FAIRCHILD

SEMICONDUCTOR

MM74HC597 8-Bit Shift Registers with Input Latches

General Description

This high speed register utilizes advanced silicon-gate CMOS technology. It has the high noise immunity and low power consumption of standard CMOS integrated circuits, as well as the ability to drive 10 LS-TTL loads.

The MM74HC597 comes in a 16-pin package and consists of an 8-bit storage latch feeding a parallel-in, serial-out 8-bit shift register. Both the storage register and shift register have positive-edge triggered clocks. the shift register also has direct load (from storage) and clear inputs.

The 74HC logic family is speed, function, and pin-out compatible with the standard 74LS logic family. All inputs are protected from damage due to static discharge by internal diode clamps to V_{CC} and ground.

Features

- 8-bit parallel storage register inputs
- Wide operating voltage range: 2V–6V
- Shift register has direct overriding load and clear

January 1988

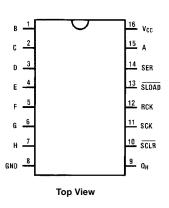
Revised August 2000

- Guaranteed shift frequency: DC to 30 MHz
- Low quiescent current: 80 μA maximum

Ordering Code:

Order Number	Package Number	Package Description
MM74HC597M	M16A	16-Lead Small Outline Integrated Circuit (SOIC), JEDEC MS-012, 0.150 Narrow
MM74HC597SJ	M16D	16-Lead Small Outline Package (SOP), EIAJ TYPE II, 5.3mm Wide
MM74HC597N	N16E	16-Lead Plastic Dual-In-Line Package (PDIP), JEDEC MS-001, 0.300 Wide
Devices also available	in Tape and Reel. Specify	/ by appending the suffix letter "X" to the ordering code.

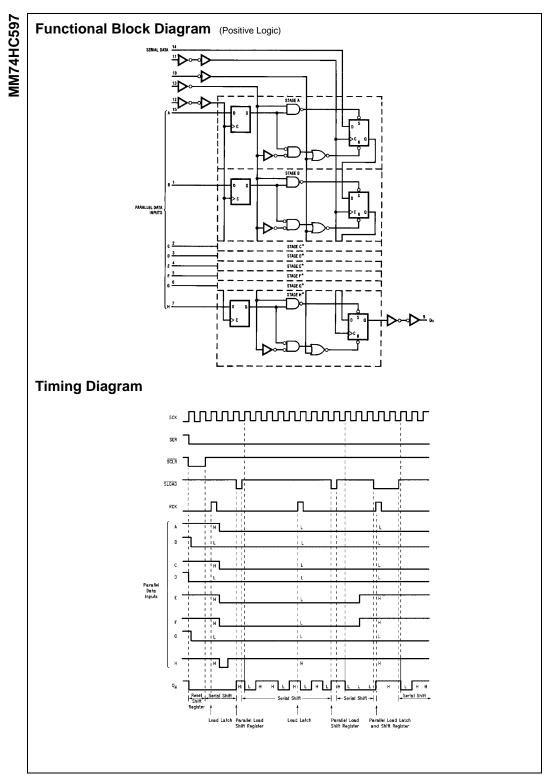




Truth Table

RCK	SCK	SLOAD	SCLR	Function
	Х	Х	Х	Data Loaded to input latches
\uparrow	х	1	н	Data loaded from inputs to
1	^	L ''		shift register
No				Data transferred from
clock	Х	L	Н	input latches to shift
edge				register
				Invalid logic, state of
Х	Х	L	L	shift register indeterminate
				when signals removed
Х	Х	Н	L	Shift register cleared
х	Ŷ	н	н	Shift register clocked
^				$Q_n = Q_n - 1, Q_0 = SER$

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Absolute Maximum Ratings(Note 1) (Note 2)

Recommended Operating Conditions

5	Supply Voltage (V _{CC})	-0.5 to +7.0V
[DC Input Voltage (V _{IN})	–1.5 to V _{CC} +1.5V
[DC Output Voltage (V _{OUT})	–0.5 to V _{CC} +0.5V
(Clamp Diode Current (I _{IK} , I _{OK})	±20 mA
[DC Output Current, per pin (I _{OUT})	±25 mA
[DC V _{CC} or GND Current, per pin (I _{CC})	±70 mA
5	Storage Temperature Range (T _{STG})	-65°C to +150°C
F	Power Dissipation (P _D)	
	(Note 3)	600 mW
	S.O. Package only	500 mW
l	Lead Temperature (T _L)	
	(Soldering 10 seconds)	260°C

