74ACT11374
OCTAL EDGE-TRIGGERED D-TYPE FLIP-FLOP
WITH 3-STATE OUTPUTS

SCAS217A - JULY 1987 - REVISED APRIL 1996

	BONGETTIN BOET 1301 TRES
 Eight D-Type Flip-Flops in a Single Package 3-State Bus Driving True Outputs 	DB, DW, OR NT PACKAGE (TOP VIEW)
Full Parallel Access for Loading	
Inputs Are TTL-Voltage Compatible	2Q 2 23 1D
Flow-Through Architecture Optimizes	3Q [] 3 22] 2D
PCB Layout	
 Center-Pin V_{CC} and GND Configurations 	GND [] 5 20 [] 4D GND [] 6 19 [] V _{CC}
Minimize High-Speed Switching Noise	GND [] 7 18 [] V _{CC}
EPIC [™] (Enhanced-Performance Implanted	GND 8 17 5D
CMOS) 1-µm Process	5Q 🛛 9 16 🗍 6D
 500-mA Typical Latch-Up Immunity at 10500 	6Q [] 10 15 [] 7D
125°C	7Q 11 14 8D
Package Options Include Plastic Small Qualities (DW) and Shrink	8Q [12 13] CLK
Small-Outline (DW) and Shrink Small-Outline (DB) Packages, and Standard	
Siliali-Outilie (DD) Fachages, alla Stallada	

description

Plastic 300-mil DIPs (NT)

This 8-bit flip-flop features 3-state outputs designed specifically for driving highly-capacitive or relatively low-impedance loads. It is particularly suitable for implementing buffer registers, I/O ports, bidirectional bus drivers, and working registers.

The eight flip-flops of the 74ACT11374 are edge-triggered D-type flip-flops. On the positive transition of the clock (CLK) input, the Q outputs are set to the logic levels set up at the data (D) inputs.

An output-enable (\overline{OE}) input can be used to place the eight outputs in either a normal logic state (high or low logic levels) or a high-impedance state. In the high-impedance state, the outputs neither load nor drive the bus lines significantly. The high-impedance third state provides the capability to drive bus lines in a bus-organized system without need for interface or pullup components.

OE does not affect the internal operation of the flip-flops. Old data can be retained or new data can be entered while the outputs are in the high-impedance state.

The 74ACT11374 is characterized for operation from –40°C to 85°C.

		CTION 1 ch flip-1	
	INPUTS	OUTPUT	
OE	CLK	D	Q
L	\uparrow	Н	н
L	\uparrow	L	L
L	L	Х	Q ₀
L	Н	Х	Q ₀
L	\downarrow	Х	Q ₀ Q ₀ Q ₀ Z
н	Х	Х	Z



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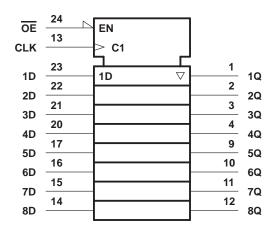
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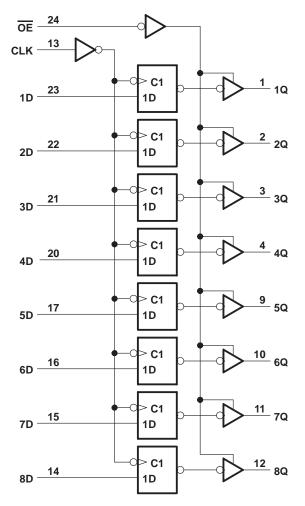
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logic symbol[†]



[†] This symbol is in accordance with ANSI/IEEE Std 91-1984 and IEC Publication 617-12.

logic diagram (positive logic)





74ACT11374 **OCTAL EDGE-TRIGGERED D-TYPE FLIP-FLOP** WITH 3-STATE OUTPUTS SCAS217A – JULY 1987 – REVISED APRIL 1996

absolute maximum ratings over operating free-air temperature range (unless otherwise noted)[†]

Supply voltage range, V_{CC} Input voltage range, V_I (see Note 1) Output voltage range, V_O (see Note 1) Input clamp current, I_{IK} ($V_I < 0$ or $V_I > V_{CC}$) Output clamp current, I_{OK} ($V_O < 0$ or $V_O > V_{CC}$) Continuous output current, I_O ($V_O = 0$ to V_{CC}) Continuous current through V_{CC} or GND Maximum power dissipation at $T_A = 55^{\circ}C$ (in still air) (see Note 2)	-0.5 V to V _{CC} + 0.5 V -0.5 V to V _{CC} + 0.5 V ±20 mA ±50 mA ±50 mA
Storage temperature range, T _{stg}	–65°C to 150°C

[†] Stresses beyond those listed under "absolute maximum ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated under "recommended operating conditions" is not implied. Exposure to absolute-maximum-rated conditions for extended periods may affect device reliability.

