

CMOS DIGITAL INTEGRATED CIRCUIT SILICON MONOLITHIC

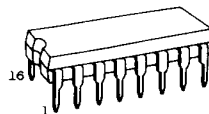
TC40H157P/F TC40H158P/F

TC40H157 QUAD 2-TO-1-LINE DATA SELECTOR/MULTIPLEXER
TC40H158 QUAD 2-TO-1-LINE DATA SELECTOR/MULTIPLEXER

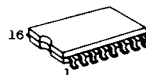
The TC40H157 and the TC40H158 are Quad data selectors which select one data input lines A or B through SELECT inputs. SELECT input is common for four circuits.

When STROBE input is set to "L" level, and SELECT input to "L" level, data A is selected. When SELECT input is set to "H" level, data B is selected.

When STROBE input is set to "H" level, the selection is inhibited regardless of other inputs; all the outputs of the TC40H157 go to "L" level while those of the TC40H158 to "H" level.



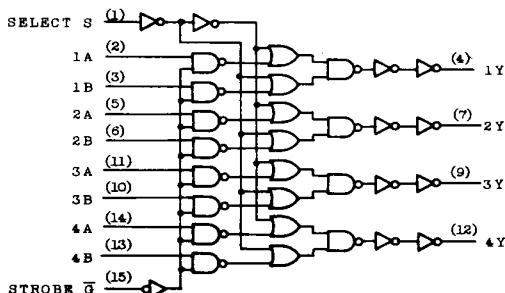
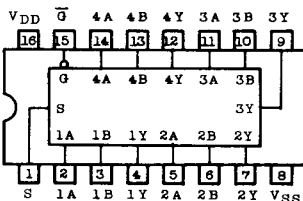
DIP16(3D16A-P)



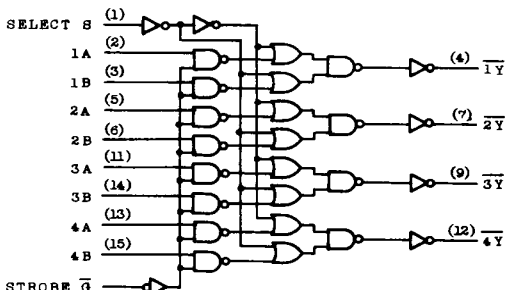
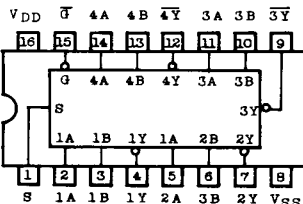
MFP16(F16GC-P)

PIN CONNECTION AND LOGIC DIAGRAM

TC40H157



TC40H158



* ALL INPUTS ARE EQUIPPED WITH PROTECTION CIRCUIT.

TC40H157P/F

TC40H158P/F

MAXIMUM RATINGS

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	VDD	VSS-0.5 ~ VSS+10	V
Input Voltage	VIN	VSS-0.5 ~ VDD+0.5	V
Output Voltage	VOU	VSS-0.5 ~ VDD+0.5	V
Input Current	IIN	±10	mA
Power Dissipation	PD	300 (DIP) / 180 (MFP)	mW
Storage Temperature	Tstg	-65 ~ 150	°C
Lead Temp./Time	Tsol	260°C • 10 sec	

TRUTH TABLE

INPUTS				OUTPUTS	
STROBE	SELECT	DATA		H157	H158
\bar{S}	S	A	B	Y	\bar{Y}
H	X	X	X	L	H
L	L	L	X	L	H
L	L	H	X	H	L
L	H	X	L	L	H
L	H	X	H	H	L

X = Don't Care

RECOMMENDED OPERATING CONDITIONS (VSS=0V)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Supply Voltage	VDD	-	2.0	-	8.0	V
Input Voltage	VIN	-	0	-	VDD	V
Operating Temperature	Topr	-	-40	-	85	°C

ELECTRICAL CHARACTERISTICS (VSS=0.0V)

