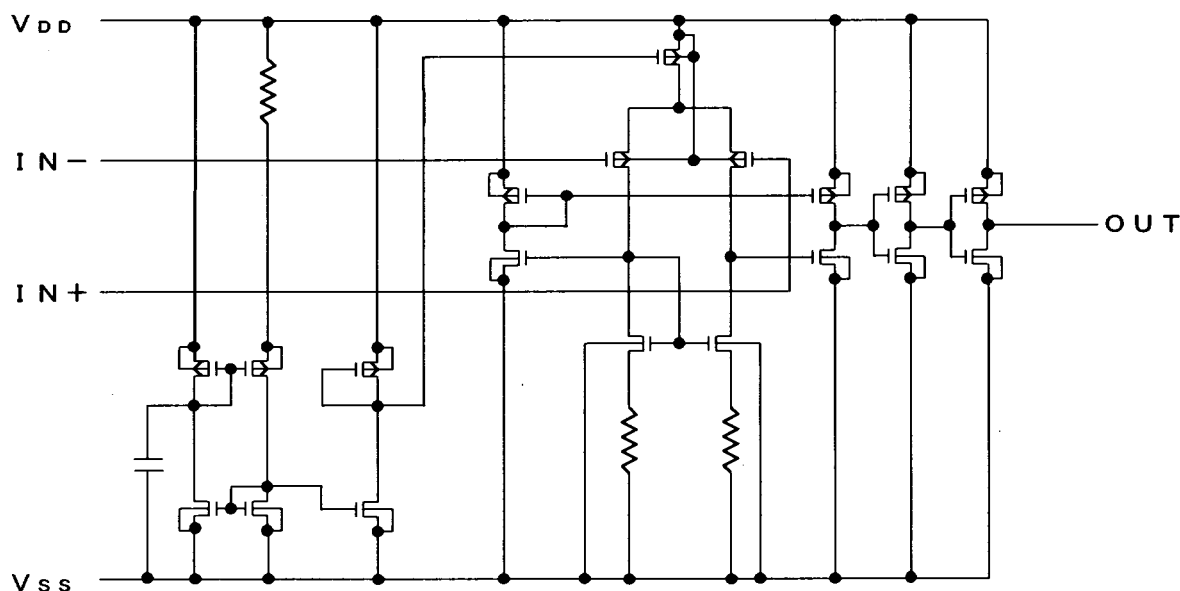
- Super Low Operating Current $I_{DD}=3.0\mu A$ typ.
- Single Power Supply $V_{DD}=1.8\sim 3.6V$
- Low Offset Voltage $V_{IO}=2.5mV$ max. @3.0V
- Low Bias Current $I_{IB}=1pA$ typ.
- C-MOS (Push-pull) Output
- Package Outline MTP-5
- C-MOS Technology

■ PIN CONFIGURATION

(Top View)



■ EQUIVALENT CIRCUIT



■ ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V_{IN}	7	V
Differential Input Voltage	V_{ID}	± 7 Note1	V
Common Mode Input Voltage	V_{IC}	- 0.3 ~ 7	V
Power Dissipation	P_D	200	mW
Operating Temperature	T_{opr}	- 40 ~ + 85	°C
Storage Temperature	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, $V_{DD}=3.0V$, $R_L=\infty$)