NOTES: 1. The input and output voltage ratings may be exceeded if the input and output current ratings are observed.

2. The maximum package power dissipation is calculated using a junction temperature of 150°C and a board trace length of 750 mils, except for the NT package, which has a trace length of zero.

recommended operating conditions

		MIN	MAX	UNIT
VCC	Supply voltage	4.5	5.5	V
VIH	High-level input voltage	2		V
VIL	Low-level input voltage		0.8	V
VI	Input voltage	0	VCC	V
VO	Output voltage	0	VCC	V
ЮН	High-level output current		-24	mA
IOL	Low-level output current		24	mA
$\Delta t/\Delta v$	Input transition rise or fall rate	0	10	ns/V
ТА	Operating free-air temperature	-40	85	°C



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

PARAMETER	TEST CONDITIONS	Vaa	T	Δ = 25°C	;	MIN	МАХ	UNIT
PARAMETER	TEST CONDITIONS	Vcc	MIN	TYP	MAX	IVIIIN	WAX	UNIT
	I _{OH} = -50 μA	4.5 V	4.4			4.4		
	10H = -20 ft/k	5.5 V	5.4			5.4		
VOH	I _{OH} = -24 mA	4.5 V	3.94			3.8		V
	10H = -24 IIIA	5.5 V	4.94			4.8		
	$I_{OH} = -75 \text{ mA}^{\dagger}$	5.5 V				3.85		
	I _{OL} = 50 μA	4.5 V			0.1		0.1	
	$IOL = 50 \mu A$	5.5 V			0.1		0.1	
VOL	I _{OL} = 24 mA	4.5 V			0.36		0.44	V
		5.5 V			0.36		0.44	
	$I_{OL} = 75 \text{ mA}^{\dagger}$	5.5 V					1.65	
I _{OZ}	$V_{O} = V_{CC}$ or GND	5.5 V			±0.5		±5	μΑ
lj	$V_{I} = V_{CC}$ or GND	5.5 V			±0.1		±1	μΑ
ICC	$V_{I} = V_{CC} \text{ or } GND, \qquad I_{O} = 0$	5.5 V			8		80	μΑ
∆I _{CC} ‡	One input at 3.4 V, Other inputs at GND or $V_{\mbox{CC}}$	5.5 V			0.9		1	mA
Ci	$V_{I} = V_{CC} \text{ or } GND$	5 V		4				pF
Co	$V_{O} = V_{CC}$ or GND	5 V		10				pF

[†] Not more than one output should be tested at a time, and the duration of the test should not exceed 10 ms.

[‡] This is the increase in supply current for each input that is at one of the specified TTL voltage levels rather than 0 V or V_{CC}.

timing requirements over recommended ranges of supply voltages and operating free-air temperature (unless otherwise noted) (see Figure 1)

		T _A = 25°C		MIN	MAX	UNIT
		MIN M 0 9	MAX		IVIAA	UNIT
fclock	Clock frequency	0	55	0	55	MHz
tw	Pulse duration, CLK low or CLK high	9		9		ns
t _{su}	Setup time, data before CLK [↑]	3		3		ns
t _h	Hold time, data after CLK [↑]	5.5		5.5		ns

switching characteristics over recommended ranges of supply voltage and operating free-air temperature (unless otherwise noted) (see Figure 1)

PARAMETER	FROM	ТО	Т	4 = 25°C	;	MIN	МАХ	UNIT
FARAMETER	(INPUT)	(OUTPUT)	MIN	TYP	MAX		WIAA	UNIT
fmax			55	70		55		MHz
^t PLH	CLK	Any Q	1.5	8.5	10.7	1.5	12.4	
^t PHL	OLK	Ally Q	1.5	8.5	11.3	1.5	13	ns
^t PZH	ŌĒ	Any Q	1.5	7.5	11	1.5	12.3	ns
^t PZL	UE	Ally Q	1.5	7.5	11	1.5	12.3	115
^t PHZ	ŌĒ	Any Q	1.5	11	12.7	1.5	13.2	ns
^t PLZ	UE	Ally Q	1.5	8	10	1.5	10.8	115

