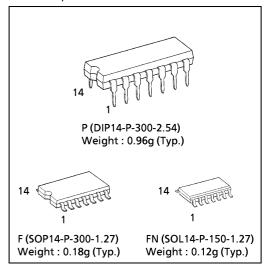
TOSHIBA CMOS DIGITAL INTEGRATED CIRCUIT SILICON MONOLITHIC

TC4071BP, TC4071BF, TC4071BFN

TC4071B QUAD 2 INPUT OR GATE

TC4071B is positive logic OR gates with two inputs respectively. As all the outputs of gates are equipped with the buffer circuits of inverters, the input/output propagation characteristic has been improved and the variation of propagation time caused by increase of load capacity is kept minimum.

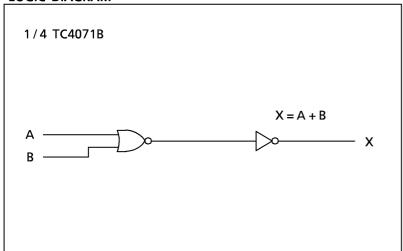
(Note) The JEDEC SOP (FN) is not available in Japan.



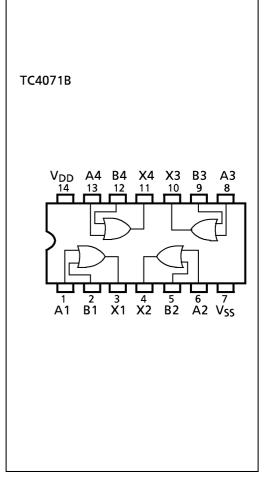
MAXIMUM RATINGS

CHARACTERISTIC	SYMBOL	RATING	UNIT
DC Supply Voltage	V_{DD}	$V_{SS} - 0.5 \sim V_{SS} + 20$	V
Input Voltage	V _{IN}	$V_{SS} - 0.5 \sim V_{DD} + 0.5$	٧
Output Voltage	V _{OUT}	$V_{SS} - 0.5 \sim V_{DD} + 0.5$	٧
DC Input Current	I _{IN}	± 10	mA
Power Dissipation	P _D	300 (DIP) / 180 (SOIC)	mW
Operating Temperature Range	T _{opr}	- 40~85	°C
Storage Temperature Range	T _{stg}	- 65~150	°C

LOGIC DIAGRAM



PIN ASSIGNMENT (TOP VIEW)



980910EBA2

● TOSHIBA is continually working to improve the quality and the reliability of its products. Nevertheless, semiconductor devices in general can malfunction or fail due to their inherent electrical sensitivity and vulnerability to physical stress. It is the responsibility of the buyer, when utilizing TOSHIBA products, to observe standards of safety, and to avoid situations in which a malfunction or failure of a TOSHIBA product could cause loss of human life, bodily injury or damage to property. In developing your designs, please ensure that TOSHIBA products are used within specified operating ranges as set forth in the most recent products specifications. Also, please keep in mind the precautions and conditions set forth in the TOSHIBA Semiconductor Reliability Handbook.

TOSHIBA

TC4071BP/BF/BFN

RECOMMENDED OPERATING CONDITIONS ($V_{SS} = 0V$)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
DC Supply Voltage	V _{DD}		3	_	18	V
Input Voltage	V _{IN}		0	_	V_{DD}	٧

STATIC ELECTRICAL CHARACTERISTICS ($V_{SS} = 0V$)

		SYM- BOL	TEST CONDITION	V	– 40°C			25°C			85°C	
) ((MIN.	MAX.	MIN.	TYP.	MAX.	MIN.	MAX.	UNIT
High-Leve Output V		V _{OH}	$ I_{OUT} < 1\mu A$ $V_{IN} = V_{SS}, V_{DD}$	5 10 15	4.95 9.95 14.95		4.95 9.95 14.95	5.00 10.00 15.00	_ _ _	4.95 9.95 14.95	_ _ _	.,
Low-Level Output Voltage		V _{OL}	$ I_{OUT} < 1\mu A$ $V_{IN} = V_{SS}, V_{DD}$	5 10 15		0.05 0.05 0.05	111	0.00 0.00 0.00	0.05 0.05 0.05		0.05 0.05 0.05	V
Output H Current	ligh	І _{ОН}	$V_{OH} = 4.6V$ $V_{OH} = 2.5V$ $V_{OH} = 9.5V$ $V_{OH} = 13.5V$ $V_{IN} = V_{SS}, V_{DD}$	5 10 15	- 0.61 - 2.50 - 1.50 - 4.00		- 0.51 - 2.10 - 1.30 - 3.40	- 1.0 - 4.0 - 2.2 - 9.0		- 0.42 - 1.70 - 1.10 - 2.80		- mA
Output L	ow Current	I _{OL}	$V_{OL} = 0.4V$ $V_{OL} = 0.5V$ $V_{OL} = 1.5V$ $V_{IN} = V_{SS}$	5 10 15	0.61 1.50 4.00		0.51 1.30 3.40	1.5 3.8 15.0	-	0.42 1.10 2.80	l	IIIA
Input Hig	ıh Voltage	V _{IH}	$V_{OUT} = 0.5V, 4.5V$ $V_{OUT} = 1.0V, 9.0V$ $V_{OUT} = 1.5V, 13.5V$ $ I_{OUT} < 1\mu A$	5 10 15	3.5 7.0 11.0		3.5 7.0 11.0	2.75 5.50 8.25		3.5 7.0 11.0		V
Input Low Voltage		V _{IL}	$V_{OUT} = 0.5V, 4.5V$ $V_{OUT} = 1.0V, 9.0V$ $V_{OUT} = 1.5V, 13.5V$ $ I_{OUT} < 1\mu A$	5 10 15	111	1.5 3.0 4.0	111	2.25 4.50 6.75	1.5 3.0 4.0		1.5 3.0 4.0	V
Input Current	"H"Level	I _{IH}	V _{IH} = 18V	18	_	0.1	_	10-5	0.1	_	1.0	
	"L" Level	I _{IL}	V _{IL} = 0V	18	_	- 0.1	_	- 10 ⁻⁵	- 0.1	_	- 1.0] ,,,
Quiescent Supply Current		I _{DD}	$V_{IN} = V_{SS}, V_{DD} *$	5 10 15		0.25 0.50 1.00		0.001 0.001 0.002	0.25 0.50 1.00		7.5 15.0 30.0	μ Α

