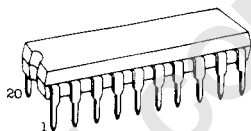


C²MOS DIGITAL INTEGRATED CIRCUIT
SILICON MONOLITHIC**TC40H245P/F**TC40H245 OCTAL BIDIRECTIONAL BUS BUFFER
NONINVERTED 3-STATE OUTPUTS

MAXIMUM RATINGS

CHARACTERISTIC	SYMBOL	RATING	SYMBOL
Supply Voltage	V _{DD}	V _{SS} -0.5 ~ V _{SS} +10	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
Input Current	I _{IN}	±10	mA
Power Dissipation	P _D	300 (DIP) / 180 (MFP)	mW
Storage Temperature	T _{stg}	-65 ~ 150	°C
Lead Temp. /Time	T _{sol}	260°C • 10 sec	

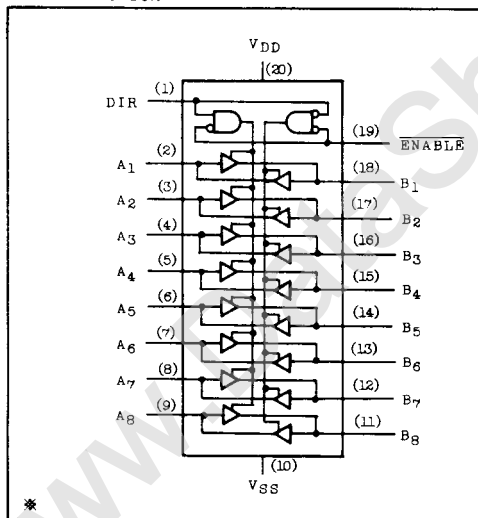


DIP20 (3D20A-P)



MFP20 (P20GA-P)

PIN CONNECTION



TRUTH TABLE

CONTROL INPUTS		DATA PORT STATUS
ENABLE	DIR	
L	L	B data to A bus
L	H	A data to B bus
H	X	High Impedance

X=Don't care

- TC40H245 IS A OCTAL BIDIRECTIONAL BUS BUFFER THAT HAS 3-STATE OUTPUT.
- MOST SUITABLE FOR 8-BIT DATA LINE.
- LARGE OUTPUT CURRENT CAPACITY ENABLES TO DRIVE 10 LSTTL GATE.

RECOMMENDED OPERATING CONDITIONS (V_{SS}=0.0V)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Supply Voltage	V _{DD}		2.0	-	8.0	V
Input Voltage	V _{IN}		0	-	V _{DD}	V
Operating Temperature	T _{opr}		-40	-	85	°C

TC40H245P/F

ELECTRICAL CHARACTERISTICS ($V_{SS}=0.0V$)

CHARACTERISTIC		SYMBOL	TEST CONDITION	VDD (V)	-40°C		25°C			85°C		UNIT
					MIN.	MAX.	MIN.	TYP.	MAX.	MIN.	MAX.	
High Level Output Voltage		V_{OH}	$ I_{OUT} < 1\mu A$ $V_{IN}=V_{SS}, V_{DD}$	5	4.95	-	4.95	5.0	-	4.95	-	V
Low Level Output Voltage		V_{OL}	$ I_{OUT} < 1\mu A$ $V_{IN}=V_{SS}, V_{DD}$	5	-	0.05	-	0.0	0.05	-	0.05	
High Level Output Current		I_{OH}	$V_{OH}=4.6V$ $V_{IN}=V_{SS}, V_{DD}$	5	-0.95	-	-0.88	-	-	-0.8	-	mA
Low Level Output Current		I_{OL}	$V_{OL}=0.4V$ $V_{IN}=V_{SS}, V_{DD}$	5	4.7	-	4.4	-	-	4.0	-	
Input Voltage	"H" Level	V_{IH}	$ I_{OUT} < 1\mu A$ $V_{OH}=4.5V$	5	4.0	-	4.0	-	-	4.0	-	V
	"L" Level	V_{IL}	$V_{OH}=0.5V$	5	-	1.0	-	-	1.0	-	1.0	
Input Current	"H" Level	I_{IH}	$V_{IH}=8.0V$	8	-	0.5	-	10^{-4}	0.5	-	5	μA
	"L" Level	I_{IL}	$V_{IL}=0.0V$	8	-	-0.5	-	-10^{-4}	-0.5	-	-5	
Output Disable Current	"H" Level	I_{DH}	$V_{DH}=8.0V$	8	-	0.5	-	10^{-4}	0.5	-	5	μA
	"L" Level	I_{DL}	$V_{DL}=0.0V$	8	-	-0.5	-	-10^{-4}	-0.5	-	-5	
Quiescent Supply Current		I_{DD}	$*V_{IN}=V_{SS}, V_{DD}$	5	-	5.0	-	0.005	5.0	-	25	μA

* All valid input combinations.