	Min	Max	Units
Supply Voltage (V _{CC})	2	6	V
DC Input or Output Voltage			
(V _{IN} , V _{OUT})	0	V _{CC}	V
Operating Temperature Range (T _A)	-40	+85	°C
Input Rise or Fall Times			
$(t_r, t_f) V_{CC} = 2.0 V$		1000	ns
$V_{CC} = 4.5V$		500	ns
$V_{CC} = 6.0V$		400	ns
Note 1: Absolute Maximum Ratings are those	values b	evond whi	ch dam-

Note 1: Absolute Maximum Ratings are those values beyond which damage to the device may occur.

Note 2: Unless otherwise specified all voltages are referenced to ground. Note 3: Power Dissipation temperature derating — plastic "N" package: – 12 mW/°C from 65°C to 85°C.

DC Electrical Characteristics (Note 4)

Symbol	Parameter	Conditions	v _{cc}	T _A =	25°C	$T_A{=}{-}40$ to $85^\circ C$	$T_A=-55$ to $125^\circ C$	Units
		Conditions	•00	Тур		Guaranteed Li	mits	Units
VIH	Minimum HIGH Level		2.0V		1.5	1.5	1.5	
	Input Voltage		4.5V		3.15	3.15	3.15	V
			6.0V		4.2	4.2	4.2	
VIL	Maximum LOW Level		2.0V		0.5	0.5	0.5	
	Input Voltage		4.5V		1.35	1.35	1.35	V
	(Note 5)		6.0V		1.8	1.8	1.8	
V _{OH}	Minimum HIGH Level	$V_{IN} = V_{IH} \text{ or } V_{IL}$						
	Output Voltage	$ I_{OUT} \le 20 \ \mu A$	2.0V	2.0	1.9	1.9	1.9	v
			4.5V	4.5	4.4	4.4	4.4	v
			6.0V	6.0	5.9	5.9	5.9	
		$V_{IN} = V_{IH} \text{ or } V_{IL}$						
		$ I_{OUT} \le 4.0 \text{ mA}$	4.5V	4.2	3.98	3.84	3.7	V
		$ I_{OUT} \le 5.2 \text{ mA}$	6.0V	5.2	5.48	5.34	5.2	
V _{OL}	Maximum LOW Level	$V_{IN} = V_{IH} \text{ or } V_{IL}$						
	Output Voltage	I _{OUT} ≤ 20 μA	2.0V	0	0.1	0.1	0.1	v
			4.5V	0	0.1	0.1	0.1	v
			6.0V	0	0.1	0.1	0.1	
		$V_{IN} = V_{IH} \text{ or } V_{IL}$						
		$ I_{OUT} \le 4 \text{ mA}$	4.5V	0.2	0.26	0.33	0.4	V
		$ I_{OUT} \le 5.2 \text{ mA}$	6.0V	0.2	0.26	0.33	0.4	
I _{IN}	Maximum Input Current	$V_{IN} = V_{CC}$ or GND	6.0V		±0.1	±1.0	±1.0	μΑ
I _{CC}	Maximum Quiescent	V _{IN} = V _{CC} or GND	6.0V		8.0	80	160	μA
	Supply Current	$I_{OUT} = 0 \ \mu A$	0.00		0.0	50	100	μΑ

Note 4: For a power supply of 5V ± 10% the worst case output voltages (V_{OH} , and V_{OL}) occur for HC at 4.5V. Thus the 4.5V values should be used when designing with this supply. Worst case V_{H} and V_{LC} occur at V_{CC} = 5.5V and 4.5V respectively. (The V_{IH} value at 5.5V is 3.85V.) The worst case leakage current (I_{IN} , I_{CC} , and I_{OZ}) occur for CMOS at the higher voltage and so the 6.0V values should be used.

