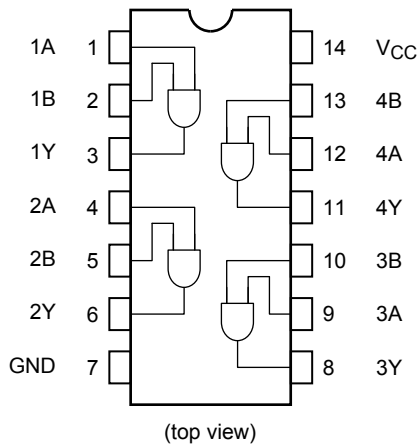
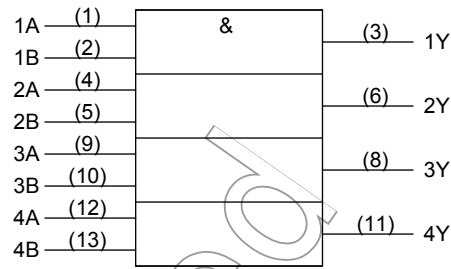


Pin Assignment



IEC Logic Symbol



Truth Table

A	B	Y
L	L	L
L	H	L
H	L	L
H	H	H

Absolute Maximum Ratings (Note 1)

Characteristics	Symbol	Rating	Unit
Supply voltage range	$V_{CC}$	-0.5 to 7.0	V
DC input voltage	$V_{IN}$	-0.5 to $V_{CC} + 0.5$	V
DC output voltage	$V_{OUT}$	-0.5 to $V_{CC} + 0.5$	V
Input diode current	$I_{IK}$	$\pm 20$	mA
Output diode current	$I_{OK}$	$\pm 50$	mA
DC output current	$I_{OUT}$	$\pm 50$	mA
DC $V_{CC}$ /ground current	$I_{CC}$	$\pm 100$	mA
Power dissipation	$P_D$	180	mW
Storage temperature	$T_{stg}$	-65 to 150	$^{\circ}C$

Note 1: Exceeding any of the absolute maximum ratings, even briefly, lead to deterioration in IC performance or even destruction.

Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings and the operating ranges.

Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/Derating Concept and Methods) and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

## Operating Ranges (Note)

Characteristics	Symbol	Rating	Unit
Supply voltage	$V_{CC}$	2.0 to 5.5	V
Input voltage	$V_{IN}$	0 to $V_{CC}$	V
Output voltage	$V_{OUT}$	0 to $V_{CC}$	V
Operating temperature	$T_{opr}$	-40 to 85	°C
Input rise and fall time	dt/dV	0 to 100 ( $V_{CC} = 3.3 \pm 0.3$ V) 0 to 20 ( $V_{CC} = 5 \pm 0.5$ V)	ns/V

Note: The operating ranges must be maintained to ensure the normal operation of the device.  
Unused inputs must be tied to either VCC or GND.

## Electrical Characteristics

## DC Characteristics

Characteristics	Symbol	Test Condition		Ta = 25°C			Ta = -40 to 85°C		Unit
				$V_{CC}$ (V)	Min	Typ.	Max	Min	Max
High-level input voltage	$V_{IH}$	—	—	2.0 3.0 5.5	1.50 2.10 3.85	— — —	— — —	1.50 2.10 3.85	— — —
Low-level input voltage	$V_{IL}$	—	—	2.0 3.0 5.5	— — —	— — —	0.50 0.90 1.65	— — —	0.50 0.90 1.65
High-level output voltage	$V_{OH}$	$V_{IN} = V_{IH}$	$I_{OH} = -50 \mu A$ $I_{OH} = -4$ mA $I_{OH} = -24$ mA $I_{OH} = -75$ mA (Note)	2.0 3.0 4.5 3.0 4.5 5.5	1.9 2.9 4.4 2.58 3.94 —	2.0 3.0 4.5 — — —	— — — — — —	1.9 2.9 4.4 2.48 3.80 3.85	— — — — — —
Low-level output voltage	$V_{OL}$	$V_{IN} = V_{IH}$ or $V_{IL}$	$I_{OL} = 50 \mu A$ $I_{OL} = 12$ mA $I_{OL} = 24$ mA $I_{OL} = 75$ mA (Note)	2.0 3.0 4.5 3.0 4.5 5.5	— — — — — —	0.0 0.0 0.0 — — —	0.1 0.1 0.1 0.36 0.36 —	— — — — — —	0.1 0.1 0.1 0.44 0.44 1.65
Input leakage current	$I_{IN}$	$V_{IN} = V_{CC}$ or GND	—	5.5	—	—	$\pm 0.1$	—	$\pm 1.0$
Quiescent supply current	$I_{CC}$	$V_{IN} = V_{CC}$ or GND	—	5.5	—	—	4.0	—	40.0

Note: This spec indicates the capability of driving 50  $\Omega$  transmission lines.