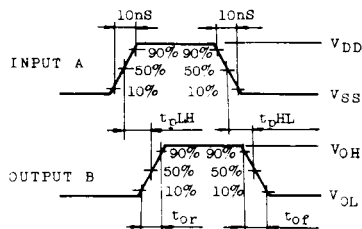
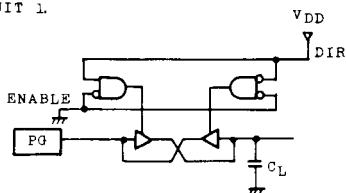
SWITCHING CHARACTERISTICS ($T_a=25^\circ C$, $V_{SS}=0V$, $V_{DD}=5V$, $C_L=50pF$, $R_L=1k\Omega$)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Output Rise Time		t_{or}	Fig. 1	-	15	36	ns
Output Fall Time		t_{of}		-	12	30	
High Level Propagation Delay Time		t_{pLH}	Fig. 1	-	19	29	ns
Low Level Propagation Delay Time		t_{pHL}		-	23	35	
Output Disable Time	"H" Level	t_{pHZ}	Fig. 3	-	40	60	ns
	"L" Level	t_{pLZ}	Fig. 2	-	31	47	
Output Enable Time	"H" Level	t_{pZH}	Fig. 3	-	39	60	ns
	"L" Level	t_{pZL}	Fig. 2	-	35	53	
Input Capacitance		C_{IN}	DI, ENA	-	5		PF
Input Capacitance		C_{IN}	A, B	-	19		

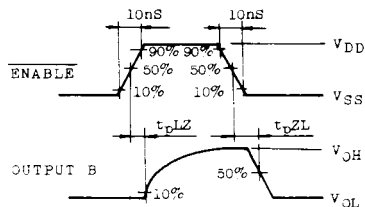
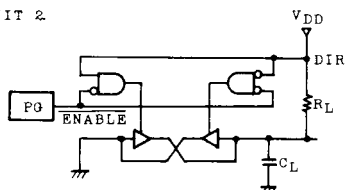
TC40H245P/F

SWITCHING TIME TEST CIRCUIT AND WAVEFORM

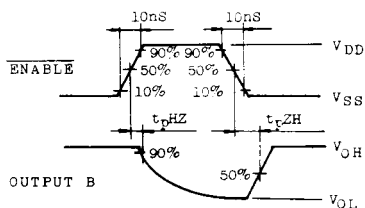
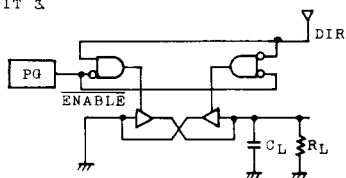
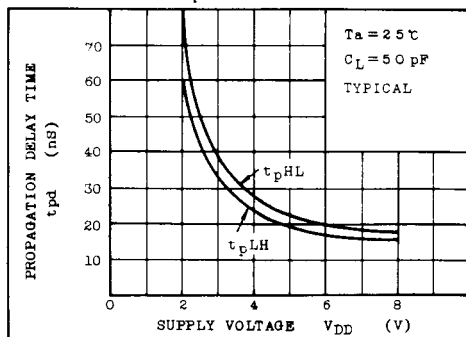
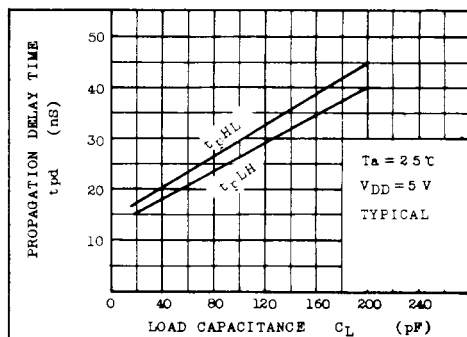
CIRCUIT 1



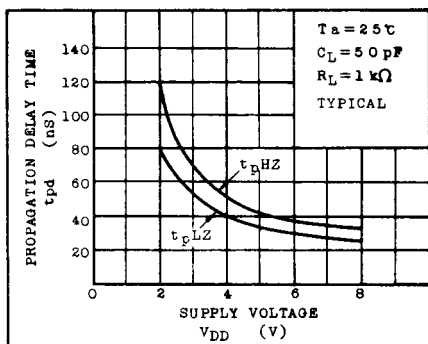
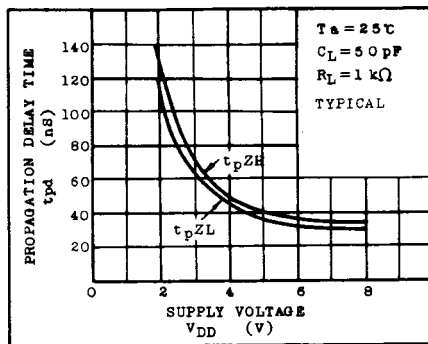
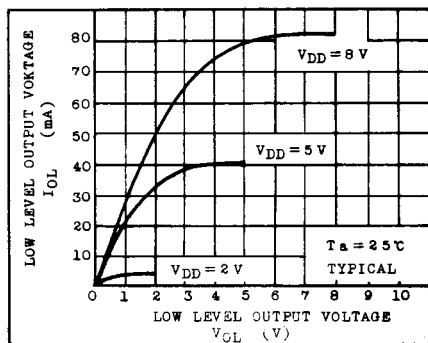
CIRCUIT 2



CIRCUIT 3

 $t_{pd} - V_{DD}$  $t_{pd} - C_L$ 

TC40H245P/F

 $t_{pd} - V_{DD}$  $t_{pd} - V_{DD}$  $I_{OL} - V_{OL}$  $I_{OH} - (V_{DD} - V_{OH})$ 