

CMOS LOGIC CIRCUITS

TYPES TF4376A, TF4377A, TP4376A, TP4377A QUAD S-R AND \bar{S} - \bar{R} LATCHES

SEPTEMBER 1975

- Same as TF4043A, TF4044A, TP4043A, and TP4044A, respectively, except with Normal 2-State Totem-Pole Outputs

description

The '4376 and '4377A are quadruple S-R and \bar{S} - \bar{R} latches, respectively, with normal two-state totem-pole outputs. Each latch has separate active-high ('4376A) or active-low ('4377A) set and reset inputs.

FUNCTION TABLES
(EACH LATCH)
TF4376A, TP4376A

INPUTS		OUTPUT
S	R	Q
L	L	No change
H	L	H
L	H	L
H	H	H*

TF4377A, TP4377A

INPUTS		OUTPUT
\bar{S}	\bar{R}	Q
H	H	No change
L	H	H
H	L	L
L	L	L*

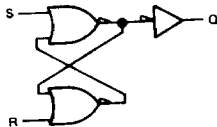
*This output level is pseudo stable, that is, it may not persist when the S and R inputs return to their inactive (low) level or the \bar{S} and \bar{R} inputs return to their inactive (high) level. See explanation of function tables, pages 16 and 17.

specifications

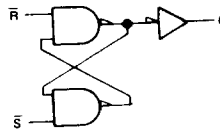
MAXIMUM RATINGS	RECOMMENDED OPERATING CONDITIONS	ELECTRICAL CHARACTERISTICS
Page 62	Page 62 and below	Page 63, group 3, except as on following page

functional block diagrams (each latch)

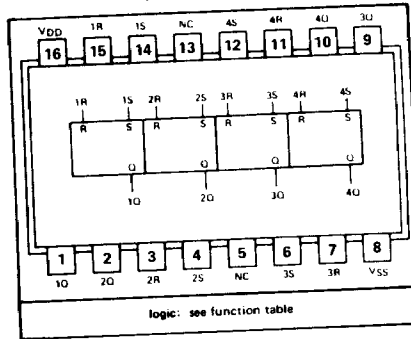
TF4376A, TP4376A



TF4377A, TP4377A

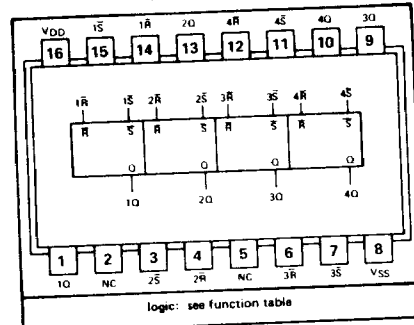


J OR N
DUAL-IN-LINE PACKAGE (TOP VIEW)
TF4376A, TP4376A



logic: see function table
NC - No internal connection

TF4377A, TP4377A



logic: see function table
NC - No internal connection

TYPES TF4376A, TF4377A, TP4376A, TP4377A QUAD S-R AND \bar{S} - \bar{R} LATCHES

recommended operating conditions

	TF4376A, TF4377A				TP4376A, TP4377A				UNIT
	V _{DD} = 5 V		V _{DD} = 10 V		V _{DD} = 5 V		V _{DD} = 10 V		
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	
Pulse width, set or reset, t _w	200		100		225		110		ns

electrical characteristics

V_{DD} = 5 V and 10 V

PARAMETER	TEST CONDITIONS†		TF4376A, TF4377A				TP4376A, TP4377A				UNIT
			V _{DD} = 5 V		V _{DD} = 10 V		V _{DD} = 5 V		V _{DD} = 10 V		
			MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	
I _{DD} or -I _{SS} Quiescent supply current	V _I = V _{DD} or 0, No load	T _A = MIN or 25°C T _A = MAX	1	60	2	120	10	140	20	280	μA

V_{DD} = 15 V

PARAMETER	TEST CONDITIONS†		TF4376A, TF4377A		TP4376A, TP4377A		UNIT
			MIN	MAX	MIN	MAX	
			I _{DD} or -I _{SS} Quiescent supply current	V _I = V _{DD} or 0, No load	T _A = MIN or 25°C T _A = MAX	6	

† T_A = MIN or MAX refers to the respective values of temperature specified under recommended operating conditions.

switching characteristics at 25°C free-air temperature

PARAMETER	TEST CONDITIONS	TF4376A, TF4377A				TP4376A, TP4377A				UNIT
		V _{DD} = 5 V		V _{DD} = 10 V		V _{DD} = 5 V		V _{DD} = 10 V		
		MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	
t _{PLH} Propagation delay time, low-to-high-level output	C _L = 60 pF, R _L = 200 kΩ, See Note 1	500		235		575		300		ns
t _{PHL} Propagation delay time, high-to-low-level output		500		235		575		300		ns
t _{TLLH} Transition time, low-to-high-level output		325		135		375		200		ns
t _{THL} Transition time, high-to-low-level output		325		135		375		200		ns

NOTE 1: See load circuit and voltage waveforms on page 170.

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