

Single inverter

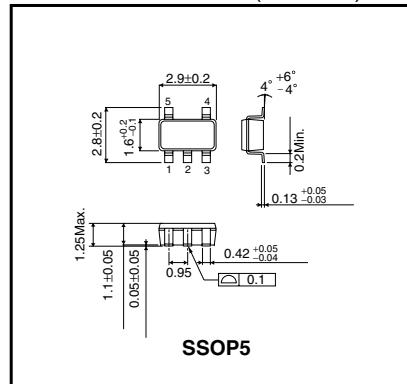
BU4SU69G2

BU4SU69G2 is an ultra-compact IC with one circuit of the bufferless inverter, BU4069UB, built into the SMP package. The single-stage gate configuration enables a short propagation time.

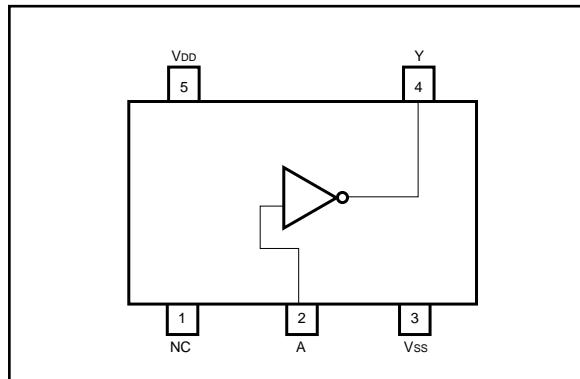
●Features

- 1) Low current dissipation.
- 2) Super-mini mold package designed for surface mounting.
- 3) Wide range of operating power supply voltage.
- 4) Direct drive of 2 L-TTL inputs and 1 LS-TTL input.

● External dimensions (Unit : mm)



●Block diagram



● Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Power supply voltage	V _{DD}	V _{ss} – 0.3 to V _{ss} + 18	V
Power dissipation	P _d	540	mW
Input current	I _{IN}	± 10	mA
Operating temperature	T _{opr}	– 40 to + 85	C
Storage temperature	T _{stg}	– 55 to + 150	C
Input voltage	V _{IN}	V _{ss} – 0.3 to V _{DD} + 0.3	V

*1 These values indicate the range limits of the voltage that can be applied to each pin without destroying it. Operation is not guaranteed at these values.

*2 Power dissipation is reduced by 5.4mW for each increase in Ta of 1°C over 25°C.

● Recommended operating conditions (Ta=25°C, Vss=0V)

Parameter	Symbol	Min.	Typ.	Max.	Unit
Power supply voltage	V _{DD}	3	—	16	V
Input voltage	V _{IN}	0	—	V _{DD}	V

● Electrical characteristics

DC characteristics (unless otherwise noted, V_{ss} = 0V, Ta = 25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	V _{DD} (V)	Conditions	Measurement circuit
Input high level voltage	V _{IH}	4.0	—	—	V	5	V _{OUT} = 0.5V V _{OUT} = 1.0V V _{OUT} = 1.5V	
		8.0	—	—	V	10		
		12.0	—	—	V	15		
I _{OUT} < 1µA								
Input low level voltage	V _{IL}	—	—	1.0	V	5	V _{OUT} = 4.5V V _{OUT} = 9.0V V _{OUT} = 13.5V	Fig.1
		—	—	2.0	V	10		
		—	—	3.0	V	15		
I _{OUT} < 1µA								
Input high level current	I _{IH}	—	—	0.3	µA	15	V _{IH} = 15V	
Input low level current	I _{IL}	—	—	—0.3	µA	15	V _{IL} = 0V	
Output high level voltage	V _{OH}	4.95	—	—	V	5	I _{OUT} < 1µA V _{IN} = V _{SS}	Fig.1
		9.95	—	—	V	10		
		14.95	—	—	V	15		
Output low level voltage	V _{OL}	—	—	0.05	V	5	I _{OUT} < 1µA V _{IN} = V _{DD}	Fig.1
		—	—	0.05	V	10		
		—	—	0.05	V	15		
Output high level current	I _{OH}	—0.51	—	—	mA	5	V _{OH} = 4.6V	
		—2.1	—	—	mA	5	V _{OH} = 2.5V	
		—1.3	—	—	mA	10	V _{OH} = 9.5V	
		—3.4	—	—	mA	15	V _{OH} = 13.5V V _{IN} = V _{SS}	
Output low level current	I _{OL}	0.51	—	—	mA	5	V _{OL} = 0.4V	
		1.3	—	—	mA	10	V _{OL} = 0.5V	
		3.4	—	—	mA	15	V _{OL} = 1.5V V _{IN} = V _{DD}	
Static current dissipation	I _{DD}	—	—	0.25	µA	5	V _{IN} = V _{SS} , V _{DD}	Fig.1
		—	—	0.5	µA	10		
		—	—	1.0	µA	15		

Standard ICs

Switching characteristics (unless otherwise noted, $V_{SS} = 0V$, $T_a = 25^\circ C$, $CL = 50pF$)

Parameter	Symbol	Min.	Typ.	Max.	Unit	V_{DD} (V)	Conditions	Measurement circuit	
Output rise time	t_{TLH}	—	70	—	ns	5	—	Fig.2	
		—	35	—	ns	10			
		—	30	—	ns	15			
Output fall time	t_{TTL}	—	70	—	ns	5	—		
		—	35	—	ns	10			
		—	30	—	ns	15			
Propagation delay time	t_{PLH}	—	55	—	ns	5	—		
		—	30	—	ns	10			
		—	25	—	ns	15			
Propagation delay time	t_{PHL}	—	55	—	ns	5	—		
		—	30	—	ns	10			
		—	25	—	ns	15			
Input capacitance	C_{IN}	—	5	—	pF	5	—	—	

●Measurement circuits

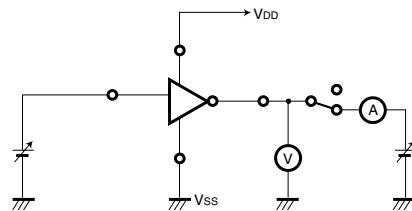


Fig.1 DC characteristics measurement circuit

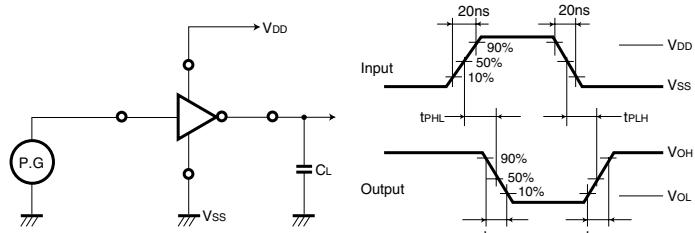


Fig.2 Switching characteristics measurement circuit

Appendix

Notes

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