^{*} All valid input combination

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The products described in this document are subject to the foreign exchange and foreign trade laws.

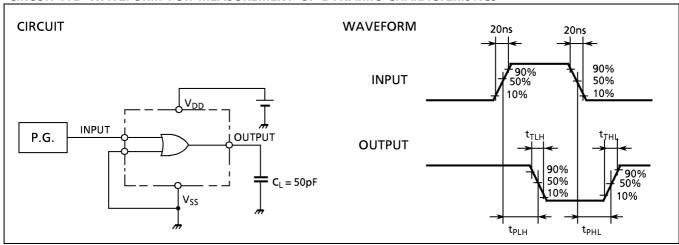
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DYNAMIC ELECTRICAL CHARACTERISTICS (Ta = 25°C, Vss = 0V, $C_L = 50$ PF)

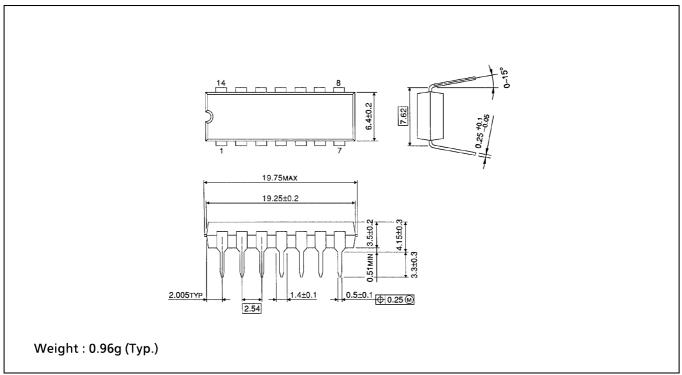
CHARACTERISTIC	SYMBOL	TEST CONDITION	V _{DD} (V)	MIN.	TYP.	MAX.	UNIT
Output Transition Time	t _{TLH}		5 10 15	_ _ _	70 35 30	200 100 80	
Output Transition Time	t _{THL}		5 10 15		70 35 30	200 100 80	
Propagation Delay Time	t _{pLH}		5 10 15	_ _ _	65 30 25	200 100 80	ns
Propagation Delay Time	t _{pHL}		5 10 15	_ _ _	65 30 25	200 100 80	
Input Capacitance	C _{IN}		•	_	5	7.5	pF

CIRCUIT A D WAVEFORM FOR MEASUREMENT OF DYNAMIC CHARACTERISTICS



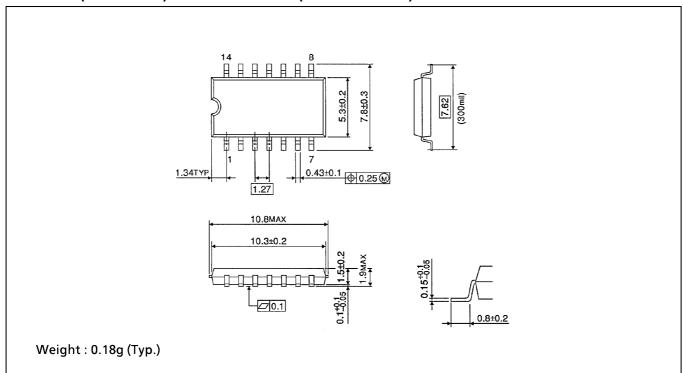
DIP 14PIN OUTLINE DRAWING (DIP14-P-300-2.54)

Unit in mm



SOP 14PIN (200mil BODY) OUTLINE DRAWING (SOP14-P-300-1.27)

Unit in mm



SOP 14PIN (150mil BODY) OUTLINE DRAWING (SOL14-P-150 -1.27)

Unit in mm

