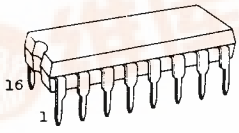
TC5066BP, TC5067BP

C²MOS DIGITAL INTEGRATED CIRCUIT
SILICON MONOLITHIC

TC5066BP 7-HIGH VOLTAGE BUFFER/NON INVERTING TYPE
TC5067BP 7-HIGH VOLTAGE BUFFER/INVERTING TYPE

TC5066BP and TC5067BP contain seven independent circuits of buffers. TC5066BP in non-inverting type and TC5067BP is inverting type.
As both have the output of open drain structure with high bleakdown voltage P-channel MOS FET (-50 volts.. .....Maximum Rating), these are suitable for driving fluorescent display tubes and for interfacing with high voltage MOS LSI's.



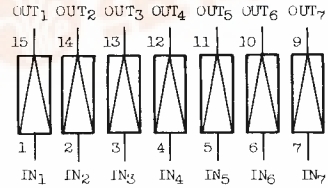
DIP 16 (3D16A-P)

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_{DD}-50 ~ V_{DD}+0.5	V
Power Dissipation	P_D	300	mW
DC Input Current	I_{IN}	±10	mA
Storage Temperature Range	T_{stg}	-65 ~ 150	°C
Lead Temp./Time	T_{sol}	260°C · 10sec	

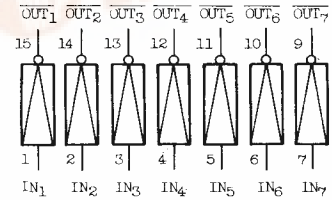
PIN ASSIGNMENT

TC5066BP



V_{DD} : 16 , V_{SS} : 8

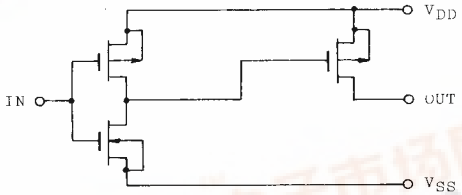
TC5067BP



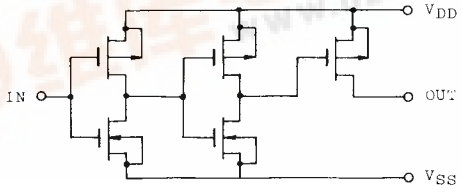
V_{DD} : 16 , V_{SS} : 8

LOGIC DIAGRAM

1/7 TC5066BP



1/7 TC5067BP



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

CHARACTERISTIC	SYMBOL		MIN.	TYP.	MAX.	UNIT
Supply Voltage	V_{DD}		3		18	V
Input Voltage	V_{IN}		0		V_{DD}	V
Operating Temp.	Topr		-40		85	°C

ELECTRICAL CHARACTERISTICS (V_{SS}=0V)

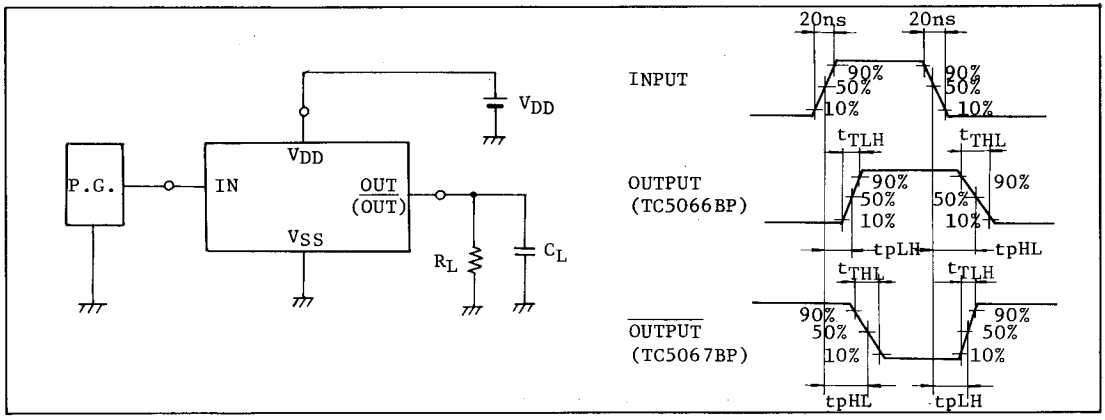
CHARACTERISTIC	SYMBOL	TEST CONDITIONS	V_{DD} (V)	-40°C MIN.	-40°C MAX.	25°C MIN.	25°C TYP.	25°C MAX.	85°C MIN.	85°C MAX.	UNIT
High Level Output Voltage	V_{OH}	$\|I_{OUT}\| < 1\mu A$ $V_{IN}=V_{SS}$ or V_{DD}	5 10 15	4.95 9.95 14.95	- - -	4.95 9.95 14.95	5.00 10.00 15.00	- - -	4.95 9.95 14.95	- - -	V
High Level Output Current	I_{OH}	V_{OH}=3V (V_{DD}-2V) V_{OH}=2V(V_{DD}-3V) V_{OH}=7V(V_{DD}-3V) V_{OH}=12V(V_{DD}-3V) $V_{IN}=V_{SS}$ or V_{DD}	5 5 10 15	- 6 - 9 -12 -17	- - - -	- 5 - 8 -10 -15	-10 -13 -25 -35	- - - -	- 4 - 6 - 8 -12	- - - -	mA
High Level Input Voltage (TC5066BP)	V_{IH}	V_{OUT}=4.5V V_{OUT}=9.0V V_{OUT}=13.5V *	5 10 15	4.0 8.0 12.5	- - -	4.0 8.0 12.5		- - -	4.0 8.0 12.5	- - -	V
Low Level Input Voltage (TC5066BP)	V_{IL}	V_{OUT}=0.5V V_{OUT}=1.0V V_{OUT}=1.5V *	5 10 15	- - -	1.0 2.0 2.5	- - -		1.0 2.0 2.5	- - -	1.0 2.0 2.5	
High Level Input Voltage (TC5067BP)	V_{IH}	V_{OUT}=0.5V V_{OUT}=1.0V V_{OUT}=1.5V *	5 10 15	3.5 7.0 11.0	- - -	3.5 7.0 11.0	2.75 5.5 8.25	- - -	3.5 7.0 11.0	- - -	V
Low Level Input Voltage (TC5067BP)	V_{IL}	V_{OUT}=4.5V V_{OUT}=9.0V V_{OUT}=13.5V *	5 10 15	- - -	1.5 3.0 4.0	- - -	2.25 4.5 6.75	1.5 3.0 4.0	- - -	1.5 3.0 4.0	
Output OFF Leak Current	I_{OFF}	V_{OUT} = 0V V_{OUT} = -30V	15 15	- -	3 10	- -	0.01 1	3 10	- -	10 20	μA
Input Current H Level	I_{IH}	V_{IH} = 18V	18	-	0.3	-	10^{-5}	0.3	-	1.0	μA
Input Current L Level	I_{IL}	V_{IL} = 0V	18	-	-0.3	-	10^{-5}	-0.3	-	-1.0	μA
Quiescent Supply Current	I_{DD}	V_{IN} = V_{DD}, V_{SS} Outputs Open	5 10 15	- - -	4.0 8.0 16.0	- - -	0.005 0.010 0.015	4.0 8.0 16.0	- - -	30 60 120	μA

