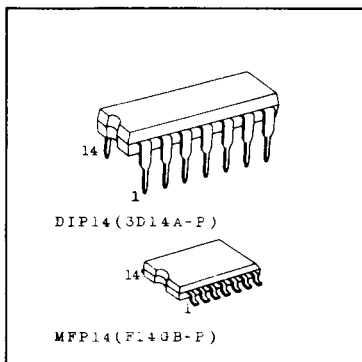
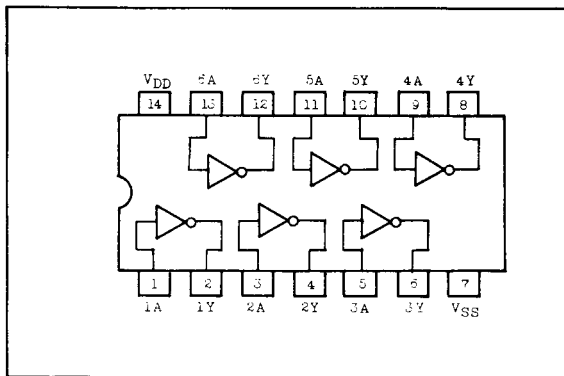


C²MOS DIGITAL INTEGRATED CIRCUIT SILICON MONOLITHIC

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TC40H004 HEX INVERTER

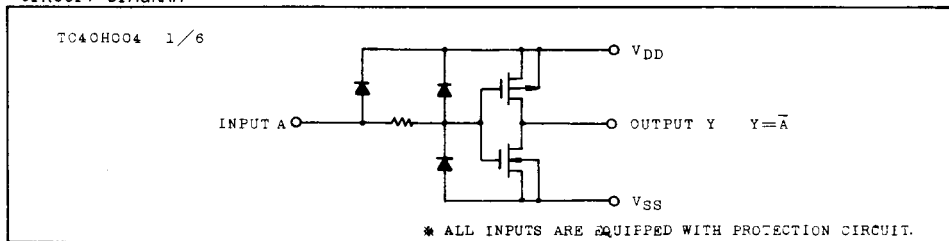
PIN CONNECTION



MAXIMUM RATINGS

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V_{DD}	$V_{SS}-0.5 \sim V_{SS}+10$	V
Input Voltage	V_{IN}	$V_{SS}-0.5 \sim V_{DD}+0.5$	V
Output Voltage	V_{OUT}	$V_{SS}-0.5 \sim V_{DD}+0.5$	V
Input Current	I_{IN}	± 10	mA
Power Dissipation	P_D	300 (DIP)/180 (MFP)	mW
Storage Temperature	T_{stg}	$-65 \sim 150$	$^{\circ}\text{C}$
Lead Temp./Time	T_{sol}	$260^{\circ}\text{C} \cdot 10 \text{ sec}$	

CIRCUIT DIAGRAM



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

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	$^{\circ}\text{C}$

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ELECTRICAL CHARACTERISTICS (V_{SS}=0.0V)

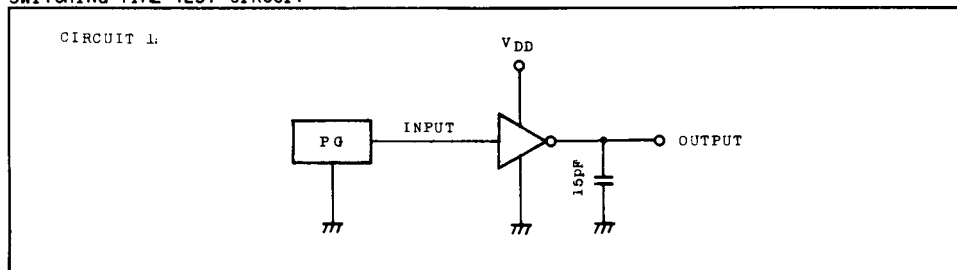
CHARACTERISTIC		SYMBOL	TEST CONDITION	V _{DD} (V)	-40°C		25°C			85°C		UNIT
					MIN.	MAX.	MIN.	TYP.	MAX.	MIN.	MAX.	
High Level Output Voltage		V _{OH}	I _{OUT} < 1μA V _{IN} =V _{SS}	5	4.95	-	4.95	5.0	-	4.95	-	V
Low Level Output Voltage		V _{OL}	I _{OUT} < 1μA V _{IN} =V _{DD}	5	-	0.05	-	0.0	0.05	-	0.05	
High Level Output Current		I _{OH}	V _{OH} =4.6V V _{IN} =V _{SS}	5	-0.52	-	-0.44	-	-	-0.36	-	mA
Low Level Output Current		I _{OL}	V _{OL} =0.4V V _{IN} =V _{DD}	5	1.4	-	1.1	-	-	0.8	-	
Input Voltage	High Level	V _{IH}	I _{OUT} < 1μA V _{OUT} =0.5V	5	4.0	-	4.0	-	-	4.0	-	V
	Low Level	V _{IL}	V _{OUT} =4.5V V _{IN} =V _{SS} , V _{DD}									
Input Current	"H" Level	I _{IH}	V _{IH} =8.0V	8	-	0.3	-	10 ⁻⁵	0.3	-	1.0	μA
	"L" 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	-	2.0	-	10 ⁻³	2.0	-	10.0	μA

