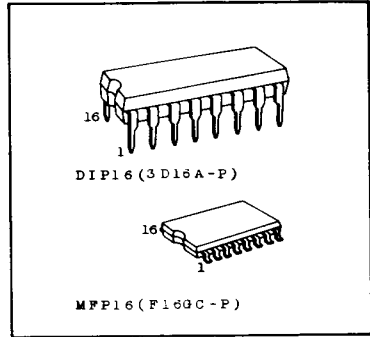


TC40H148P/F

C²MOS DIGITAL INTEGRATED CIRCUIT
SILICON MONOLITHIC

TC40H148 8-TO-3-LINE PRIORITY ENCODER

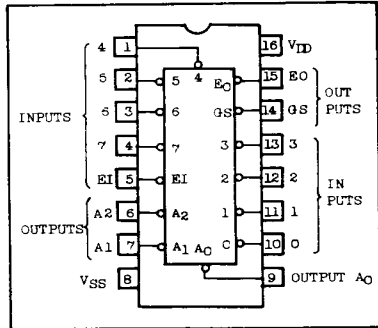
The TC40H148 is an 8-to 3-line encoder which detects the highest order "L" level among eight input signals, and outputs the corresponding signal in binary code.



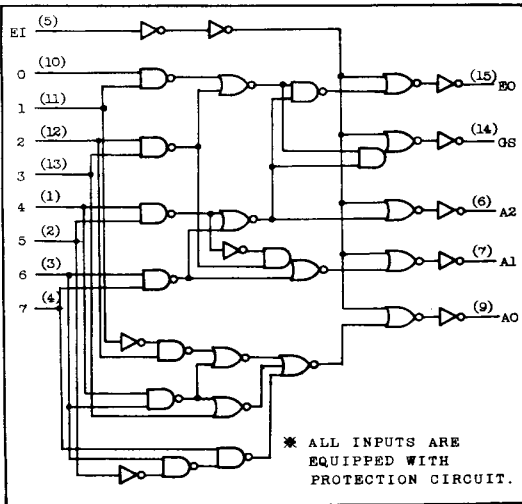
MAXIMUM RATINGS

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V _{DD}	V _{SS} -0.5 ~ V _{SS} +1.0	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



BLOCK DIAGRAM



TRUTH TABLE

INPUTS								OUTPUTS					
EI	0	1	2	3	4	5	6	7	A ₀	A ₁	A ₂	GS	EO
L	L	H	H	H	H	H	H	H	H	H	H	L	H
L	*	L	H	H	H	H	H	H	L	H	H	L	H
L	*	*	L	H	H	H	H	H	L	H	L	L	H
L	*	*	*	L	H	H	H	H	L	H	L	L	H
L	*	*	*	*	L	H	H	H	L	H	L	L	H
L	*	*	*	*	*	L	H	H	L	L	L	L	H
L	*	*	*	*	*	*	L	H	L	L	L	L	H
L	H	H	H	H	H	H	H	H	H	H	H	H	L
H	*	*	*	*	*	*	*	*	H	H	H	H	H

* = Don't care

TC40H148P/F

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

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

CHARACTERISTIC	SYMBOL	TEST CONDITION	V_{DD} (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	-	-	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	V
High Level Output Current	I_{OH}	$V_{OH}=4.6V$ $V_{IN}=V_{SS}, V_{DD}$	5	-0.52	-	-0.44	-	-	-0.36	-	mA
Low Level Output Current	I_{OL}	$V_{OL}=0.4V$ $V_{IN}=V_{SS}, V_{DD}$	5	1.4	-	1.1	-	-	0.8	-	mA
Input Voltage	High Level V_{IH}	$ I_{OUT} < 1\mu A$	5	4.0	-	4.0	-	0	4.0	-	V
	Low Level V_{IL}	$V_{OUT}=0.5V$ $V_{OUT}=4.5V$	5	-	1.0	-	-	1.0	-	1.0	
Input Current	High Level I_{IH}	$V_{IH}=8.0V$	8	-	0.3	-	10^{-5}	0.3	-	1.0	A
	Low Level I_{IL}	$V_{IL}=0.0V$	8	-	-0.3	-	-10^{-5}	-0.3	-	-1.0	
Quiescent Supply Current	I_{DD}	$*V_{IN}=V_{SS}, V_{DD}$	5	-	2.5	-	10^{-3}	2.5	-	75	μA

* All valid input combinations.

SWITCHING CHARACTERISTICS ($T_a=25^\circ C$, $V_{SS}=0.0V$, $V_{DD}=5V$, $C_L=15pF$)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Output Rise Time	t_{or}		-	20	40	ns
Output Fall Time	t_{of}		-	15	30	
Propagation Delay Time	(Low-High) t_{PLH}	DATA 0 $\bar{0}$ 7-A, GS, EO.	-	50	75	ns
	(High-Low) t_{pHL}		-	46	70	
Propagation Delay Time	(Low-High) t_{pLH}	EI - A, GS, EO	-	34	50	ns
	(High-Low) t_{pHL}		-	34	50	
Input Capacitance	C_{IN}		-	5		pF

TC40H148P/F

SWITCHING TIME TEST CIRCUIT AND WAVEFORM

