

TC4073BP/TC4073BF TRIPLE 3 INPUT AND GATE
TC4081BP/TC4081BF QUAD 2 INPUT AND GATE
TC4082P DUAL 4 INPUT AND GATE

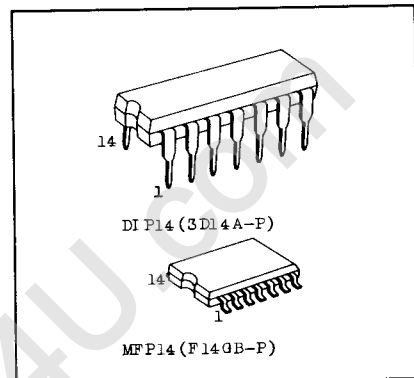
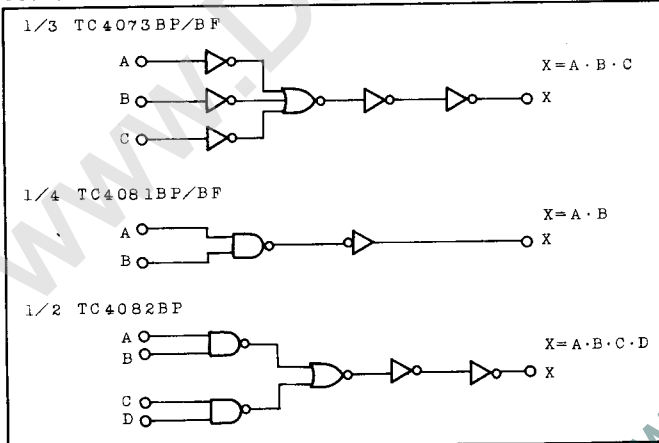
TC4081BP/BF, TC4073BP/BF and TC4082BP are positive logic AND gates with two inputs, three inputs and four inputs respectively.

Since all the outputs of these gates are equipped with the buffer circuits of inverters, the input/output propagation characteristic has been improved and variation of propagation time caused by increase of load capacity is kept minimum.

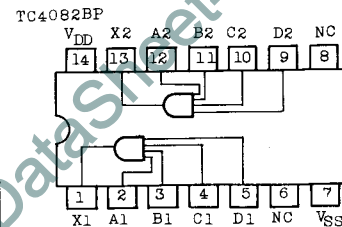
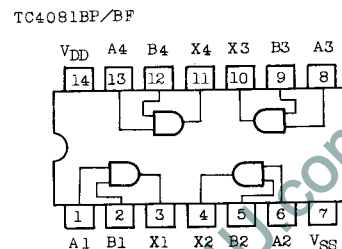
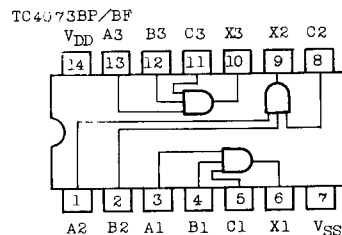
ABSOLUTE MAXIMUM RATINGS

CHARACTERISTIC	SYMBOL	RATING	UNIT
DC Supply Voltage	V _{DD}	V _{SS} -0.5 ~ V _{SS} +20	V
Input Voltage	V _{IN}	V _{SS} -0.5 ~ V _{DD} +0.5	V
Output Voltage	V _{OUT}	V _{SS} -0.5 ~ V _{DD} +0.5	V
DC Input Current	I _{IN}	±10	mA
Power Dissipation	P _D	300(DIP)/180(MFP)	mW
Operating Temperature Range	T _A	-40 ~ 85	°C
Storage Temperature Range	T _{stg}	-65 ~ 150	°C
Laed Temp./Time	T _{sol}	260°C · 10 sec	

LOGIC DIAGRAM



PIN ASSIGNMENT (TOP VIEW)



TC4073BP/BF, TC4081BP/BF, TC4082BP

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

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNITS
DC Supply Voltage	V _{DD}	3	-	18	V
Input Voltage	V _{IN}	0	-	V _{DD}	V