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Note 5: V_{IL} limits are currently tested at 20% of V_{CC} . The above V_{IL} specification (30% of V_{CC}) will be implemented no later than Q1, CY'89.

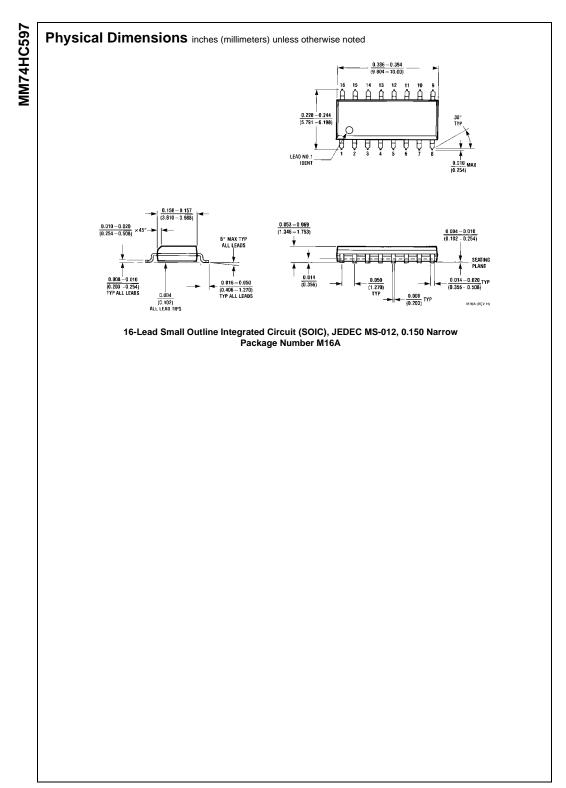
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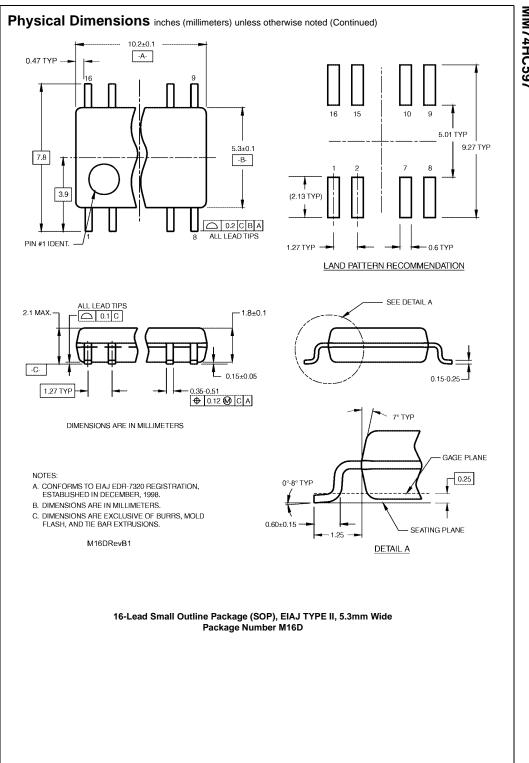
MM74HC597

