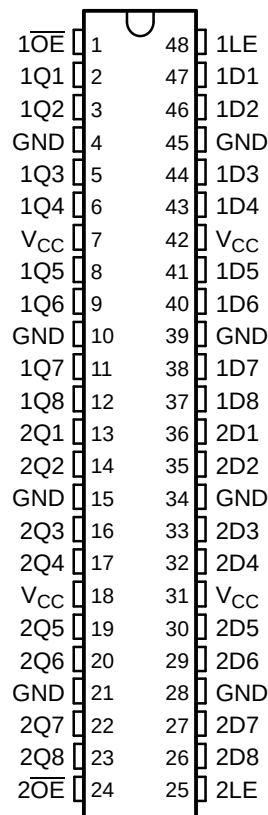


FEATURES

- Controlled Baseline
 - One Assembly/Test Site, One Fabrication Site
- Extended Temperature Performance of –55°C to 125°C
- Enhanced Diminishing Manufacturing Sources (DMS) Support
- Enhanced Product Change Notification
- Qualification Pedigree ⁽¹⁾
- Member of the Texas Instruments Widebus™ Family
- State-of-the-Art EPIC-IIB™ BiCMOS Design Significantly Reduces Power Dissipation
- Latch-Up Performance Exceeds 500 mA Per JEDEC Standard JESD-17
- Typical V_{OLP} (Output Ground Bounce) <0.8 V at $V_{CC} = 5$ V, $T_A = 25^\circ\text{C}$
- High-Impedance State During Power Up and Power Down
- Distributed V_{CC} and GND Pin Configuration Minimizes High-Speed Switching Noise
- Flow-Through Architecture Optimizes PCB Layout
- High-Drive Outputs (–24-mA I_{OH} , 48-mA I_{OL})
- Plastic 300-mil Shrink Small-Outline (DL) Package

- (1) Component qualification in accordance with JEDEC and industry standards to ensure reliable operation over an extended temperature range. This includes, but is not limited to, Highly Accelerated Stress Test (HAST) or biased 85/85, temperature cycle, autoclave or unbiased HAST, electromigration, bond intermetallic life, and mold-compound life. Such qualification testing should not be viewed as justifying use of this component beyond specified performance and environmental limits.

DL PACKAGE
(TOP VIEW)



DESCRIPTION/ORDERING INFORMATION

The SN74ABT16373A-EP is a 16-bit transparent D-type latch with 3-state outputs designed specifically for driving highly capacitive or relatively low-impedance loads. The SN74ABT16373A-EP is particularly suitable for implementing buffer registers, I/O ports, bidirectional bus drivers, and working registers.

ORDERING INFORMATION

T_A	PACKAGE ⁽¹⁾		ORDERABLE PART NUMBER	TOP-SIDE MARKING
–55°C to 125°C	SSOP – DL	Tape and reel	CABT16373AMDREP	ABT16373AMEP

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



Please be aware that an important notice concerning availability, standard warranty, and use in critical applications of Texas Instruments semiconductor products and disclaimers thereto appears at the end of this data sheet.

Widebus, EPIC-IIB are trademarks of Texas Instruments.

SN74ABT16373A-EP

16-BIT TRANSPARENT D-TYPE LATCH

WITH 3-STATE OUTPUTS

SCBS810 – MARCH 2006

DESCRIPTION/ORDERING INFORMATION (CONTINUED)

The SN74ABT16373A-EP can be used as two 8-bit latches or one 16-bit latch. When the latch-enable (LE) input is high, the Q outputs follow the data (D) inputs. When LE is taken low, the Q outputs are latched at the levels set up at the D inputs.

A buffered 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 state and the increased drive provide the capability to drive bus lines without need for interface or pullup components.

$\overline{OE}$ does not affect internal operations of the latch. Old data can be retained or new data can be entered while the outputs are in the high-impedance state.

