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 1μA (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.

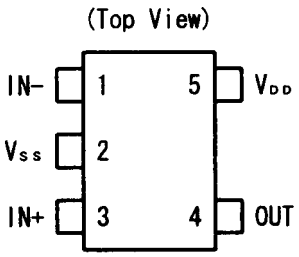
■ PACKAGE OUTLINE

NJU7116F

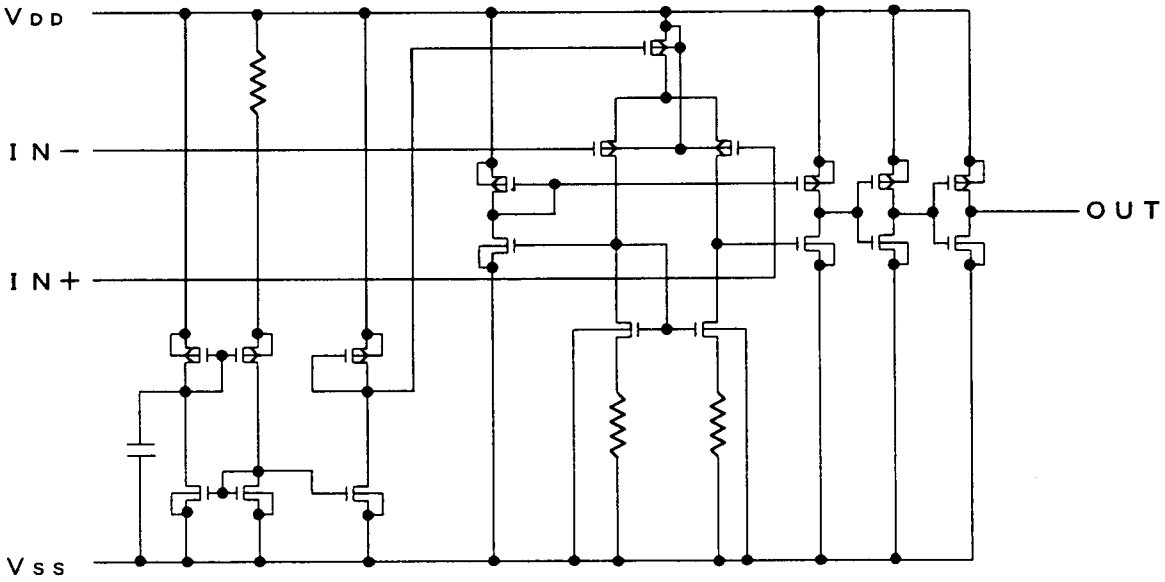
■ FEATURES

● Super Low Operating Current	(I_{DD}=3.0μA typ.)
● Single Power Supply	(V_{DD}=1.8~3.6V)
● Low Offset Voltage	(V_{IO}=2.5mV max.@ 3.0V)
● Low Bias Current	(I_{IB}=1pA typ.)
● C-MOS (Push-pull) Output	
● Package Outline	MTP5
● C-MOS Technology	

■ PIN CONFIGURATION



■ 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 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=∞)

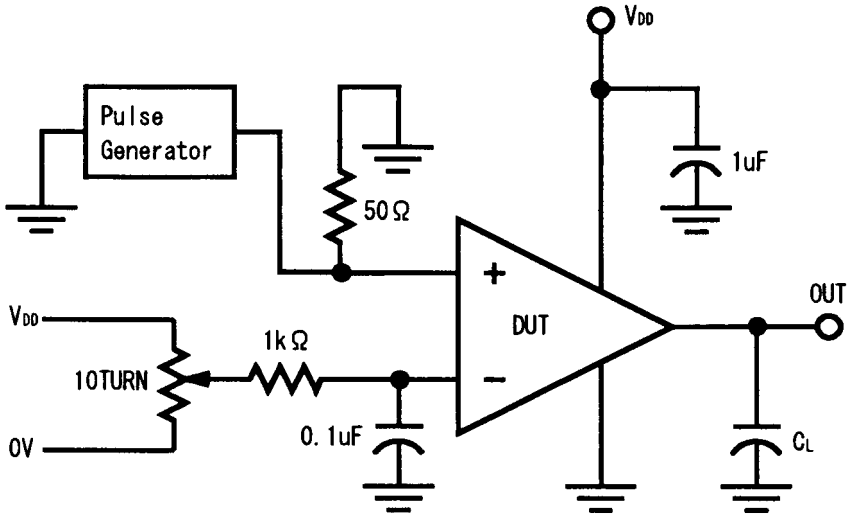
PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Voltage	V_{DD}		1.8	-	3.6	V
Input Offset Voltage	V_{IO}	V_{IN}=1/2V_{DD}	-	-	2.5	mV
Input Offset Current	I_{IO}		-	1	-	pA
Input Bias Current	I_{IB}		-	1	-	pA
Input Common Mode Voltage Range	V_{ICM}		0~2.5	-	-	V
Output Leakage Current	I_{OFF}	V_{OH}=V_{DD}	-	-	1	µA
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}=1.8~3.6V	50	-	-	dB
Operating Current	I_{DD}	No Load,V_O=0V	-	1	1.5	µA

■ SWITCHING CHARACTERISTICS

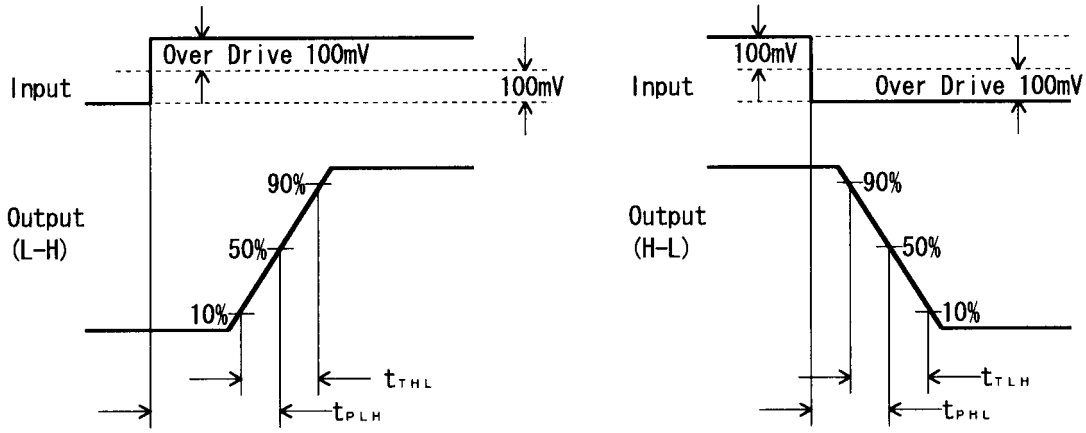
(Ta=25˚C,V_{DD}=3.0V,f=1kHz,C_L=15pF)

PARAMETER	SYMBOL	CONDITIONS		MIN	TYP	MAX	UNIT
Propagation Delay High to Low	t_{PHL}	Over Drive=100mV	V_{IC}=0V	-	1.2	2.0	µs
		TTL Level Step In.		-	0.37	-	
Propagation Delay Low to High	t_{PLH}	Over Drive=100mV	V_{IC}=0V	-	3.3	5.0	µs
		TTL Level Step In.		-	2.6	-	
Propagation Delay Time Lag	t_{PD}	t_{PLH}- t_{PHL}		-	2.1	3.0	µs
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



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NJU7116F-TE1 NJU7116F-TE2