Symbol	Parameter		Cond	itions		Тур	Guaranteed Limit	Ur
f _{MAX}	Maximum Operating Frequency of SCK					50	30	М
t _{PHL}	Maximum Propagation							
t _{PLH}	Delay from SCK to Q _H					20	30	r
t _{PHL}	Maximum Propagation					00		
t _{PLH}	Delay from SLOAD to Q_H					20	30	r
t _{PHL}	Maximum propagation					0.5	15	
t _{PLH}	Delay from RCK to Q _H	SLO	DAD = logic "0"			25	45	r
t _{PHL}	Maximum Propagation					20	30	r
	Delay from $\overline{\text{SCLR}}$ to Q_{H}					20	50	
t _{REM}	Minimum Removal Time, SCLR to SCK					10	20	r
t _S	Minimum Setup Time					30	40	
	from RCK to SCK					30	40	r
t _S	Minimum Setup Time					10	20	r
	from SER to SCK							<u> </u>
t _S	Minimum Setup Time					10	a-	
	from inputs A thru H					10	20	r
•	to RCK					-2	0	
t _H t _W	Minimum Hold Time Minimum Pulse Width					-2	0	r
w	SCK, RCK, SCLR SLOAD					10	16	r
	lectrical Charact				$pF, t_r = t_f = $ 25°C		ss otherwise s	
Symbol	Parameter	Conditio				T _A =-40 to		
	Parameter Maximum Operating		ons V _{CC}	Т _А = Тур 10	25°C 6.0	T _A =-40 to Guarante 4.8	eed Limits	to 125°C
Symbol	Parameter		ons V _{CC} 2.0V 4.5V	T_A = Typ 10 45	25°C 6.0 30	T _A =-40 to Guarante 4.8 24	eed Limits	to 125°C .0 0
Symbol f _{MAX}	Parameter Maximum Operating Frequency		V _{CC} 2.0V 4.5V 6.0V	T_A = Typ 10 45 50	25°C 6.0 30 35	T _A =-40 to Guarante 4.8 24 28	85°C T _A =-55 t eed Limits 4 2 2	to 125°C .0 0 4
Symbol f _{MAX}	Parameter Maximum Operating Frequency Maximum Propagation		Vcc 2.0V 4.5V 6.0V 2.0V	T _A = Typ 10 45 50 62	25°C 6.0 30 35 175	T _A =-40 to Guarante 4.8 24 28 220	85°C T _A =-55 f eed Limits 4 2 2 2	to 125°C .0 0 4 53
Symbol f _{MAX}	Parameter Maximum Operating Frequency		Vcc 2.0V 4.5V 6.0V 2.0V 4.5V	T_A = Typ 10 45 50 62 20	25°C 6.0 30 35 175 35	T _A =-40 to Guarante 4.8 24 28 220 44	85°C T _A =-55 f eed Limits 4 2 2 2 5	to 125°C
Symbol f _{MAX} t _{PHL} t _{PLH}	Parameter Maximum Operating Frequency Maximum Propagation Delay from SCK to Q _H		Vcc 2.0V 4.5V 6.0V 2.0V	T _A = Typ 10 45 50 62	25°C 6.0 30 35 175	T _A =-40 to Guarante 4.8 24 28 220	85°C T _A =-55 1 2004 Limits 4 2 2 2 2 5 4	to 125°C
Symbol f _{MAX} t _{PHL} t _{PLH}	Parameter Maximum Operating Frequency Maximum Propagation		Vcc 2.0V 4.5V 6.0V 2.0V 4.5V 6.0V 6.0V	T _A = Typ 10 45 50 62 20 18	25°C 6.0 30 35 175 35 30	T _A =-40 to Guarante 4.8 24 28 220 44 38	85°C T _A =-55 1 2004 Limits 4 2 2 2 2 5 4	to 125°C 0 4 3 3 5 5 3 3
Symbol f _{MAX} t _{PHL} t _{PLH}	Parameter Maximum Operating Frequency Maximum Propagation Delay from SCK to Q _H Maximum Propagation		Vcc 2.0V 4.5V 6.0V	Typ 10 45 50 62 20 18 65	25°C 6.0 30 35 175 35 30 175	T _A =-40 to Guarante 4.8 24 28 220 44 38 220	85°C T _A =-55 f sed Limits 4 22 26 5 4 4 26	to 125°C 0 4 3 5 5 3 3 3 3
Symbol f _{MAX} t _{PHL} t _{PLH}	Parameter Maximum Operating Frequency Maximum Propagation Delay from SCK to Q _H Maximum Propagation		Vcc 2.0V 4.5V 6.0V	T _A = Typ 10 45 50 62 20 18 65 20	25°C 6.0 30 35 175 35 30 175 35 30	T _A =-40 to Guarante 4.8 24 28 220 44 38 220 44	85°C T _A =-55 f eed Limits 4 22 26 5 4 26 5 4 26 5 4 4	to 125°C 0 4 3 5 5 3 3 3 3
