

CY54FCT374T, CY74FCT374T
8-BIT REGISTERS
WITH 3-STATE OUTPUTS

SCCS022A – MAY 1994 – REVISED OCTOBER 2001

ORDERING INFORMATION

TA	PACKAGE†	SPEED (ns)	ORDERABLE PART NUMBER	TOP-SIDE MARKING		
-40°C to 85°C	QSOP – Q	Tape and reel	5.2	CY74FCT374CTQCT	FCT374C	
	SOIC – SO	Tube	5.2	CY74FCT374CTSOC	FCT374C	
		Tape and reel	5.2	CY74FCT374CTSOCT		
	DIP – P	Tube	6.5	CY74FCT374ATPC	CY74FCT374ATPC	
	QSOP – Q	Tape and reel	6.5	CY74FCT374ATQCT	FCT374A	
		SOIC – SO	Tube	6.5	CY74FCT374ATSOC	FCT374A
			Tape and reel	6.5	CY74FCT374ATSOCT	
		SOIC – SO	Tube	10	CY74FCT374TSOC	FCT374
Tape and reel	10		CY74FCT374TSOCT			
-55°C to 125°C	CDIP – D	Tube	6.2	CY54FCT374CTDMB		
	LCC – L	Tube	6.2	CY54FCT374CTLMB		
	CDIP – D	Tube	7.2	CY54FCT374ATDMB		
	LCC – L	Tube	7.2	CY54FCT374ATLMB		
	CDIP – D	Tube	11	CY54FCT374TDMB		
	LCC – L	Tube	11	CY54FCT374TLMB		

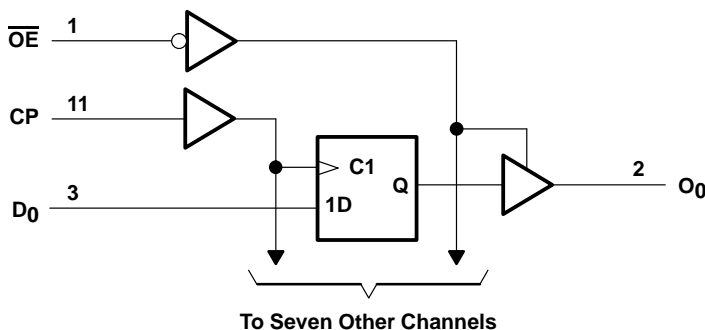
† Package drawings, standard packing quantities, thermal data, symbolization, and PCB design guidelines are available at www.ti.com/sc/package.

FUNCTION TABLE

INPUTS			OUTPUT
D	CP	\overline{OE}	O
H	↑	L	H
L	↑	L	L
X	X	H	Z

H = High logic level, L = Low logic level,
X = Don't care, Z = High-impedance state,
↑ = Low-to-high clock transition

logic diagram (positive logic)



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electrical characteristics over recommended operating free-air temperature range (unless otherwise noted) (continued)

PARAMETER	TEST CONDITIONS		CY54FCT374T		CY74FCT374T		UNIT	
			MIN	TYP†	MAX	MIN		TYP†
$I_{CCD}^{\dagger\dagger}$	V _{CC} = 5.5 V, Outputs open, One bit switching at 50% duty cycle, \overline{OE} = GND, V _{IN} ≤ 0.2 V or V _{IN} ≥ V _{CC} – 0.2 V		0.06	0.12			mA/ MHz	
	V _{CC} = 5.25 V, Outputs open, One bit switching at 50% duty cycle, \overline{OE} = GND, V _{IN} ≤ 0.2 V or V _{IN} ≥ V _{CC} – 0.2 V				0.06	0.12		
I_C	V _{CC} = 5.5 V, f ₀ = 10 MHz, Outputs open, \overline{OE} = GND	One bit switching at f ₁ = 5 MHz at 50% duty cycle	V _{IN} ≤ 0.2 V or V _{IN} ≥ V _{CC} – 0.2 V	0.7	1.4		mA	
			V _{IN} = 3.4 V or GND	1.2	3.4			
		Eight bits switching at f ₁ = 2.5 MHz at 50% duty cycle	V _{IN} ≤ 0.2 V or V _{IN} ≥ V _{CC} – 0.2 V	1.6	3.2			
			V _{IN} = 3.4 V or GND	3.9	12.2			
	V _{CC} = 5.25 V, f ₀ = 10 MHz, Outputs open, \overline{OE} = GND	One bit switching at f ₁ = 5 MHz at 50% duty cycle	V _{IN} ≤ 0.2 V or V _{IN} ≥ V _{CC} – 0.2 V			0.7		1.4
			V _{IN} = 3.4 V or GND			1.2		3.4
		Eight bits switching at f ₁ = 2.5 MHz at 50% duty cycle	V _{IN} ≤ 0.2 V or V _{IN} ≥ V _{CC} – 0.2 V			1.6		3.2
			V _{IN} = 3.4 V or GND			3.9		12.2
C_i			5	10	5	10	pF	
C_o			9	12	9	12	pF	

