



Capacitance^[6]

Parameter	Description	Typ. ^[5]	Max.	Unit
C _{IN}	Input Capacitance	5	10	pF
C _{OUT}	Output Capacitance	9	12	pF

Power Supply Characteristics

Parameter	Description	Test Conditions	Typ. ^[5]	Max.	Unit
I _{CC}	Quiescent Power Supply Current	V _{CC} =Max., V _{IN} ≤0.2V, V _{IN} ≥V _{CC} -0.2V	0.1	0.2	mA
ΔI _{CC}	Quiescent Power Supply Current (TTL inputs HIGH)	V _{CC} =Max., V _{IN} =3.4V, ^[8] f ₁ =0, Outputs Open	0.5	2.0	mA
I _{CC(D)}	Dynamic Power Supply Current ^[9]	V _{CC} =Max., One Bit Toggling, 50% Duty Cycle, Outputs Open, CE=GND, V _{IN} ≤0.2V or V _{IN} ≥V _{CC} -0.2V	0.06	0.12	mA/ MHz
I _C	Total Power Supply Current ^[10]	V _{CC} =Max., f ₀ =10 MHz, 50% Duty Cycle, Outputs Open, One Bit Toggling at f ₁ =5 MHz, CE=GND, V _{IN} ≤0.2V or V _{IN} ≥V _{CC} -0.2V	0.7	1.4	mA
		V _{CC} =Max., f ₀ =10 MHz, 50% Duty Cycle, Outputs Open, One Bit Toggling at f ₁ =5 MHz, CE=GND, V _{IN} =3.4V or V _{IN} =GND	1.2	3.4	mA
		V _{CC} =Max., f ₀ =10 MHz, 50% Duty Cycle, Outputs Open, Eight Bits Toggling at f ₁ =2.5 MHz, CE=GND, V _{IN} ≤0.2V or V _{IN} ≥V _{CC} -0.2V	1.6	3.2 ^[11]	mA
		V _{CC} =Max., f ₀ =10 MHz, 50% Duty Cycle, Outputs Open, Eight Bits Toggling at f ₁ =2.5 MHz, CE=GND, V _{IN} =3.4V or V _{IN} =GND	3.9	12.2 ^[11]	mA

Notes:

- 8. Per TTL driven input (V_{IN}=3.4V); all other inputs at V_{CC} or GND.
- 9. This parameter is not directly testable, but is derived for use in Total Power Supply calculations.
 - I_C = I_{QUIESCENT} + I_{INPUTS} + I_{DYNAMIC}
 - I_C = I_{CC} + ΔI_{CC}(D_HN₁) + I_{CC(D)}(f₀2 + f₁N₁)
 - I_{CC} = Quiescent Current with CMOS input levels
 - ΔI_{CC} = Quiescent Supply Current for a TTL HIGH input (V_{IN}=3.4V)
 - D_H = Duty Cycle for TTL inputs HIGH
- N_T = Number of TTL inputs at D_H
- I_{CC(D)} = Dynamic Current caused by an input transition pair (HLH or LHL)
- f₀ = Clock frequency for registered devices, otherwise zero
- f₁ = Input signal frequency
- N₁ = Number of inputs changing at f₁
- All currents are in milliamps and all frequencies are in megahertz
- 11. Values for these conditions are examples of the I_{CC} formula. These limits are guaranteed but not tested.



Switching Characteristics Over the Operating Range^[12]

Parameter	Description	FCT377T				FCT377AT				Unit	Fig. No. ^[14]
		Military		Commercial		Military		Commercial			
		Min. ^[13]	Max.	Min. ^[13]	Max.	Min. ^[13]	Max.	Min. ^[13]	Max.		
t_{PLH} t_{PHL}	Propagation Delay Clock to Output	2.0	15.0	2.0	13.0	2.0	8.3	2.0	7.2	ns	1, 5
t_s	Set-Up Time HIGH or LOW Data to CP	3.0		2.0		2.0		2.0		ns	4
t_H	Hold Time HIGH or LOW Data to CP	2.5		1.5		1.5		1.5		ns	4
t_w	Set-Up Time HIGH or LOW \overline{CE} to CP	4.0		3.5		3.5		3.5		ns	4
t_w	Set-Up Time HIGH or LOW \overline{CE} to CP	1.5		1.5		1.5		1.5		ns	4
t_w	Clock Pulse Width ^[15] HIGH or LOW	7.0		6.0		7.0		6.0		ns	6

Parameter	Description	FCT377CT				Unit	Fig. No. ^[14]
		Military		Commercial			
		Min. ^[13]	Max.	Min. ^[13]	Max.		
t_{PLH} t_{PHL}	Propagation Delay Clock to Output	2.0	5.5	2.0	5.2	ns	1, 5
t_s	Set-Up Time, HIGH or LOW, Data to CP	2.0		2.0		ns	4
t_H	Hold Time, HIGH or LOW, Data to CP	1.5		1.5		ns	4
t_w	Set-Up Time, HIGH or LOW, \overline{CE} to CP	3.5		3.5		ns	4
t_w	Set-Up Time HIGH or LOW, \overline{CE} to CP	1.5		1.5		ns	4
t_w	Clock Pulse Width ^[15] HIGH or LOW	7.0		6.0		ns	6

Notes:

- 12. AC Characteristics guaranteed with $C_L = 50$ pF as shown in Figure 1 of the "Parameter Measurement Information" in the General Information Section.
- 13. Minimum limits are guaranteed but not tested on Propagation Delays.
- 14. See "Parameter Measurement Information" in the General Information Section.
- 15. With one data channel toggling, $t_w(L) = t_w(H) = 4.0$ ns and $t_r = t_f = 1.0$ ns.



Ordering Information—FCT377T

Speed (ns)	Ordering Code	Package Name	Package Type	Operating Range
5.2	CY74FCT377CTPC	P5	20-Lead (300-Mil) Molded DIP	Commercial
	CY74FCT377CTQC	Q5	20-Lead (150-Mil) QSOP	
	CY74FCT377CTSOC	S5	20-Lead (300-Mil) Molded SOIC	
5.5	CY54FCT377CTDMB	D6	20-Lead (300-Mil) CerDIP	Military
	CY54FCT377CTLMB	L61	20-Pin Square Leadless Chip Carrier	
7.2	CY74FCT377ATPC	P5	20-Lead (300-Mil) Molded DIP	Commercial
	CY74FCT377ATQC	Q5	20-Lead (150-Mil) QSOP	
	CY74FCT377ATSOC	S5	20-Lead (300-Mil) Molded SOIC	
8.3	CY54FCT377ATDMB	D6	20-Lead (300-Mil) CerDIP	Military
	CY54FCT377ATLMB	L61	20-Pin Square Leadless Chip Carrier	
13.0	CY74FCT377TTPC	P5	20-Lead (300-Mil) Molded DIP	Commercial
	CY74FCT377TQC	Q5	20-Lead (150-Mil) QSOP	
	CY74FCT377TSOC	S5	20-Lead (300-Mil) Molded SOIC	
15.0	CY54FCT377TDMB	D6	20-Lead (300-Mil) CerDIP	Military
	CY54FCT377TLMB	L61	20-Pin Square Leadless Chip Carrier	

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