Symbol f _{MAX} t _{PHL} t _{PLH} t _{PHL} t _{PLH}	Parameter Maximum Operating Frequency Maximum Propagation Delay from SCK to Q _H Maximum Propagation Delay from SLOAD to Q _H		Vcc 2.0V 4.5V 6.0V 2.0V 4.5V	T _A = Typ 10 45 50 62 20 18 65 20 18 120 30	25°C 6.0 30 35 175 35 30 175 35 30 205 41	T _A =-40 to Guarante 4.8 24 28 2200 44 38 2200 44 38 2255 51	85°C T _A =-55 f eed Limits 4 22 24 5 4 26 5 4 26 5 4 3° 6	to 125°C .0 0 4 33 5 5 5 10 2
Symbol f _{MAX} tpHL tpLH tPHL tPHL tPHL tPHL tPHL tPHL tPHL	Parameter Maximum Operating Frequency Maximum Propagation Delay from SCK to Q _H Maximum Propagation Delay from SLOAD to Q _H Maximum Propagation Delay from SLOAD to Q _H Maximum Propagation Delay from RCK to Q _H	Conditio	Vcc 2.0V 4.5V 6.0V	T _A = Typ 10 45 50 62 20 18 65 20 18 120 30 28	25°C 6.0 30 35 175 35 30 175 35 30 205 41 35	T _A =-40 to Guarante 4.8 24 28 220 44 38 2200 44 38 2255 51 43	85°C T _A =-55 f eed Limits 4 2 2 2 2 4 2 2 2 5 4 2 5 4 3° 6 5	to 125°C 0 0 4 33 3 5 5 10 2 3
Symbol fмах tpнL tpHL tpHL tpHL tpHL tpHL tpHL	Parameter Maximum Operating Frequency Maximum Propagation Delay from SCK to Q _H Maximum Propagation Delay from SLOAD to Q _H Maximum Propagation Delay from RCK to Q _H Maximum Propagation Delay from RCK to Q _H	Conditio	Vcc 2.0V 4.5V 6.0V 2.0V	T _A = Typ 10 45 50 62 20 18 65 20 18 120 30 28 66	25°C 6.0 30 35 175 35 30 175 35 30 205 41 35 175	T _A =-40 to Guarante 4.8 24 28 220 44 38 220 44 38 220 44 38 220 44 38 220 44 38 2255 51 43 220	85°C T _A =-55 f eed Limits 4 22 26 4 26 4 26 5 4 26 37 6 5 26 26	to 125°C 0 0 4 3 3 5 5 5 10 2 3 3 5 5 10 2 3 3 3 5 5 5 5 5 5 5 5 5 5 5 5 5
Symbol f _{MAX} tpHL tpLH tPHL tPHL tPHL tPHL tPHL tPHL tPHL	Parameter Maximum Operating Frequency Maximum Propagation Delay from SCK to Q _H Maximum Propagation Delay from SLOAD to Q _H Maximum Propagation Delay from SLOAD to Q _H Maximum Propagation Delay from RCK to Q _H	Conditio	Vcc 2.0V 4.5V 6.0V 2.0V 4.5V	T _A = Typ 10 45 50 62 20 18 65 20 18 120 30 28 66 20	25°C 6.0 30 35 175 35 30 175 35 30 205 41 35 175 35	T _A =-40 to Guarante 4.8 24 28 220 44 38 220 44 38 2255 51 43 220 44 38 2255 51 43 220 44	85°C T _A =-55 f eed Limits 4 22 26 5 4 22 26 4 25 4 26 5 4 33 6 5 26 5 4 5 26 5 5 26 5	to 125°C 0 0 4 3 3 5 5 3 5 10 2 3 3 3 3 3 3 3 3 3 3 5 5 10 2 3 3 3 3 3 3 3 3 3 3 3 3 3
Symbol f _{MAX} tPHL	Parameter Maximum Operating Frequency Maximum Propagation Delay from SCK to Q _H Maximum Propagation Delay from SLOAD to Q _H Maximum Propagation Delay from RCK to Q _H Maximum Propagation Delay from RCK to Q _H Maximum Propagatin Delay from SCLR to Q _H	Conditio	Vcc 2.0V 4.5V 6.0V	T _A = Typ 10 45 50 62 20 18 65 20 18 120 30 28 66	25°C 6.0 30 35 175 35 30 175 35 30 205 41 35 175 35 30	T _A =-40 to Guarante 4.8 24 28 220 44 38 220 44 38 2255 51 43 220 44 38	85°C T _A =-55 f eed Limits 4 2 2 26 5 4 2 26 5 4 2 26 5 4 2 26 5 4 2 27 6 5 26 5 26 5 4 5 26 5 26 5 26	to 125°C .0 0 4 3 3 5 5 5 5 10 2 3 3 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5