One output should be tested at a time for a 10 ms maximum duration.

## AC Characteristics ( $C_L = 50 \text{ pF}$ , $R_L = 500 \Omega$ , input: $t_r = t_f = 3 \text{ ns}$ )

Characteristics	Symbol	Test Condition		Ta = 25°C			Ta = -40 to 85°C		Unit
			V <sub>CC</sub> (V)	Min	Typ.	Max	Min	Max	
Propagation delay time	t <sub>pLH</sub>	—	3.3 ± 0.3	—	5.8	9.8	1.0	11.3	ns
	t <sub>pHL</sub>		5.0 ± 0.5	—	4.5	7.0	1.0	8.0	
Input capacitance	C <sub>IN</sub>	—		—	5	10	—	10	pF
Power dissipation capacitance	C <sub>PD</sub>	(Note)		—	71	—	—	—	pF

Note: C<sub>PD</sub> is defined as the value of the internal equivalent capacitance which is calculated from the operating current consumption without load.

Average operating current can be obtained by the equation:

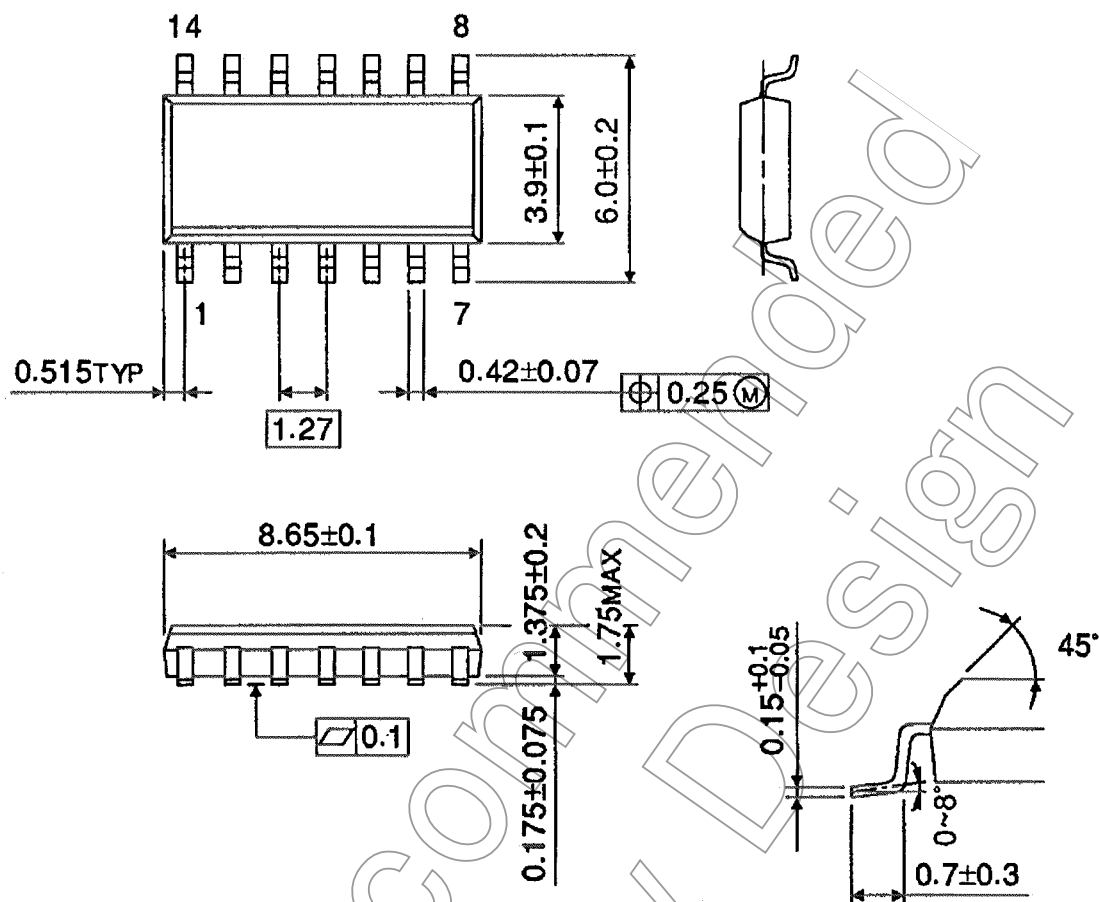
$$I_{CC (opr)} = C_{PD} \cdot V_{CC} \cdot f_{IN} + I_{CC}/4 \text{ (per gate)}$$

Not Recommended for New Design

## Package Dimensions (Note)

SOL14-P-150-1.27

Unit : mm



Note: This package is not available in Japan.

Weight: 0.12 g (typ.)

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