

Single inverter

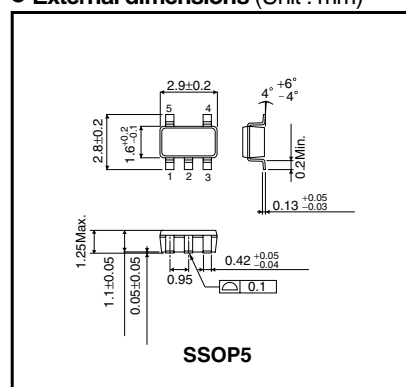
BU4SU69G2

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.

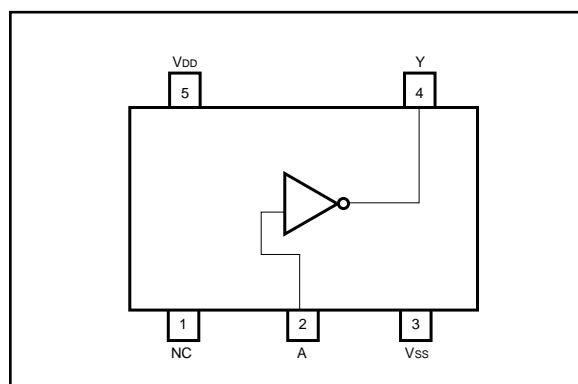
●Features

- 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.

Standard ICs

● Recommended operating conditions (Ta=25°C, V_{SS}=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 I _{OUT} < 1μA	Fig.1
		8.0	–	–	V	10		
		12.0	–	–	V	15		
Input low level voltage	V _{IL}	–	–	1.0	V	5	V _{OUT} = 4.5V V _{OUT} = 9.0V V _{OUT} = 13.5V I _{OUT} < 1μA	
		–	–	2.0	V	10		
		–	–	3.0	V	15		
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}	
		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}	
		–	–	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}	
		–	–	0.5	μA	10		
		–	–	1.0	μA	15		

Standard ICs

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

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 _{THL}	–	70	–	ns	5	–	
		–	35	–	ns	10		
		–	30	–	ns	15		
Propagation delay time	t _{PLH}	–	55	–	ns	5	–	
		–	30	–	ns	10		
		–	25	–	ns	15		
	t _{PHL}	–	55	–	ns	5	–	
		–	30	–	ns	10		
		–	25	–	ns	15		
Input capacitance	C _{IN}	–	5	–	pF	5	–	–

●Measurement circuits

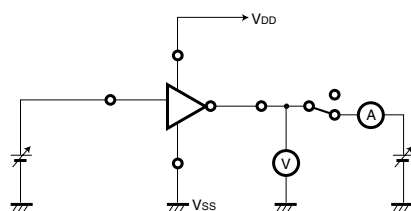


Fig.1 DC characteristics measurement circuit

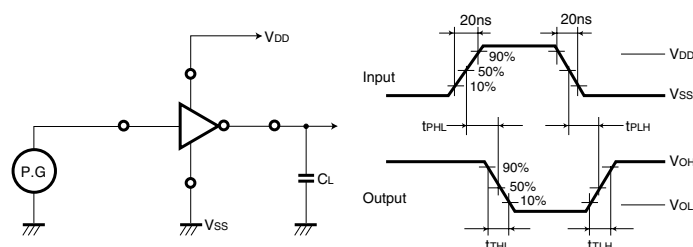


Fig.2 Switching characteristics measurement circuit

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