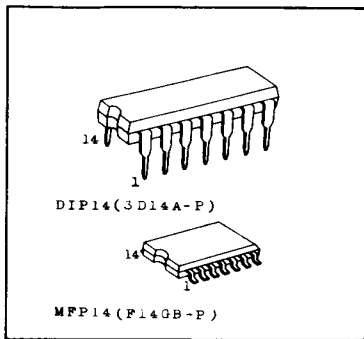
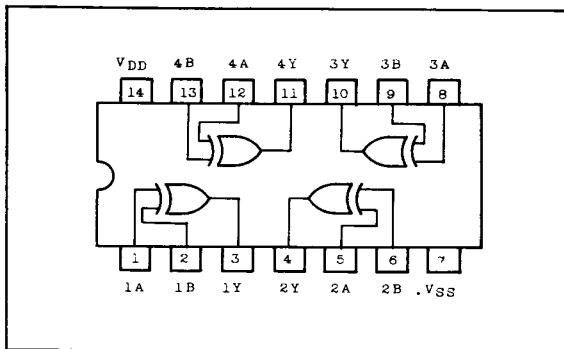


C²MOS DIGITAL INTEGRATED CIRCUIT
SILICON MONOLITHIC

TC40H386P/F

TC40H386 QUAD 2-INPUT EXCLUSIVE-OR GATE

PIN CONNECTION



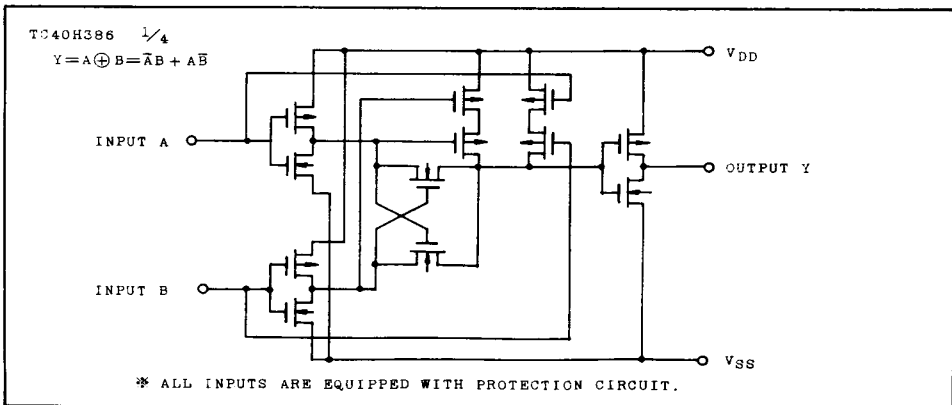
MAXIMUM RATINGS

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	P _D	300(DIP)/180(MFP)	mW
Storage Temperature	T _{stg}	-65 ~ 150	°C
Lead Temp./Time	T _{sol}	260°C · 10 sec	

TRUTH TABLE

INPUTS		OUTPUT
A	B	Y
L	L	L
H	L	H
L	H	H
H	H	L

CIRCUIT DIAGRAM



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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 ($V_{SS}=0.0V$)

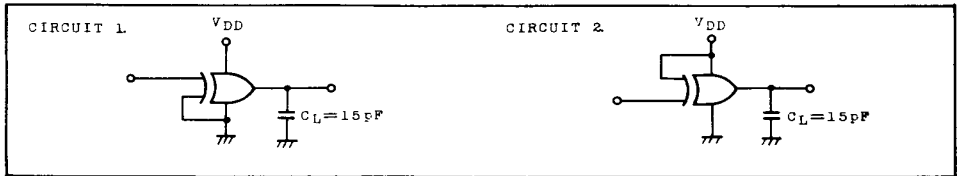
CHARACTERISTIC	SYMBOL	TEST CONDITION	V_{DD} (V)	-40°C		25°C			85°C		UNIT
				MIN.	MAX.	MIN.	TYP.	MAX.	MIN.	MAX.	
High Level Output Voltage	V_{OH}	$ I_{OUT} < 1\mu A$ $V_{IN}=V_{SS}, V_{DD}$	5	4.95	-	4.95	5.0	-	4.95	-	V
Low Level Output Voltage	V_{OL}	$ I_{OUT} < 1\mu A$ $V_{IN}=V_{SS}, V_{DD}$	5	-	0.05	-	0.0	0.05	-	0.05	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	"H" Level	V_{IH}	5	4.0	-	4.0	-	-	4.0	-	V
	"L" Level	V_{IL}									
Input Current	"H" Level	I_{IH}	8	-	0.3	-	10^{-5}	0.3	-	1.0	μA
	"L" Level	I_{IL}	8	-	-0.3	-	-10^{-5}	-0.3	-	-1.0	
Quiescent Supply Current	I_{DD}	* $V_{IN}=V_{SS}, V_{DD}$	5	-	2.0	-	10^{-3}	20	-	10.0	μA

* All valid input combinations.

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

CHARACTERISTIC	SYMBOL	TEST CONDITION	V_{DD}	MIN.	TYP.	MAX.	UNIT
			(V)				
Output Rise Time	t_{or}	Circuit 1	5	-	17	35	ns
Output Fall Time	t_{of}		5	-	14	30	
Propagation Delay Time	Low-High Level	Circuit 1	5	-	20	30	ns
	High-Low Level						
Delay Time	Low-High Level	Circuit 2	5	-	23	35	
	High-Low Level						
Input Capacitance	C_{IN}			-	5	-	pF

SWITCHING TIME TEST CIRCUIT



TC40H386P/F

SWITCHING TIME TEST WAVEFORM

