

TC4555BP, TC4556BP/BF

C²MOS DIGITAL INTEGRATED CIRCUIT
SILICON MONOLITHIC

TC4555BP DUAL BINARY TO 1-OF-4 DECODER/DEMULTIPLEXER (Active High Outputs)
TC4556BP/TC4556BF DUAL BINARY TO 1-OF-4 DECODER/DEMULTIPLEXER (Active Low Outputs)

TC4555BP and TC4556BP/BF contain two circuits of decoders/multiplexers.

When ENABLE="L", arbitrary one of four outputs is selected by two binary inputs A and B.

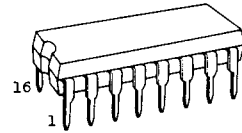
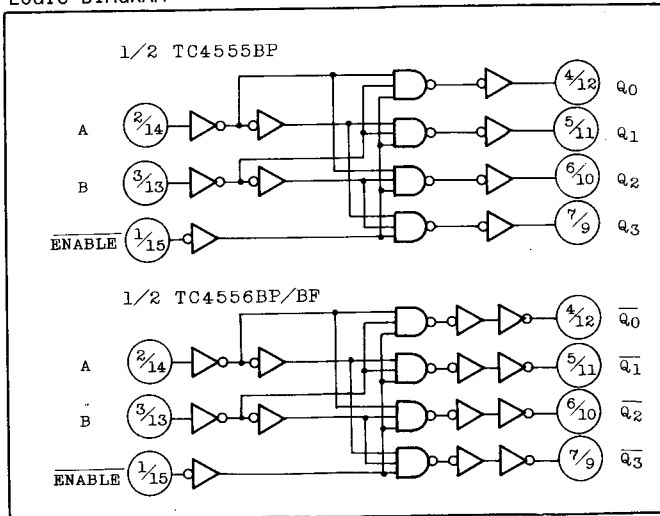
The selected output is "H" for TC4555BP and "L" for TC4556BP/BF.

When ENABLE is set to "H", the selection is inhibited making all the output at "L" for TC4555BP and "H" for TC4556BP/BF.

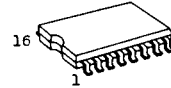
ABSOLUTE MAXIMUM RATINGS

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
Lead Temp./Time	T _{sol}	260°C · 10sec	

LOGIC DIAGRAM



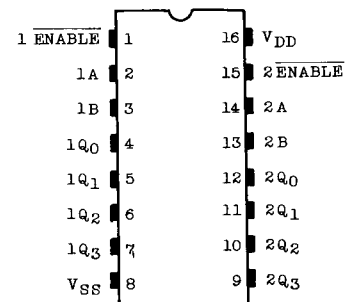
DIP16 (3D16A-P)



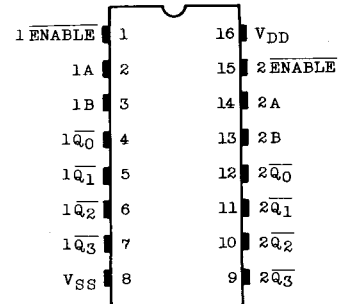
MFP16 (F16GC-P)

PIN ASSIGNMENT

TC4555BP



TC4556BP/BF



(TOP VIEW)

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TRUTH TABLE

INPUTS			OUTPUTS TC4555BP				OUTPUTS TC4556BP/BF				*: Don't Care
\bar{E}	B	A	Q3	Q2	Q1	Q0	\bar{Q}_3	\bar{Q}_2	\bar{Q}_1	\bar{Q}_0	
L	L	L	L	L	L	H	H	H	H	L	
L	L	H	L	L	H	L	H	H	L	H	
L	H	L	L	H	L	L	H	L	H	H	
L	H	H	H	L	L	L	L	H	H	H	
H	*	*	L	L	L	L	H	H	H	H	

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

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

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

CHARACTERISTIC	SYM-BOL	TEST CONDITION	V _{DD} (V)	-40°C		25°C			85°C		UNIT
				MIN.	MAX.	MIN.	TYP.	MAX.	MIN.	MAX.	
High-Level Output Voltage	V _{OH}	I _{OUT} < 1μA V _{IN} =V _{SS} , 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 V _{OH} =2.5V V _{OH} =9.5V V _{OH} =13.5V V _{IN} =V _{SS} , V _{DD}	5	-0.61	-	-0.51	-1.0	-	-0.42	-	mA
			5	-2.5	-	-2.1	-4.0	-	-1.7	-	
			10	-1.5	-	-1.3	-2.2	-	-1.1	-	
			15	-4.0	-	-3.4	-9.0	-	-2.8	-	
			15	-4.0	-	-3.4	-9.0	-	-2.8	-	
Output Low Current	I _{OL}	V _{OL} =0.4V V _{OL} =0.5V V _{OL} =1.5V V _{IN} =V _{SS} , V _{DD}	5	0.61	-	0.51	1.5	-	0.42	-	mA
			10	1.5	-	1.3	3.8	-	1.1	-	
			15	4.0	-	3.4	15.0	-	2.8	-	
			15	4.0	-	3.4	15.0	-	2.8	-	
Input High Voltage	V _{IH}	V _{OUT} =0.5V, 4.5V V _{OUT} =1.0V, 9.0V V _{OUT} =1.5V, 13.5V I _{OUT} < 1μA	5	3.5	-	3.5	2.75	-	3.5	-	V
			10	7.0	-	7.0	5.5	-	7.0	-	
			15	11.0	-	11.0	8.25	-	11.0	-	
			15	11.0	-	11.0	8.25	-	11.0	-	

TC4555BP, TC4556BP/BF

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

CHARACTERISTIC		SYM-BOL	TEST CONDITION	V _{DD} (V)	-40°C		25°C			85°C		UNIT
					MIN.	MAX.	MIN.	TYP.	MAX.	MIN.	MAX.	
Input Low Voltage		V _{IL}	V _{OUT} =0.5V, 4.5V	5	-	1.5	-	2.25	1.5	-	1.5	V
			V _{OUT} =1.0V, 9.0V	10	-	3.0	-	4.5	3.0	-	3.0	
			V _{OUT} =1.5V, 13.5V	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	-	4.0	-	0.002	4.0	-	30	μA
				10	-	8.0	-	0.004	8.0	-	60	
				15	-	16.0	-	0.008	16.0	-	120	

* All valid input combinations.

DYNAMIC ELECTRICAL CHARACTERISTICS (T_a=25°C, V_{SS}=0V, C_L=50pF)

CHARACTERISTIC	SYMBOL	TEST CONDITION	V _{DD} (V)	MIN.	TYP.	MAX.	UNIT
Output Transition Time (Low to High)	t _{TLH}		5	-	80	200	ns
			10	-	50	100	
			15	-	40	80	
Output Transition Time (High to Low)	t _{THL}		5	-	80	200	ns
			10	-	50	100	
			15	-	40	80	
Propagation Delay Time (A, B - Q, Q̄)	t _{pLH} t _{pHL}		5	-	140	440	ns
			10	-	65	190	
			15	-	50	140	
Propagation Delay Time (E - Q, Q̄)	t _{pLH} t _{pHL}		5	-	110	400	ns
			10	-	45	170	
			15	-	40	130	
Input Capacitance	C _{IN}			-	5	7.5	pF

WAVEFORMS FOR MEASUREMENT OF DYNAMIC CHARACTERISTICS