† Typical values are at V_{CC} = 5 V, T_A = 25°C.

†† This parameter is derived for use in total power-supply calculations.

$I_C = I_{CC} + \Delta I_{CC} \times D_H \times N_T + I_{CCD} (f_0/2 + f_1 \times N_1)$

Where:

I_C = Total supply current

I_{CC} = Power-supply current with CMOS input levels

ΔI_{CC} = Power-supply current for a TTL high input (V_{IN} = 3.4 V)

D_H = Duty cycle for TTL inputs high

N_T = Number of TTL inputs at D_H

I_{CCD} = Dynamic current caused by an input transition pair (HLH or LHL)

f₀ = Clock frequency for registered devices, otherwise zero

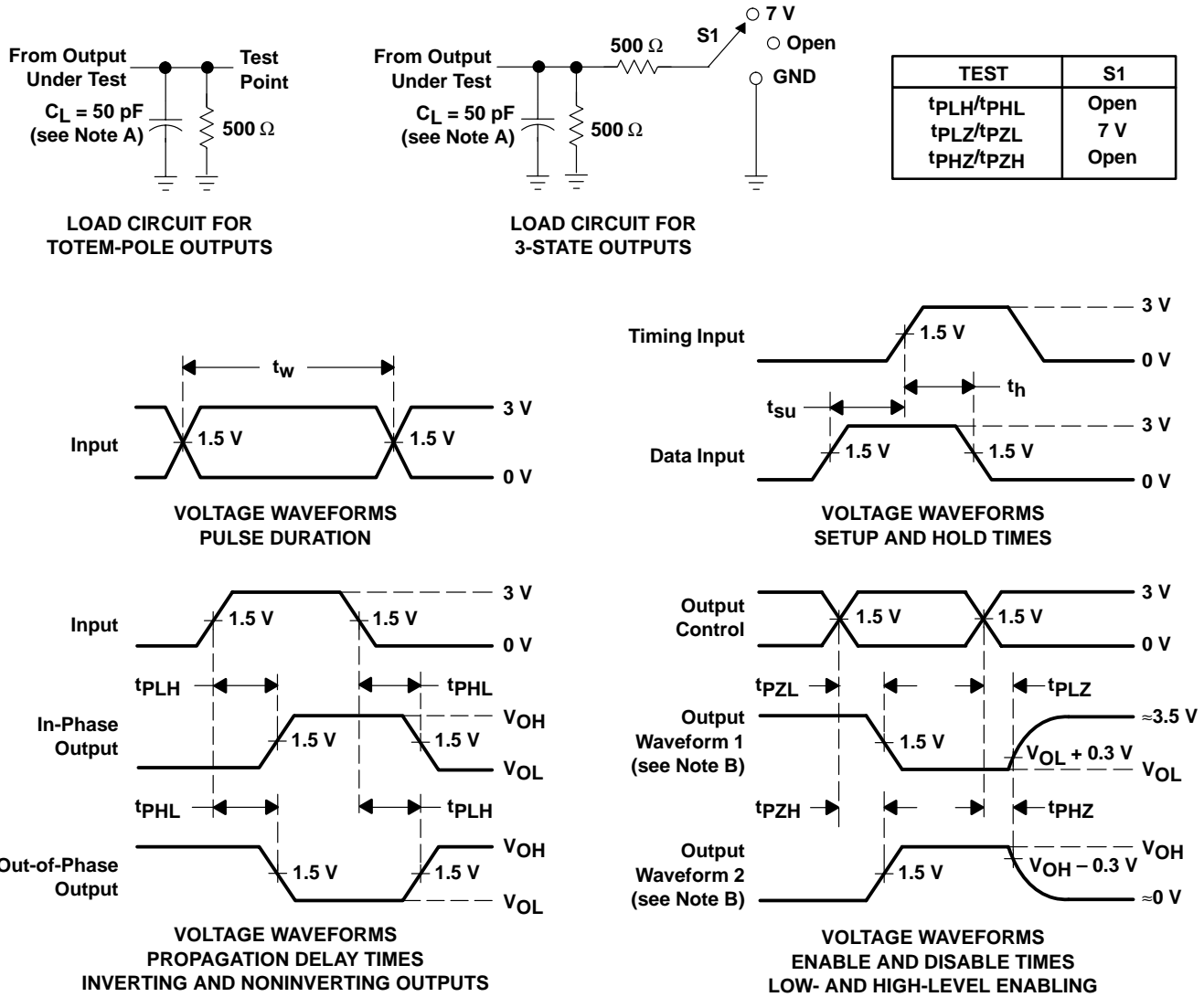
f₁ = Input signal frequency

N₁ = Number of inputs changing at f₁

All currents are in milliamperes and all frequencies are in megahertz.

|| Values for these conditions are examples of the I_{CC} formula.

PARAMETER MEASUREMENT INFORMATION



- NOTES: A. C_L includes probe and jig capacitance.
 B. Waveform 1 is for an output with internal conditions such that the output is low except when disabled by the output control. Waveform 2 is for an output with internal conditions such that the output is high except when disabled by the output control.
 C. The outputs are measured one at a time with one input transition per measurement.

Figure 1. Load Circuit and Voltage Waveforms

PACKAGING INFORMATION