Symbol f _{MAX} tpHL tpLH tPHL tPHL tPHL tPHL tPHL tPHL tPHL	Parameter Maximum Operating Frequency Maximum Propagation Delay from SCK to Q _H Maximum Propagation Delay from SLOAD to Q _H Maximum Propagation Delay from RCK to Q _H Maximum Propagation Delay from RCK to Q _H Maximum Propagatin Delay from SCLR to Q _H Maximum Removal Time	Conditio	Vcc 2.0V 4.5V 6.0V 2.0V	T _A = Typ 10 45 50 62 20 18 65 20 18 120 30 28 66 20	25°C 6.0 30 35 175 35 30 175 35 30 205 41 35 30 205 41 35 30 175 35 30	T _A =-40 to Guarante 4.8 24 28 220 44 38 220 44 38 2255 51 43 220 44 38 220 44 38 125	85°C T _A =-55 f eed Limits 4 2 2 26 5 4 2 26 5 4 2 26 5 4 2 26 5 4 2 26 5 4 2 27 6 5 26 5 26 5 26 5 26 5 26 15 26 15 26 16 15	to 125°C .0 0 4 3 3 5 5 5 10 2 3 3 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5
Symbol f _{MAX} tPHL	Parameter Maximum Operating Frequency Maximum Propagation Delay from SCK to Q _H Maximum Propagation Delay from SLOAD to Q _H Maximum Propagation Delay from RCK to Q _H Maximum Propagation Delay from RCK to Q _H Maximum Propagatin Delay from SCLR to Q _H	Conditio	Vcc 2.0V 4.5V 6.0V 2.0V 4.5V	T _A = Typ 10 45 50 62 20 18 65 20 18 120 30 28 66 20	25°C 6.0 30 35 175 35 30 175 35 30 205 41 35 175 35 30	T _A =-40 to Guarante 4.8 24 28 220 44 38 220 44 38 2255 51 43 220 44 38	85°C T _A =-55 f aed Limits 4 2 2 26 4 27 26 4 22 26 4 27 26 4 226 5 4 27 26 4 226 5 4 5 26 5 26 4 33	to 125°C .0 0 4 33 5 5 10 2 3 3 5 5 5 5 0 0 0
Symbol f _{MAX} tPHL	Parameter Maximum Operating Frequency Maximum Propagation Delay from SCK to Q _H Maximum Propagation Delay from SLOAD to Q _H Maximum Propagation Delay from RCK to Q _H Maximum Propagation Delay from RCK to Q _H Maximum Propagatin Delay from SCLR to Q _H Maximum Removal Time	Conditio	Vcc 2.0V 4.5V 6.0V 2.0V	T _A = Typ 10 45 50 62 20 18 65 20 18 120 30 28 66 20	25°C 6.0 30 35 175 35 30 175 35 30 205 41 35 205 41 35 30 100 20	T _A =-40 to Guarante 4.8 24 28 220 44 38 2200 44 38 2255 51 43 220 44 38 2200 44 38 2200 44 38 2200 44 38 125 25	85°C T _A =-55 f aed Limits 4 2 2 26 4 27 26 4 2 26 4 27 26 4 2 26 4 33' 6 5 26 4 33' 115' 33' 26' 4 33' 2	to 125°C .0 0 4 3 3 5 5 5 10 2 3 3 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5
Symbol f _{MAX} tPHL	Parameter Maximum Operating Frequency Maximum Propagation Delay from SCK to Q _H Maximum Propagation Delay from SLOAD to Q _H Maximum Propagation Delay from RCK to Q _H Maximum Propagation Delay from RCK to Q _H Maximum Propagatin Delay from SCLR to Q _H Maximum Removal Time SCLR to SCK	Conditio	Vcc 2.0V 4.5V 6.0V	T _A = Typ 10 45 50 62 20 18 65 20 18 120 30 28 66 20	25°C 6.0 30 35 175 35 30 175 35 30 205 41 35 30 205 41 35 30 100 20 17	T _A =-40 to Guarante 4.8 24 28 220 44 38 2200 44 38 2255 51 43 220 44 38 2255 51 43 220 44 38 2200 44 38 2200 44 38 2200 44 38 2200 44 38 2200 44 38 220 43 220 44 38 220 44 38 220 24 35 25 21	85°C T _A =-55 f aed Limits 4 2 2 26 4 27 26 4 2 26 4 33 6 5 26 4 33 26 5 4 33 32 30	to 125°C .0 0 4 33 5 5 10 2 3 3 5 5 5 5 5 5 5 5 5 5 5 5 5
Symbol f _{MAX} tPHL	Parameter Maximum Operating Frequency Maximum Propagation Delay from SCK to Q _H Maximum Propagation Delay from SLOAD to Q _H Maximum Propagation Delay from RCK to Q _H Maximum Propagation Delay from RCK to Q _H Maximum Propagatin Delay from SCLR to Q _H Minimum Removal Time SCLR to SCK Minimum Setup Time	Conditio	Vcc 2.0V 4.5V 6.0V 2.0V	T _A = Typ 10 45 50 62 20 18 65 20 18 120 30 28 66 20	25°C 6.0 30 35 175 35 30 175 35 30 205 41 35 30 205 41 35 30 205 41 35 30 100 20 17 200	T _A =-40 to Guarante 4.8 24 28 220 44 38 2200 44 38 2255 51 43 220 44 38 2255 51 43 220 44 38 2250	85°C T _A =-55 f aed Limits 4 2 2 26 5 4 2 26 4 27 26 4 2 26 5 4 33 5 26 4 33 26 5 4 33 26 5 4 33 32 30 30 6	to 125°C .0 0 4 33 5 5 10 2 3 3 5 5 5 5 5 5 5 5 5 5 5 5 5