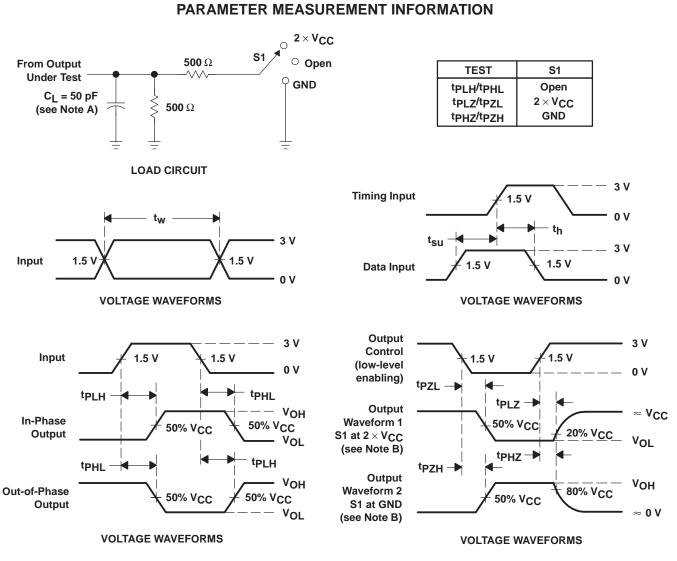


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operating characteristics, $V_{CC} = 5 V$, $T_A = 25^{\circ}C$

	PARAMETER	TEST CO	TYP	UNIT		
	C _{pd} Power dissipation capacitance per flip-flop	Outputs enabled			107	ъE
Cpd		Outputs disabled	C _L = 50 pF,	f = 1 MHz	96	рF



- NOTES: A. CL 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. All input pulses are supplied by generators having the following characteristics: PRR \leq 1 MHz, Z_O = 50 Ω , t_r = 3 ns, t_f = 3 ns.
 - D. The outputs are measured one at a time with one input transition per measurement.

Figure 1. Load Circuit and Voltage Waveforms



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PACKAGING INFORMATION

Orderable Device	Status ⁽¹⁾	Package Type	Package Drawing	Pins	Package Qty	Eco Plan ⁽²⁾	Lead/Ball Finish	MSL Peak Temp ⁽³⁾
74ACT11374DBLE	OBSOLETE	SSOP	DB	24		TBD	Call TI	Call TI
74ACT11374DW	ACTIVE	SOIC	DW	24	25	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
74ACT11374DWE4	ACTIVE	SOIC	DW	24	25	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
74ACT11374DWG4	ACTIVE	SOIC	DW	24	25	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
74ACT11374DWR	ACTIVE	SOIC	DW	24	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
74ACT11374DWRE4	ACTIVE	SOIC	DW	24	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
74ACT11374DWRG4	ACTIVE	SOIC	DW	24	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
74ACT11374NT	ACTIVE	PDIP	NT	24	15	Pb-Free (RoHS)	CU NIPDAU	N / A for Pkg Type
74ACT11374NTE4	ACTIVE	PDIP	NT	24	15	Pb-Free (RoHS)	CU NIPDAU	N / A for Pkg Type

⁽¹⁾ The marketing status values are defined as follows:

ACTIVE: Product device recommended for new designs.

LIFEBUY: TI has announced that the device will be discontinued, and a lifetime-buy period is in effect.

NRND: Not recommended for new designs. Device is in production to support existing customers, but TI does not recommend using this part in a new design.

PREVIEW: Device has been announced but is not in production. Samples may or may not be available.

OBSOLETE: TI has discontinued the production of the device.

⁽²⁾ Eco Plan - The planned eco-friendly classification: Pb-Free (RoHS), Pb-Free (RoHS Exempt), or Green (RoHS & no Sb/Br) - please check http://www.ti.com/productcontent for the latest availability information and additional product content details. **TBD**: The Pb-Free/Green conversion plan has not been defined.

Pb-Free (RoHS): TI's terms "Lead-Free" or "Pb-Free" mean semiconductor products that are compatible with the current RoHS requirements for all 6 substances, including the requirement that lead not exceed 0.1% by weight in homogeneous materials. Where designed to be soldered

at high temperatures, TI Pb-Free products are suitable for use in specified lead-free processes. **Pb-Free (RoHS Exempt):** This component has a RoHS exemption for either 1) lead-based flip-chip solder bumps used between the die and package, or 2) lead-based die adhesive used between the die and leadframe. The component is otherwise considered Pb-Free (RoHS compatible) as defined above.

Green (RoHS & no Sb/Br): TI defines "Green" to mean Pb-Free (RoHS compatible), and free of Bromine (Br) and Antimony (Sb) based flame retardants (Br or Sb do not exceed 0.1% by weight in homogeneous material)

⁽³⁾ MSL, Peak Temp. -- The Moisture Sensitivity Level rating according to the JEDEC industry standard classifications, and peak solder temperature.