Orderable part number	Status (1)	Material type (2)	Package Pins	Package qty Carrier	RoHS (3)	Lead finish/ Ball material (4)	MSL rating/ Peak reflow (5)	Op temp (°C)	Part marking (6)
5962-9221802M2A	Active	Production	LCCC (FK) 20	55 TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	5962- 9221802M2A CY54FCT 374TLMB
5962-9221802MRA	Active	Production	CDIP (J) 20	20 TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	5962-9221802MR A CY54FCT374TDMB
5962-9221804M2A	Active	Production	LCCC (FK) 20	55 TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	5962- 9221804M2A CY54FCT 374ATLMB
5962-9221804MRA	Active	Production	CDIP (J) 20	20 TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	5962-9221804MR A CY54FCT374ATDM B
5962-9221806M2A	Active	Production	LCCC (FK) 20	55 TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	5962- 9221806M2A CY54FCT 374CTLMB
CY54FCT374ATDMB	Active	Production	CDIP (J) 20	20 TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	5962-9221804MR A CY54FCT374ATDM B
CY54FCT374ATLMB	Active	Production	LCCC (FK) 20	55 TUBE	No	SNPB	N/A for Pkg Type	-	5962- 9221804M2A CY54FCT 374ATLMB
CY54FCT374CTLMB	Active	Production	LCCC (FK) 20	55 TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	5962- 9221806M2A CY54FCT 374CTLMB
CY54FCT374TDMB	Active	Production	CDIP (J) 20	20 TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	5962-9221802MR A CY54FCT374TDMB