* All valid input combinations.

SWITCHING CHARACTERISTICS (T_a=25°C, V_{SS}=0.0V, C_L=15pF)

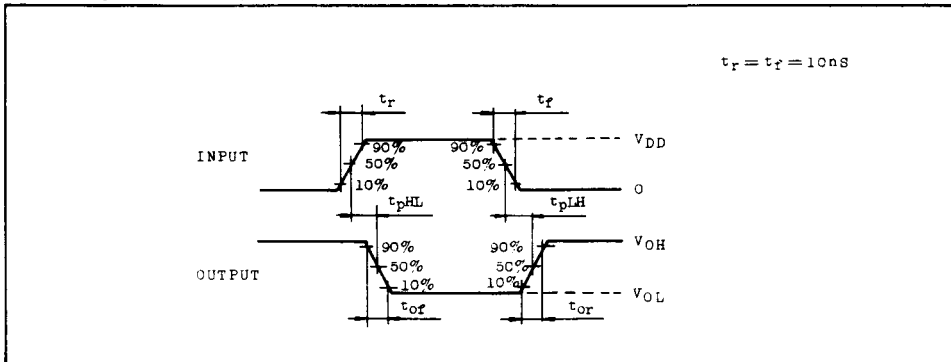
CHARACTERISTIC		SYMBOL	TEST CONDITION	V _{DD} (V)	MIN.	TYP.	MAX.	UNIT
Output Rise Time		t _{or}	Circuit 1	5	-	14	30	ns
Output Fall Time		t _{of}	Circuit 1	5	-	11	30	
Propagation Delay Time	(Low-High)	t _{pLH}	Circuit 1	5	-	15	20	ns
	(High-Low)	t _{pHL}		5	-	13	20	
Input Capacitance		C _{IN}			-	5		pF

SWITCHING TIME TEST CIRCUIT

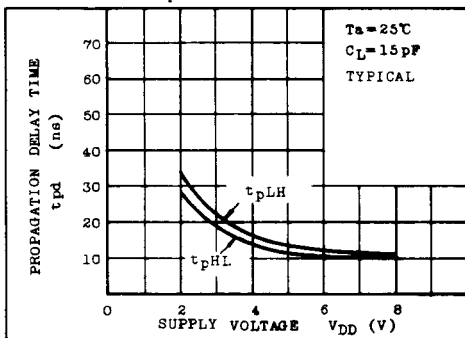


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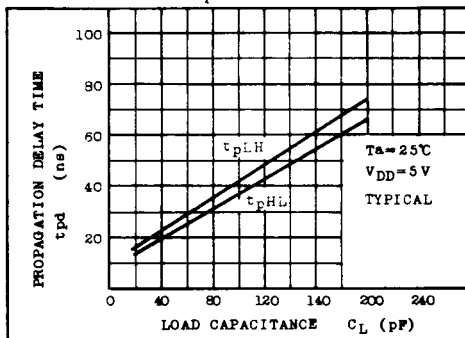
SWITCHING TIME TEST WAVEFORM



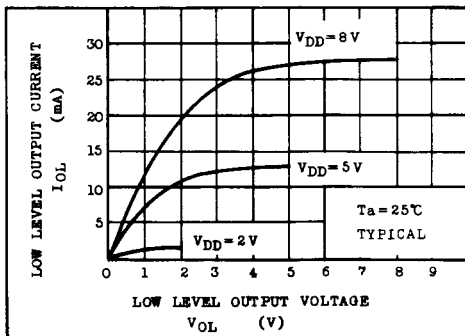
$t_{pd} - V_{DD}$



$t_{pd} - C_L$



$I_{CL} - V_{OL}$



$I_{OH} - (V_{DD} - V_{OH})$