Symbol f _{MAX} tPHL	Parameter Maximum Operating Frequency Maximum Propagation Delay from SCK to Q _H Maximum Propagation Delay from SLOAD to Q _H Maximum Propagation Delay from RCK to Q _H Maximum Propagation Delay from RCK to Q _H Maximum Propagatin Delay from SCLR to Q _H Minimum Removal Time SCLR to SCK Minimum Setup Time	Conditio	Vcc 2.0V 4.5V 6.0V 2.0V 4.5V	T _A = Typ 10 45 50 62 20 18 65 20 18 120 30 28 66 20	25°C 6.0 30 35 175 35 30 175 35 30 205 41 35 30 205 41 35 30 205 41 35 30 205 41 35 30 205 41 35 30 205 41 35 30 205 41 35 30 20 5 41 35 30 41 35 30 30 35 30 35 30 35 35 30 36 35 30 35 36 36 36 37 36 36 36 36 36 36 37 36 36 36 37 36 36 36 37 36 36 36 37 36 36 37 37 36 37 37 37 37 37 37 37 37 37 37 37 37 37	T _A =-40 to Guarante 4.8 24 28 220 44 38 220 44 38 220 44 38 255 51 43 220 44 38 255 51 43 220 44 38 220 44 38 220 44 38 220 44 38 220 44 38 225 21 250 50	85°C T _A =-55 f eed Limits 4 22 2 26 2 27 2 28 2 29 2 20 2 21 2 22 2 24 2 25 4 26 5 4 2 26 5 4 2 26 5 4 2 33 2 33 2 33 33 34 33 35 34	to 125°C .0 0 4 3 3 5 5 10 2 3 3 5 5 5 5 5 5 5 5 5 5 5 5 5
Symbol fMAX tPHL tREM tREM	Parameter Maximum Operating Frequency Maximum Propagation Delay from SCK to Q _H Maximum Propagation Delay from SLOAD to Q _H Maximum Propagation Delay from RCK to Q _H Maximum Propagation Delay from RCK to Q _H Maximum Propagatin Delay from SCLR to Q _H Minimum Removal Time SCLR to SCK Minimum Setup Time from RCK to SCK	Conditio	Vcc 2.0V 4.5V 6.0V 2.0V 4.5V 6.0V	T _A = Typ 10 45 50 62 20 18 65 20 18 120 30 28 66 20	25°C 6.0 30 35 175 35 30 175 35 30 205 41 35 30 205 41 35 30 205 41 35 30 205 41 35 30 205 41 35 30 205 41 35 30 20 5 30 30 20 5 41 35 30 35 30 35 30 35 30 35 30 35 30 35 30 35 35 30 35 35 30 35 35 30 35 35 35 30 35 35 35 30 35 35 35 30 35 35 35 30 35 35 35 30 35 35 35 30 35 35 35 30 35 35 35 35 30 35 35 35 30 35 35 35 30 35 35 35 30 35 35 30 35 35 35 30 35 35 35 30 35 35 30 35 35 30 20 35 35 30 30 35 35 30 30 35 35 30 30 20 5 35 30 20 5 35 30 20 5 35 30 20 5 35 30 20 5 35 30 20 5 35 30 20 5 35 30 20 5 35 30 20 5 35 30 20 5 33 30 20 5 33 30 20 5 33 30 20 5 33 30 20 5 33 30 20 5 33 30 20 5 33 30 20 5 33 30 20 5 33 30 20 5 33 30 20 5 33 30 20 5 33 30 30 20 5 33 30 20 5 33 30 30 20 35 33 30 30 30 35 33 30 30 30 30 35 33 30 30 35 33 30 30 35 33 30 35 33 30 30 35 33 30 30 35 33 30 30 35 33 30 35 33 35 33 30 35 33 30 30 30 35 33 30 30 35 31 35 35 35 30 30 30 30 30 30 30 30 30 30 30 30 30	T _A =-40 to Guarante 4.8 24 28 2200 44 38 2200 44 38 2255 51 43 220 44 38 2200 44 38 2200 44 38 220 44 38 220 44 38 220 44 38 125 251 255 21 250 50 42	85°C T _A =-55 f eed Limits 4 22 2 26 2 27 2 28 2 29 2 20 2 21 2 22 2 24 2 25 4 26 5 4 2 26 5 4 2 27 3 33 2 33 3 6 5 33 3 34 5 35 33 36 5 115 3	to 125°C .0 0 4 3 3 5 5 10 2 3 3 5 5 5 5 5 5 5 5 5 5 5 5 5