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

CHARACTERISTIC	SYMBOL	TEST CONDITION	V _{DD} (V)	-40°C		25°C			85°C		UNITS	
				MIN.	MAX.	MIN.	TYP.	MAX.	MIN.	MAX.		
High-Level Output Voltage	V _{OH}	I _{OUT} < 1μA V _{IN} =V _{DD}	5	4.95	-	4.95	5.00	-	4.95	-	V	
			10	9.95	-	9.95	10.00	-	9.95	-		
			15	14.95	-	14.95	15.00	-	14.95	-		
Low-Level Output Voltage	V _{OL}	I _{OUT} < 1μA V _{IN} =V _{SS} , V _{DD}	5	-	0.05	-	0.00	0.05	-	0.05	V	
			10	-	0.05	-	0.00	0.05	-	0.05		
			15	-	0.05	-	0.00	0.05	-	0.05		
Output High Current	I _{OH}	V _{OH} =4.6V	5	-0.61	-	-0.51	-1.0	-	-0.42	-	mA	
		V _{OH} =2.5V	5	-2.5	-	-2.1	-4.0	-	-1.7	-		
		V _{OH} =9.5V	10	-1.5	-	-1.3	-2.2	-	-1.1	-		
		V _{OH} =13.5V	15	-4.0	-	-3.4	-9.0	-	-2.8	-		
		V _{IN} =V _{DD}										
Output Low Current	I _{OL}	V _{OL} =0.4V	5	0.61	-	0.51	1.2	-	0.42	-	mA	
		V _{OL} =0.5V	10	1.5	-	1.3	3.2	-	1.1	-		
		V _{OL} =1.5V	15	4.0	-	3.4	12.0	-	2.8	-		
		V _{IN} =V _{SS} , V _{DD}										
Input High Voltage	V _{IH}	V _{OUT} =0.5V, 4.5V	5	3.5	-	3.5	2.75	-	3.5	-	V	
		V _{OUT} =1.0V, 9.0V	10	7.0	-	7.0	5.5	-	7.0	-		
		V _{OUT} =1.5V, 13.5V	15	11.0	-	11.0	8.25	-	11.0	-		
		I _{OUT} < 1μA										
Input Low Current	V _{IL}	V _{OUT} =0.5V	5	-	1.5	-	2.25	1.5	-	1.5	V	
		V _{OUT} =1.0V	10	-	3.0	-	4.5	3.0	-	3.0		
		V _{OUT} =1.5V	15	-	4.0	-	6.75	4.0	-	4.0		
		I _{OUT} < 1μA										
Input Current	"H" Level	I _{IH}	V _{IH} =18V	18	-	0.1	-	10 ⁻⁵	0.1	-	1.0	μA
	"L" Level	I _{IL}	V _{IL} =0V	18	-	-0.1	-	-10 ⁻⁵	-0.1	-	-1.0	
Quiescent Device Current	I _{DD}	V _{IN} =V _{SS} , V _{DD} *	5	-	0.25	-	0.001	0.25	-	7.5	μA	
			10	-	0.5	-	0.001	0.5	-	15		
			15	-	1.0	-	0.002	1.0	-	30		

* All valid input combinations.

TC4073BP/BF, TC4081BP/BF, TC4082BP

DYNAMIC ELECTRICAL CHARACTERISTICS (Ta=25°C, VSS=0V, CL=50pF)

CHARACTERISTIC	SYMBOL	TEST CONDITIONS	V _{DD} (V)	MIN.	TYP.	MAX.	UNITS
Output Transition Time (TC4073BP/BF) (TC4082BP/BF)	t _{TLH}		5	-	80	200	ns
			10	-	50	100	
			15	-	40	80	
Output Transition Time (TC4073BP/BF) (TC4082BP/BF)	t _{THL}		5	-	80	200	
			10	-	50	100	
			15	-	40	80	
Output Transition Time (TC4081BP/BF)	t _{TLH}		5	-	70	200	
			10	-	35	100	
			15	-	30	80	
Output Transition Time (TC4081BP/BF)	t _{THL}		5	-	70	200	
			10	-	35	100	
			15	-	30	80	
Propagation Delay Time (TC4073BP/BF)	t _{pLH}		5	-	115	250	
			10	-	50	120	
			15	-	35	90	
Propagation Delay Time (TC4073BP/BF)	t _{pHL}		5	-	115	250	
			10	-	50	120	
			15	-	35	90	
Propagation Delay Time (TC4081BP/BF)	t _{pLH}		5	-	65	200	
			10	-	30	100	
			15	-	25	80	
Propagation Delay Time (TC4081BP/BF)	t _{pHL}		5	-	65	200	
			10	-	30	100	
			15	-	25	80	
Propagation Delay Time (TC4082BP)	t _{pLH}		5	-	110	250	
			10	-	50	120	
			15	-	35	90	
Propagation Delay Time (TC4082BP)	t _{pHL}		5	-	110	250	
			10	-	50	120	
			15	-	35	90	
Input Capacitance	C _{IN}			-	5	7.5	pF

CIRCUIT AND WAVEFORM FOR MEASUREMENT OF DYNAMIC CHARACTERISTICS