* R_L = 20 kΩ

SWITCHING CHARACTERISTICS (Ta=25°C, V_{SS}=0V, C_L=50pF)

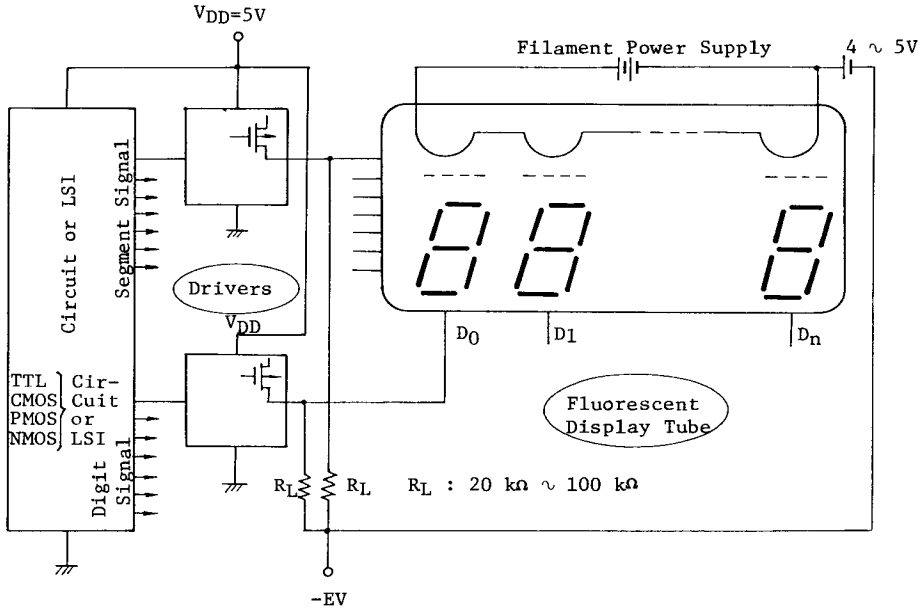
CHARACTERISTIC	SYMBOL	TEST CONDITIONS	V_{DD}(V)	MIN.	TYP.	MAX.	UNIT
Output Rise Time	t_{TLH}	R_L = 20 kΩ	5	-	100	200	ns
			10	-	50	100	
			15	-	40	80	
Output Fall Time	t_{THL}	R_L = 20 kΩ	5	-	5.0	8.0	μs
			10	-	5.0	8.0	
			15	-	5.0	8.0	
(LOW-HIGH) Propagation Delay Time	tpLH	R_L = 20 kΩ	5	-	200	500	ns
			10	-	100	250	
			15	-	80	200	
(HIGH-LOW) Propagation Delay Time	tpHL	R_L = 20 kΩ	5	-	2.0	4.0	μs
			10	-	2.0	4.0	
			15	-	2.0	4.0	
Input Capacity	C_{IN}			-	5	7.5	pF

SWITCHING TIME TEST CIRCUIT AND WAVEFORM



EXAMPLES OF APPLICABLE CIRCUITS

(1) Fluorescent Display Tube Driving Circuit



(2) Interface between CMOS and PMOS