

TC5050P

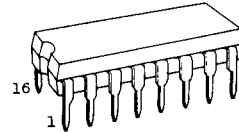
C²MOS DIGITAL INTEGRATED CIRCUIT
SILICON MONOLITHIC

TC5050P DUAL 50/64 STAGE STATIC SHIFT REGISTER

TC5050P is static shift register consisting of D type flip-flops, and can be used as either 50 bit shift register or 64 bit shift register depending on OUTPUT MODE input.

Since one of two input data can be selected by INPUT MODE input, the applications for scratch pad memories, etc. can be realized by connecting one of data inputs to the output. And if two circuits are connected in series, this can be expanded to 100 bit, 114 bit or 128 bit shift register.

When used with 5 volts power supply, one of TTL or DTL can be directly driven.

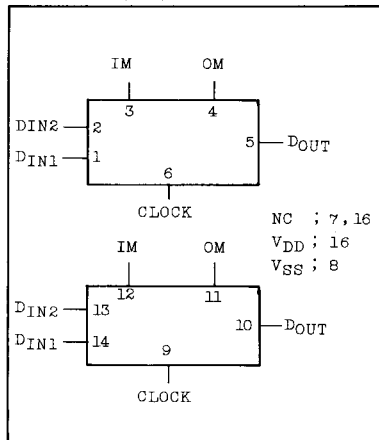


DIP 16 (3D16A-P)

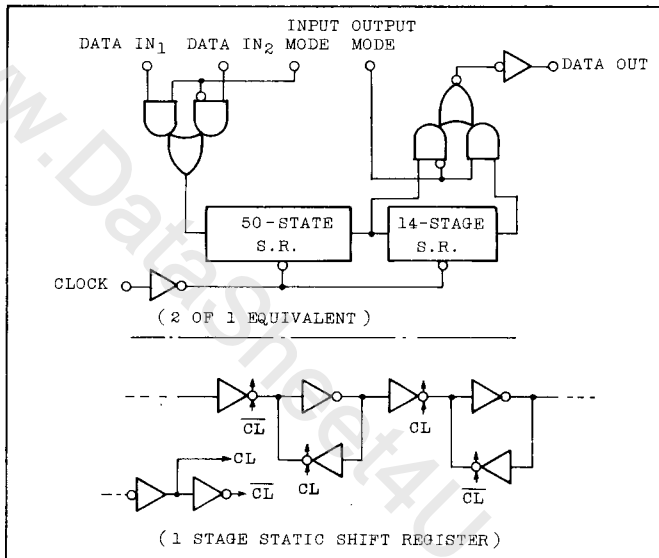
ABSOLUTE MAXIMUM RATINGS

CHARACTERISTIC	SYMBOL	RATING	UNIT
DC 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
DC Input Current	I _{IN}	±10	mA
Power Dissipation	P _D	300	mW
Storage Temperature Range	T _{stg}	-55 ~ 125	°C
Lead Temp./Time	T _{sol}	260°C · 10sec	

PIN ASSIGNMENT



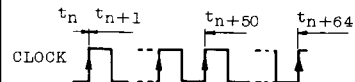
LOGIC DIAGRAM



TRUTH TABLE

t_n, t_{n+1}		t_{n+50}			t_{n+64}	
D _{IN1}	D _{IN2}	I _M	O _M	D _{OUT}	O _M	D _{OUT}
H	*	H	L	H	H	H
L	*	H	L	L	H	L
*	H	L	L	H	H	H
*	L	L	L	L	H	L

* Don't Care



RECOMMENDED OPERATING CONDITIONS (V_{SS}=0V)

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT
Supply Voltage	V _{DD}	3	-	8	V
Input Voltage	V _{IN}	0	-	V _{DD}	V
Operating Temperature	Topr	-30	-	85	°C

ELECTRICAL CHARACTERISTICS (V_{SS}=0V)

CHARACTERISTIC	SYM-BOL	TEST CONDITIONS	V _{DD} (V)	-30°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 _{DD} , V _{SS}	5	4.95	-	4.95	5.00	-	4.95	-	V
Low Level Output Voltage	V _{OL}	I _{OUT} < 1μA V _{IN} =V _{DD} , V _{SS}	5	-	0.05	-	0.00	0.05	-	0.05	V
High Level Output Current	I _{OH}	V _{OH} =2.5V V _{IN} =V _{DD} , V _{SS}	5	-1.25	-	-1.25	-5.0	-	-1.0	-	mA
Low Level Output Current	I _{OL}	V _{OL} =0.4V V _{IN} =V _{DD} , V _{SS}	5	3.2	-	3.2	7.0	-	2.4	-	mA
High Level Input Voltage	V _{IH}	V _{OUT} =0.5V, 4.5V I _{OUT} < 1μA	5	3.5	-	3.5	2.75	-	3.5	-	V
Low Level Input Voltage	V _{IL}	V _{OUT} =0.5V, 4.5V I _{OUT} < 1μA	5	-	1.5	-	2.25	1.5	-	1.5	V
H.Level Input Current	I _{IH}	V _{IH} =8V	8	-	0.2	-	10 ⁻⁵	0.2	-	1.0	μA
L.Level Input Current	I _{IL}	V _{IL} =0V	8	-	-0.2	-	-10 ⁻⁵	-0.2	-	-1.0	μA
Quiescent Current C.	I _{DD}	*V _{IN} =V _{SS} , V _{DD}	5	-	50	-	-	50	-	375	μA

* All valid input combination

SWITCHING CHARACTERISTICS (Ta=25°C, V_{SS}=0V, C_L=50pF)

CHARACTERISTIC	SYMBOL	TEST CONDITIONS	V _{DD} (V)	MIN.	TYP.	MAX.	UNIT
Output Fall Time	t _{THL}		5	-	100	200	ns
(Low-High)P.Delay Time	t _{pLH}		5	-	500	1000	ns
(High-Low)P.Delay Time	t _{pHL}		5	-	400	1000	
Max.Clock Rise Time	t _{rCL}		5	20	-	-	μs
Max.Clock Fall Time	t _{fCL}		5	-	-	-	μs
Max. Clock Frequency	f _{CL}		5	1.0	2.5	-	MHz
Data Set Up Time	t _{SU}		5	-	100	250	ns
Data Hold Time	t _H		5	-	-100	50	ns
Input Capacitance	CLOCK INPUT	C _{IN}			10	15	pF
	OTHER INPUT						

SWITCHING TIME TEST WAVEFORM