Cumple al	Descenation	Conditions	v	T _A =	25°C	T _A =-40 to 85°C	T _A =-55 to 125°C	Units
Symbol	Parameter	Conditions	V _{cc}	Тур		Guaranteed Li	mits	onits
t _S	Minimum Setup Time		2.0V		100	125	150	
	from Inputs A thru H		4.5V		20	25	30	ns
	to RCK		6.0V		17	21	25	
t _H	Minimum Hold Time		2.0V		0	0	0	
			4.5V		0	0	0	ns
			6.0V		0	0	0	
t _W	Minimum Pulse Width		2.0V	30	80	100	120	
	SCK, RCK, SCLR, SLOAD		4.5V	9	16	20	24	ns
			6.0V	8	14	18	20	
t _r , t _f	Maximum Input Rise and		2.0V		1000	1000	1000	
47 Y	Fall Time		4.5V		500	500	500	ns
			6.0V		400	400	400	110
	Maximum Output		2.0V	30	75	95	110	
t _{THL} , t _{TLH}	Rise and Fall Time		4.5V	30 10		95 19	22	-
	Rise and Fair Time				15			ns
			6.0V	8	13	16	19	
t _{THL} , t _{TLH}	Maximum Output		2.0V		75	95	110	ns
	Rise and Fall Time		4.5V		15	19	22	ns
			6.0V		13	16	19	ns
C _{PD}	Power Dissipation			87				pF
	Capacitance, Outputs (Note 6)							•
C _{IN}	Maximum Input			5	10	10	10	pF
	Capacitance			-				E.
C _{OUT}	Maximum Output			15	20	20	20	pF
Note 6: CPC	Capacitance o determines the no load dynamic pow	er consumption, Pn =	= C _{PD} V _{CC} ²	f + Icc Vcc, a	ind the no loa	d dynamic current c	onsumption,	-

MM74HC597





MM74HC597