CHARACTERISTIC	SYMBOL	TEST CONDITION	VDD (V)	-40°C		25°C		80°C		UNIT	
				MIN.	MAX.	MIN.	TYP.	MIN.	MIN.		MAX.
High Level Output Voltage	VOH	$ I_{OUT} < 1\mu A$ VIN=VSS, VDD	5	4.95	-	4.95	5.0	-	4.95	-	V
Low Level Output Voltage	VOL	$ I_{OUT} < 1\mu A$ VIN=VDD, VSS	5	-	0.05	-	0.0	0.05	-	0.05	
High Level Output Current	IOH	VOH=4.6V VIN=VSS, VDD	5	-0.52	-	-0.44	-	-	-0.36	-	mA
Low Level Output Current	IOL	VOL=0.4V VIN=VDD, VSS	5	1.4	-	1.1	-	-	0.8	-	
High Level Input Voltage	VIH	$ V_{OUT} < 1\mu A$ VOUT=0.5V	5	4.0	-	4.0	-	-	4.0	-	V
Low Level Input Voltage	VIL	VOUT=4.5V	5	-	1.0	-	-	1.0	-	1.0	
Input Current	"H" Level I _{IH}	VIH=8.0V	8	-	0.3	-	10 ⁻⁵	0.3	-	1.0	μA
	"L" Level I _{IL}	VIL=0.0V	8	-	-0.3	-	-10 ⁻⁵	-0.3	-	-1.0	
Quiescent Supply Current	IDD	*VIN=VSS, VDD	5	-	12.5	-	10 ⁻³	12.5	-	75	μA

* All valid input combinations.

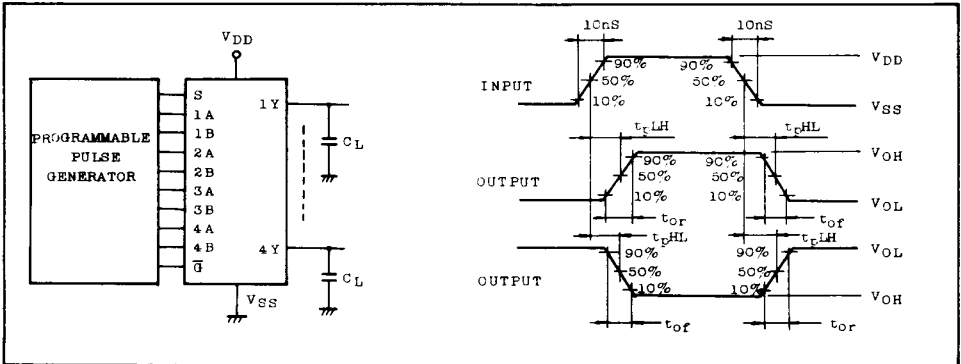
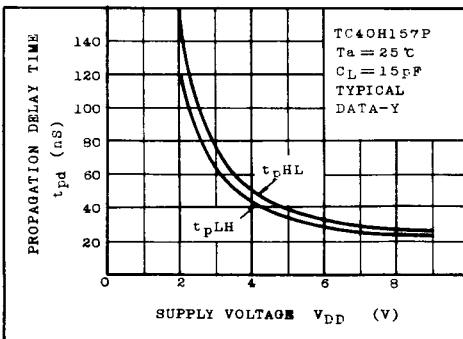
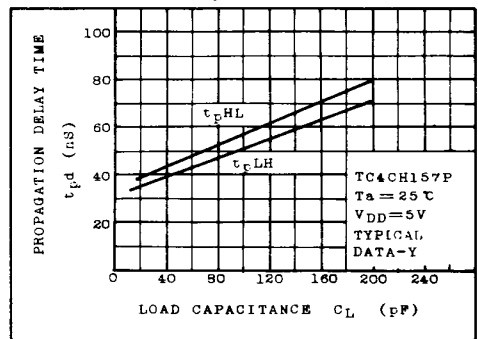
TC40H157P/F

TC40H158P/F

SWITCHING CHARACTERISTICS

CHARACTERISTIC	SYMBOL	TEST CONDITION	TC40H157			TC40H158			UNIT	
			MIN.	TYP.	MAX.	MIN.	TYP.	MAX.		
Output Rise Time	t_{or}		-	17	40	-	17	40	ns	
Output Fall Time	t_{of}		-	13	35	-	13	35		
Propagation Delay Time	(Low-High)	t_{pLH}	DATA - Y, \bar{Y}	-	36	54	-	34	51	ns
	(High-Low)	t_{pHL}		-	39	58	-	32	48	
Propagation Delay Time	(Low-High)	t_{pLH}	SELECT - Y, \bar{Y}	-	44	66	-	37	56	ns
	(High-Low)	t_{pHL}		-	42	63	-	40	60	
Propagation Delay Time	(Low-High)	t_{pLH}	STROBE - Y, Y	-	43	65	-	36	54	ns
	(High-Low)	t_{pHL}		-	40	60	-	38	57	
Input Capacitance	C_{IN}		-	5	-	-	5	-	pF	

SWITCHING TIME TEST CIRCUIT AND WAVEFORM

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

TC40H157P/F
TC40H158P/F