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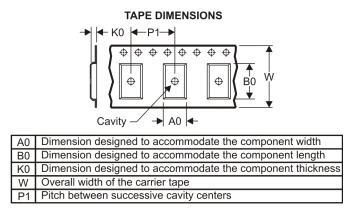
PACKAGE MATERIALS INFORMATION

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TAPE AND REEL INFORMATION





QUADRANT ASSIGNMENTS FOR PIN 1 ORIENTATION IN TAPE



1	All dimensions are nominal												
	Device	Package Type	Package Drawing		SPQ	Reel Diameter (mm)	Reel Width W1 (mm)	A0 (mm)	B0 (mm)	K0 (mm)	P1 (mm)	W (mm)	Pin1 Quadrant
ľ	74ACT11374DWR	SOIC	DW	24	2000	330.0	24.4	10.75	15.7	2.7	12.0	24.0	Q1

TEXAS INSTRUMENTS

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PACKAGE MATERIALS INFORMATION

29-Jul-2009



*All dimensions are nominal

Device	Package Type	Package Drawing	Pins	SPQ	Length (mm)	Width (mm)	Height (mm)
74ACT11374DWR	SOIC	DW	24	2000	346.0	346.0	41.0

MECHANICAL DATA

MSSO002E - JANUARY 1995 - REVISED DECEMBER 2001

DB (R-PDSO-G**)

PLASTIC SMALL-OUTLINE

28 PINS SHOWN



NOTES: A. All linear dimensions are in millimeters.

- B. This drawing is subject to change without notice.
- C. Body dimensions do not include mold flash or protrusion not to exceed 0,15.
- D. Falls within JEDEC MO-150



NT (R-PDIP-T**) 24 pins shown

PLASTIC DUAL-IN-LINE PACKAGE



All integrations are in minimeters. Dimensioning and toil
 B. This drawing is subject to change without notice.

The 28 pin end lead shoulder width is a vendor option, either half or full width.



DW (R-PDSO-G24)

PLASTIC SMALL-OUTLINE PACKAGE



NOTES: A. All linear dimensions are in inches (millimeters).

B. This drawing is subject to change without notice.

C. Body dimensions do not include mold flash or protrusion not to exceed 0.006 (0,15).

D. Falls within JEDEC MS-013 variation AD.



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74ACT11374DWR	ACTIVE	SOIC	DW	24	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
74ACT11374DWRE4	ACTIVE	SOIC	DW	24	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
74ACT11374DWRG4	ACTIVE	SOIC	DW	24	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
74ACT11374NT	ACTIVE	PDIP	NT	24	15	Pb-Free (RoHS)	CU NIPDAU	N / A for Pkg Type
74ACT11374NTE4	ACTIVE	PDIP	NT	24	15	Pb-Free (RoHS)	CU NIPDAU	N / A for Pkg Type

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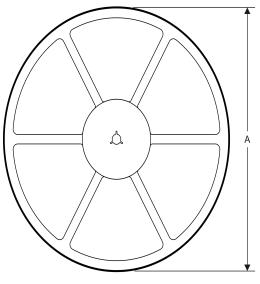
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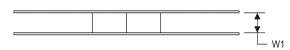
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TAPE AND REEL INFORMATION

REEL DIMENSIONS

TEXAS INSTRUMENTS





SOIC

TAPE AND REEL INFORMATION

74ACT11374DWR

TAPE DIMENSIONS



A0	Dimension designed to accommodate the component width
B0	Dimension designed to accommodate the component length
K0	Dimension designed to accommodate the component thickness
W	Overall width of the carrier tape
P1	Pitch between successive cavity centers

10.75

15.7

24.4

K0

(mm)

2.7

P1

(mm)

12.0

w

(mm)

24.0

Pin1

Quadrant

Q1

*All dimensions are nominal							
Device	Package Type	Package Drawing		Reel Diameter (mm)	Reel Width W1 (mm)	A0 (mm)	B0 (mm)

24

2000

330.0

DW

TEXAS INSTRUMENTS

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PACKAGE MATERIALS INFORMATION

14-Jul-2012



*All dimensions are nominal

Device	Package Type	Package Drawing	Pins	SPQ	Length (mm)	Width (mm)	Height (mm)
74ACT11374DWR	SOIC	DW	24	2000	367.0	367.0	45.0

NT (R-PDIP-T**) 24 pins shown

PLASTIC DUAL-IN-LINE PACKAGE



All integrations are in minimeters. Dimensioning and toil
 B. This drawing is subject to change without notice.

The 28 pin end lead shoulder width is a vendor option, either half or full width.



DW (R-PDSO-G24)

PLASTIC SMALL OUTLINE



NOTES: A. All linear dimensions are in inches (millimeters). Dimensioning and tolerancing per ASME Y14.5M-1994.

B. This drawing is subject to change without notice.

C. Body dimensions do not include mold flash or protrusion not to exceed 0.006 (0,15).

D. Falls within JEDEC MS-013 variation AD.



MECHANICAL DATA

MSSO002E - JANUARY 1995 - REVISED DECEMBER 2001

DB (R-PDSO-G**)

PLASTIC SMALL-OUTLINE

28 PINS SHOWN



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- C. Body dimensions do not include mold flash or protrusion not to exceed 0,15.
- D. Falls within JEDEC MO-150



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Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

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