Orderable part number	Status (1)	Material type (2)	Package Pins	Package qty Carrier	RoHS (3)	Lead finish/ Ball material (4)	MSL rating/ Peak reflow (5)	Op temp (°C)	Part marking (6)
CY54FCT374TLMB	Active	Production	LCCC (FK) 20	55 TUBE	No	SNPB	N/A for Pkg Type	-55 to 125	5962-9221802M2A CY54FCT 374TLMB
CY74FCT374ATPC	Active	Production	PDIP (N) 20	20 TUBE	Yes	NIPDAU	N/A for Pkg Type	-40 to 85	CY74FCT374ATPC
CY74FCT374ATPC.B	Active	Production	PDIP (N) 20	20 TUBE	Yes	NIPDAU	N/A for Pkg Type	-40 to 85	CY74FCT374ATPC
CY74FCT374ATQCT	Active	Production	SSOP (DBQ) 20	2500 LARGE T&R	Yes	NIPDAU	Level-2-260C-1 YEAR	-40 to 85	FCT374A
CY74FCT374ATQCT.B	Active	Production	SSOP (DBQ) 20	2500 LARGE T&R	Yes	NIPDAU	Level-2-260C-1 YEAR	-40 to 85	FCT374A
CY74FCT374ATSOC	Active	Production	SOIC (DW) 20	25 TUBE	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	FCT374A
CY74FCT374ATSOC.B	Active	Production	SOIC (DW) 20	25 TUBE	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	FCT374A
CY74FCT374ATSOCT	Active	Production	SOIC (DW) 20	2000 LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	FCT374A
CY74FCT374ATSOCT.B	Active	Production	SOIC (DW) 20	2000 LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	FCT374A
CY74FCT374CTSOC	Active	Production	SOIC (DW) 20	25 TUBE	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	FCT374C
CY74FCT374CTSOC.B	Active	Production	SOIC (DW) 20	25 TUBE	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	FCT374C
CY74FCT374TQCT	Active	Production	SSOP (DBQ) 20	2500 LARGE T&R	Yes	NIPDAU	Level-2-260C-1 YEAR	-40 to 85	FCT374
CY74FCT374TQCT.B	Active	Production	SSOP (DBQ) 20	2500 LARGE T&R	Yes	NIPDAU	Level-2-260C-1 YEAR	-40 to 85	FCT374
CY74FCT374TSOC	Active	Production	SOIC (DW) 20	25 TUBE	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	FCT374
CY74FCT374TSOC.B	Active	Production	SOIC (DW) 20	25 TUBE	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	FCT374

(1) **Status:** For more details on status, see our [product life cycle](#).

(2) **Material type:** When designated, preproduction parts are prototypes/experimental devices, and are not yet approved or released for full production. Testing and final process, including without limitation quality assurance, reliability performance testing, and/or process qualification, may not yet be complete, and this item is subject to further changes or possible discontinuation. If available for ordering, purchases will be subject to an additional waiver at checkout, and are intended for early internal evaluation purposes only. These items are sold without warranties of any kind.

(3) **RoHS values:** Yes, No, RoHS Exempt. See the [TI RoHS Statement](#) for additional information and value definition.

(4) **Lead finish/Ball material:** Parts may have multiple material finish options. Finish options are separated by a vertical ruled line. Lead finish/Ball material values may wrap to two lines if the finish value exceeds the maximum column width.

(5) **MSL rating/Peak reflow:** The moisture sensitivity level ratings and peak solder (reflow) temperatures. In the event that a part has multiple moisture sensitivity ratings, only the lowest level per JEDEC standards is shown. Refer to the shipping label for the actual reflow temperature that will be used to mount the part to the printed circuit board.

(6) Part marking: There may be an additional marking, which relates to the logo, the lot trace code information, or the environmental category of the part.

Multiple part markings will be inside parentheses. Only one part marking contained in parentheses and separated by a "-" will appear on a part. If a line is indented then it is a continuation of the previous line and the two combined represent the entire part marking for that device.

