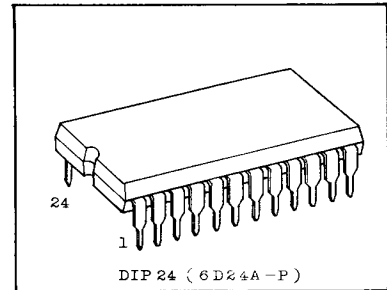


TC5023BP 16-LINE DATA SELECTOR/MULTIPLEXER

TC5023BP is data selector which selects one of 16 input signals $X_0 \sim X_{15}$ according to binary address inputs A, B, C and D.

The data input (X_n) which corresponds to the binary address appears inverted on output $\bar{Z}$.

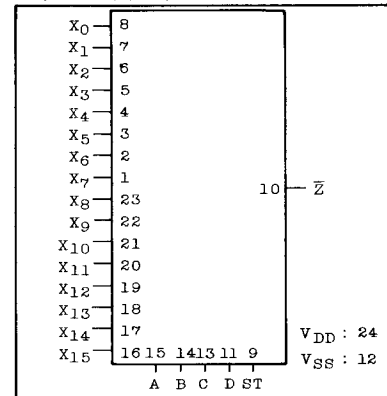
If STROBE input is set to "H", output $\bar{Z}$ becomes "H" regardless of other inputs.



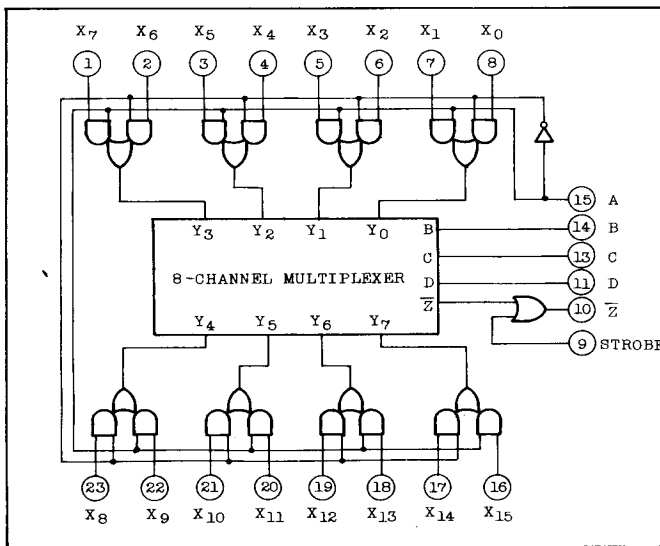
ABSOLUTE MAXIMUM RATINGS

CHARACTERISTIC	SYMBOL	RATING	UNIT
DC Supply Voltage	V_{DD}	$V_{SS}-0.5 \sim V_{SS}+20$	V
Input Voltage	V_{IN}	$V_{SS}-0.5 \sim V_{DD}+0.5$	V
Output Voltage	V_{OUT}	$V_{SS}-0.5 \sim V_{DD}+0.5$	V
DC Input Current	I_{IN}	± 10	mA
Power Dissipation	P_d	300	mW
Storage Temperature Range	T_{stg}	$-65 \sim 150$	$^{\circ}\text{C}$
Lead Temp./Time	T_{sol}	$260^{\circ}\text{C} \cdot 10\text{sec}$	

PIN ASSIGNMENT



LOGIC DIAGRAM



TRUTH TABLE

INPUTS					OUTPUT
D	C	B	A	ST	$\bar{Z}$
*	*	*	*	H	H
L	L	L	L	L	$\bar{X}_0$
L	L	L	H	L	$\bar{X}_1$
L	L	H	L	L	$\bar{X}_2$
L	L	H	H	L	$\bar{X}_3$
L	H	L	L	L	$\bar{X}_4$
L	H	L	H	L	$\bar{X}_5$
L	H	H	L	L	$\bar{X}_6$
L	H	H	H	L	$\bar{X}_7$
H	L	L	L	L	$\bar{X}_8$
H	L	L	H	L	$\bar{X}_9$
H	L	H	L	L	$\bar{X}_{10}$
H	L	H	H	L	$\bar{X}_{11}$
H	H	L	L	L	$\bar{X}_{12}$
H	H	L	H	L	$\bar{X}_{13}$
H	H	H	L	L	$\bar{X}_{14}$
H	H	H	H	L	$\bar{X}_{15}$

