

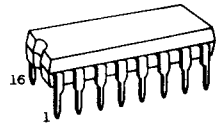
TC40H139P/F

C²MOS DIGITAL INTEGRATED CIRCUIT
SILICON MONOLITHIC

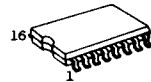
TC40H139 DUAL 2-TO-4-LINE DECODER/DEMULTIPLER

The TC40H139 is a dual decoder/demulti-plexer, which can select one of four output lines through two input lines A and B according to the following truth table. The selected output at this time is at "L" level.

Further, when ENABLE input \bar{G} is set to "H" level, the selection is inhibited regardless of SELECT signal and all the outputs go to "H" level.



DIP16(3D16A-P)

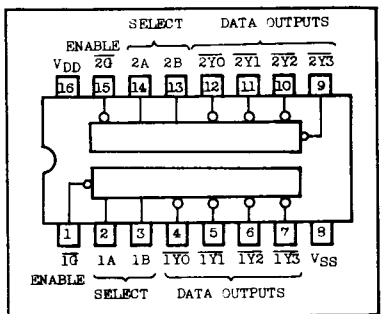


MFP16(F16QC-P)

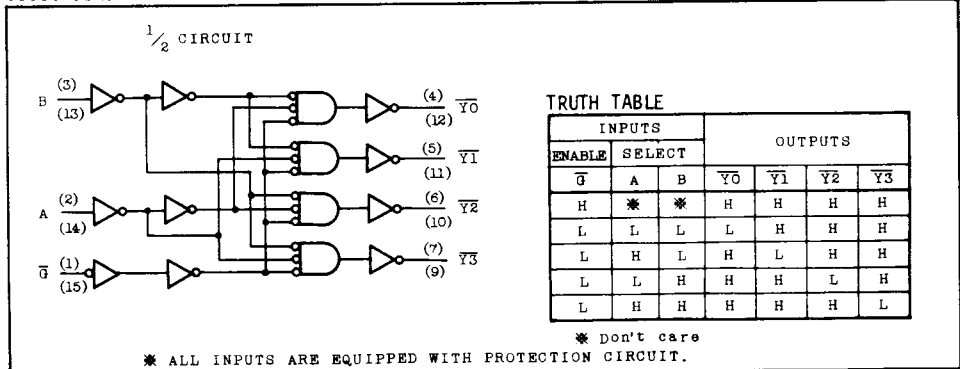
MUXMUM RATINGS

CHARACTERISTIC	SYMBOL	RATING	UNIT
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	PD	300(DIP)/180(MFP)	mW
Storage Temperature	T _{stg}	-65 ~ 150	°C
Lead Temp./Time	T _{sol}	260°C • 10 sec	

PIN CONNECTION



LOGIC DIAGRAM



TC40H139P/F

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

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Supply Voltage	VDD	-	2.0	-	8.0	V
Input Voltage	VIN	-	0.0	-	VDD	V
Operating Temperature	Topr	-	-40	-	85	°C

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	VOH	$ 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	VOL	$ I_{OUT} < 1\mu A$ $V_{IN}=V_{SS}, V_{DD}$	5	-	0.05	-	0.0	0.05	-	0.05	V
High Level Output Current	IOH	VOH=4.6V $V_{IN}=V_{SS}, V_{DD}$	5	-0.52	-	-0.44	-	-	-0.36	-	mA
Low Level Output Current	IOL	VOL=0.4V $V_{IN}=V_{SS}, V_{DD}$	5	1.4	-	1.1	-	-	0.8	-	mA
Input Voltage	"H" Level VIH	$ I_{OUT} < 1\mu A$ VOH=4.5V VOL=0.5V	5	4.0	-	4.0	-	-	4.0	-	V
	"L" Level VIL		5	-	1.0	-	-	1.0	-	1.0	V
Input Current	"H" Level IIH	VIH=8.0V	8	-	0.3	-	10^{-5}	0.3	-	1.0	μA
	"L" Level IIL	VIL=0.0V	8	-	-0.3	-	-10^{-5}	-0.3	-	-1.0	μA
Quiescent Supply Current	IDD	* $V_{IN}=V_{SS}, V_{DD}$	5	-	12.5	-	10^{-3}	12.5	-	75	μA

* All valid input combinations.

SWITCHING CHARACTERISTICS ($T_a=25^\circ C$, $V_{SS}=0.0V$, $C_L=15pF$)

CHARACTERISTIC	SYMBOL	TEST CONDITION	VDD(V)	MIN.	TYP.	MAX.	UNIT
Output Rise Time	t _{or}		5	-	17	35	ns
Output Fall Time	t _{of}		5	-	13	30	
Propagation Delay Time (Low-High)	t _{pLH}	SELECT - Y	5	-	32	48	ns
Propagation Delay Time (High-Low)	t _{pHL}		5	-	30	45	
Propagation Delay Time (Low-High)	t _{pLH}	ENABLE - Y	5	-	32	48	ns
Propagation Delay Time (High-Low)	t _{pHL}		5	-	30	45	
Input Capacitance	C _{IN}			-	5	-	pF

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SWITCHING TIME TEST CIRCUIT AND WAVEFORM