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TAPE AND REEL INFORMATION

QUADRANT ASSIGNMENTS FOR PIN 1 ORIENTATION IN TAPE


*All dimensions are nominal

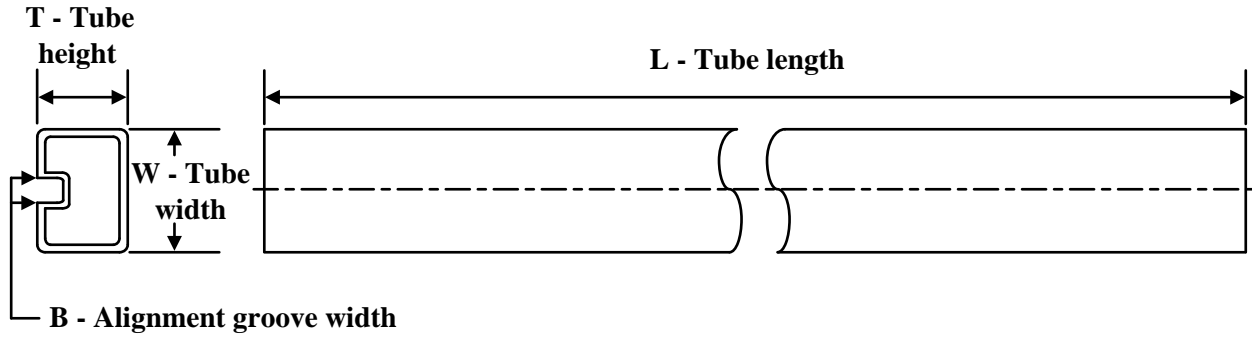
Device	Package Type	Package Drawing	Pins	SPQ	Reel Diameter (mm)	Reel Width W1 (mm)	A0 (mm)	B0 (mm)	K0 (mm)	P1 (mm)	W (mm)	Pin1 Quadrant
CY74FCT374ATQCT	SSOP	DBQ	20	2500	330.0	16.4	6.5	9.0	2.1	8.0	16.0	Q1
CY74FCT374ATSOCT	SOIC	DW	20	2000	330.0	24.4	10.8	13.3	2.7	12.0	24.0	Q1
CY74FCT374TQCT	SSOP	DBQ	20	2500	330.0	16.4	6.5	9.0	2.1	8.0	16.0	Q1

TAPE AND REEL BOX DIMENSIONS



*All dimensions are nominal

Device	Package Type	Package Drawing	Pins	SPQ	Length (mm)	Width (mm)	Height (mm)
CY74FCT374ATQCT	SSOP	DBQ	20	2500	353.0	353.0	32.0
CY74FCT374ATSOCT	SOIC	DW	20	2000	356.0	356.0	45.0
CY74FCT374TQCT	SSOP	DBQ	20	2500	353.0	353.0	32.0

TUBE


*All dimensions are nominal

Device	Package Name	Package Type	Pins	SPQ	L (mm)	W (mm)	T (μm)	B (mm)
5962-9221802M2A	FK	LCCC	20	55	506.98	12.06	2030	NA
5962-9221804M2A	FK	LCCC	20	55	506.98	12.06	2030	NA
5962-9221806M2A	FK	LCCC	20	55	506.98	12.06	2030	NA
CY54FCT374ATLMB	FK	LCCC	20	55	506.98	12.06	2030	NA
CY54FCT374CTLMB	FK	LCCC	20	55	506.98	12.06	2030	NA
CY54FCT374TLMB	FK	LCCC	20	55	506.98	12.06	2030	NA
CY74FCT374ATPC	N	PDIP	20	20	506	13.97	11230	4.32
CY74FCT374ATPC.B	N	PDIP	20	20	506	13.97	11230	4.32
CY74FCT374ATSOC	DW	SOIC	20	25	507	12.83	5080	6.6
CY74FCT374ATSOC.B	DW	SOIC	20	25	507	12.83	5080	6.6
CY74FCT374CTSOC	DW	SOIC	20	25	507	12.83	5080	6.6
CY74FCT374CTSOC.B	DW	SOIC	20	25	507	12.83	5080	6.6
CY74FCT374TSOC	DW	SOIC	20	25	507	12.83	5080	6.6
CY74FCT374TSOC.B	DW	SOIC	20	25	507	12.83	5080	6.6

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