* : Don't Care

RECOMMENDED OPERATING CONDITIONS (VSS=0V)

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT
Supply Voltage	VDD	3	-	18	V
Input Voltage	VIN	0	-	VDD	V
Operating Temp.	Topr	-40	-	85	°C

ELECTRICAL CHARACTERISTICS (VSS=0V)

CHARACTERISTIC	SYMBOL	TEST CONDITIONS	VDD (V)	-40°C		25°C			85°C		UNIT
				MIN.	MAX.	MIN.	TYP.	MAX.	MIN.	MAX.	
High Level Output Voltage	VOH	IOUT < 1μA VIN = VSS, VDD	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	VOL	IOUT < 1μA VIN = VSS, VDD	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	
High Level Output Current	IOH	VOH = 4.6V	5	-0.2	-	-0.16	-	-	-0.12	-	mA
		VOH = 9.5V	10	-0.5	-	-0.4	-	-	-0.3	-	
		VOH = 13.5V	15	-1.4	-	-1.2	-	-	-1.0	-	
		VIN = VSS, VDD									
Low Level Output Current	IOL	VOL = 0.4V	5	0.52	-	0.44	-	-	0.36	-	mA
		VOL = 0.5V	10	1.3	-	1.1	-	-	0.9	-	
		VOL = 1.5V	15	3.6	-	3.0	-	-	2.4	-	
		VIN = VSS, VDD									
High Level Input Voltage	VIH	VOUT=0.5V, 4.5V	5	3.5	-	3.5	2.75	-	3.5	-	V
		VOUT=1.0V, 9.0V	10	7.0	-	7.0	5.5	-	7.0	-	
		VOUT=1.5V, 13.5V	15	11.0	-	11.0	8.25	-	11.0	-	
		IOUT < 1μA									
Low Level Input Voltage	VIL	VOUT=0.5V, 4.5V	5	-	1.5	-	2.25	1.5	-	1.5	V
		VOUT=1.0V, 9.0V	10	-	3.0	-	4.5	3.0	-	3.0	
		VOUT=1.5V, 13.5V	15	-	4.0	-	6.75	4.0	-	4.0	
		IOUT < 1μA									
Input Current	High Level	IIH	VIH = 18V	18	-	0.3	-	10 ⁻⁵	0.3	-	μA
	Low Level	IIL	VIL = 0V	18	-	-0.3	-	-10 ⁻⁵	-0.3	-	
Quiescent Supply Current	IDD	VIN = VSS, VDD *	5	-	20	-	0.005	20	-	150	μA
			10	-	40	-	0.010	40	-	300	
			15	-	80	-	0.015	80	-	600	

* All valid input combinations

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

CHARACTERISTIC	SYMBOL	TEST CONDITIONS	VDD (V)	MIN.	TYP.	MAX.	UNIT
Output Rise Time	t _{TLH}		5	-	130	400	ns
			10	-	65	200	
			15	-	50	160	
Output Fall Time	t _{THL}		5	-	100	200	ns
			10	-	50	100	
			15	-	40	80	

TC5023BP

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

CHARACTERISTIC	SYMBOL	TEST CONDITIONS	VDD(V)	MIN.	TYP.	MAX.	UNIT
(LOW-HIGH) Propagation Delay Time (Xn,A,B,C,D - Z)	tpLH		5 10 15	- - -	900 370 250	1800 800 550	ns
(HIGH-LOW) Propagation Delay Time (Xn,A,B,C,D - Z)	tpHL		5 10 15	- - -	650 260 190	1400 600 400	
(LOW-HIGH) Propagation Delay Time (STROBE - Z)	tpLH		5 10 15	- - -	280 130 100	600 300 250	
(HIGH-LOW) Propagation Delay Time (STROBE - Z)	tpHL		5 10 15	- - -	800 340 230	1600 700 500	ns
Input Capacity	CIN	All Inputs		-	5	7.5	pF

SWITCHING TIME TEST CIRCUIT AND WAVEFORMS