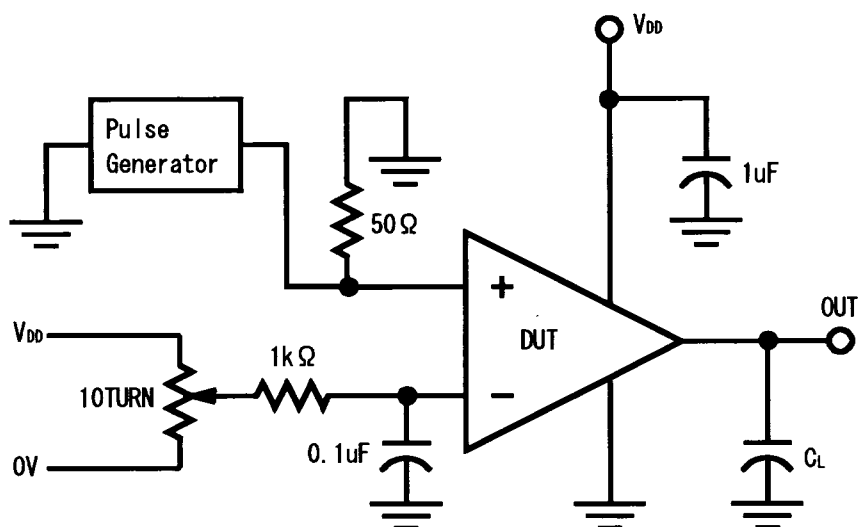
PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Operating Voltage	V_{DD}		1.8	—	3.6	V
Input Offset Voltage	V_{IO}	$V_{IN}=1/2V_{DD}$	—	—	2.5	mV
Input Offset Current	I_{IO}		—	1	—	pA
Input Bias Current	I_{IB}		—	1	—	pA
Input Common Mode Voltage Range	V_{ICM}		0~2.5	—	—	V
Output Leakage Current	I_{OFF}	$V_{OH}=V_{DD}$	—	—	1	uA
High Level Output Voltage	V_{OH}	$I_{OH}=2mA$	2.7	—	—	V
Low Level Output Voltage	V_{OL}	$I_{OL}=-2mA$	—	—	0.3	V
Common Mode Rejection Ratio	CMR	$V_{IC}=1/2V_{DD}$	50	—	—	dB
Supply Voltage Rejection Ratio	SVR	$V_{DD}=1.8\sim 3.6V$	50	—	—	dB
Operating Current	I_{DD}	No Load, $V_o=0V$	—	1	1.5	uA

■ SWITCHING CHARACTERISTICS

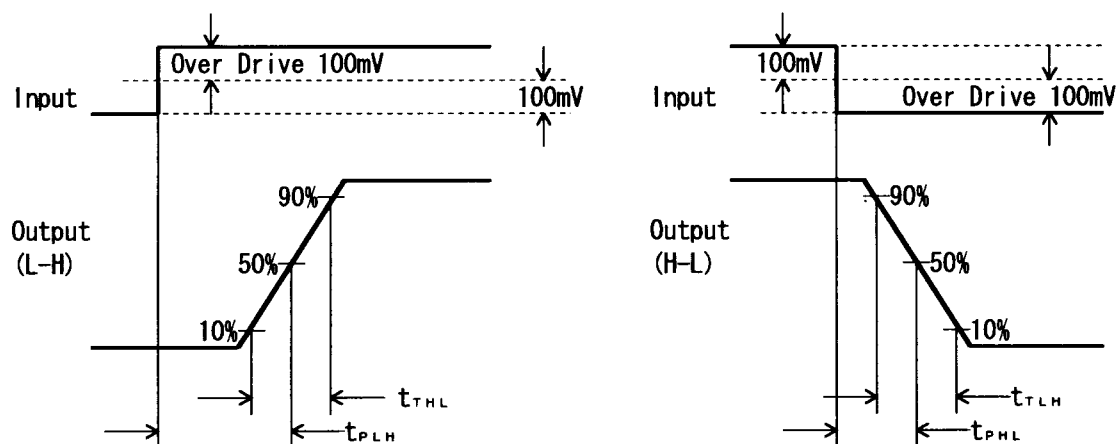
(Ta=25°C, $V_{DD}=3.0V$, $f=1kHz$, $C_L=15pF$)

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Propagation Delay High to Low	t_{PHL}	Over Drive=100mV	—	1.2	2.0	us
		TTL Level Step In.	—	0.37	—	
Propagation Delay Low to High	t_{PLH}	Over Drive=100mV	—	3.3	5.0	us
		TTL Level Step In.	—	2.6	—	
Propagation Delay Time Lag	t_{PD}	$t_{PLH}-t_{PHL}$	—	2.1	3.0	us
Output Signal Falling Time	t_{THL}	Over Drive=100mV	—	15	—	ns
Output Signal Rising Time	t_{TLH}	Over Drive=100mV	—	40	—	ns

SWITCHING CHARACTERISTICS MEASUREMENT CIRCUIT



TIMING WAVEFORM



[CAUTION]

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