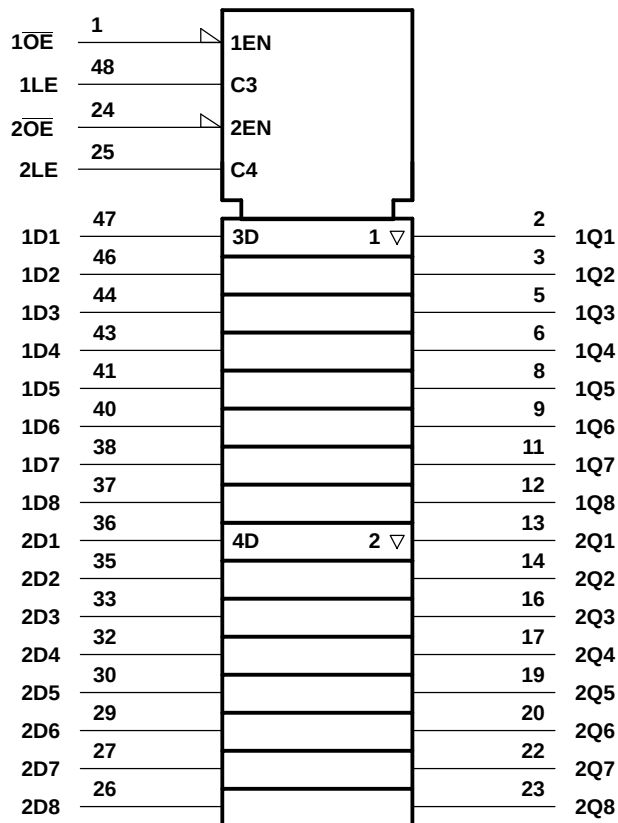
When V_{CC} is between 0 and 2.1 V, the device is in the high-impedance state during power up or power down. However, to ensure the high-impedance state above 2.1 V, $\overline{OE}$ should be tied to V_{CC} through a pullup resistor; the minimum value of the resistor is determined by the current-sinking capability of the driver.

The SN74ABT16373A-EP is characterized for operation from -55°C to 125°C .

FUNCTION TABLE
(each 8-bit section)

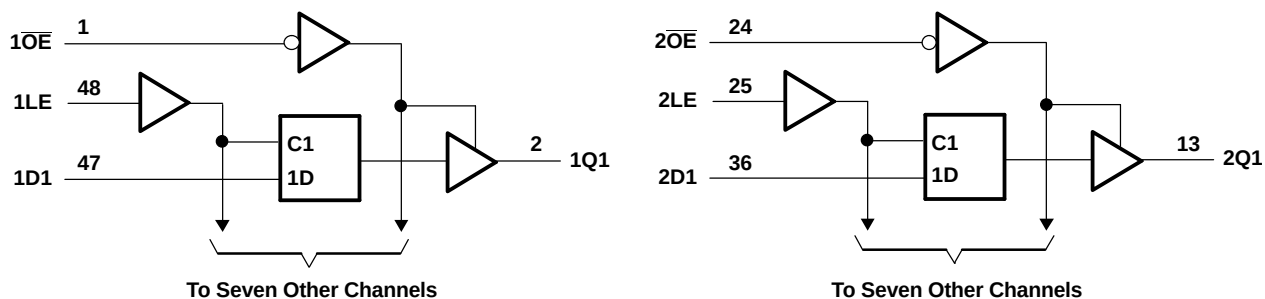
INPUTS			OUTPUT Q
$\overline{OE}$	LE	D	
L	H	H	H
L	H	L	L
L	L	X	Q_0
H	X	X	Z

LOGIC SYMBOL ⁽¹⁾



(1) This symbol is in accordance with ANSI/IEEE Std 91-1984 and IEC Publication 617-12.

LOGIC DIAGRAM (POSITIVE LOGIC)



SN74ABT16373A-EP

16-BIT TRANSPARENT D-TYPE LATCH

WITH 3-STATE OUTPUTS

SCBS810 – MARCH 2006

Absolute Maximum Ratings⁽¹⁾

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

		MIN	MAX	UNIT
V_{CC}	Supply voltage range	–0.5	7	V
V_I	Input voltage range ⁽²⁾	–0.5	7	V
V_O	Voltage range applied to any output in the high or power-off state	–0.5	5.5	V
I_O	Current into any output in the low state		96	mA
I_{IK}	Input clamp current	$V_I < 0$	–18	mA
I_{OK}	Output clamp current	$V_O < 0$	–50	mA
θ_{JA}	Package thermal impedance ⁽³⁾		94	°C/W
T_{stg}	Storage temperature range	–65	150	°C

- (1) 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.
- (2) The input and output negative-voltage ratings may be exceeded if the input and output clamp-current ratings are observed.
- (3) The package thermal impedance is calculated in accordance with EIA/JEDEC Std JESD 51.

Recommended Operating Conditions⁽¹⁾

		MIN	MAX	UNIT
V_{CC}	Supply voltage	4.5	5.5	V
V_{IH}	High-level input voltage	2		V
V_{IL}	Low-level input voltage		0.8	V
V_I	Input voltage	0	V_{CC}	V
I_{OH}	High-level output current		–24	mA
I_{OL}	Low-level output current		48	mA
$\Delta t/\Delta v$	Input transition rise or fall rate		10	ns/V
$\Delta t/\Delta V_{CC}$	Power-up ramp rate	200		μs/V
T_A	Operating free-air temperature	–55	125	°C

- (1) Unused inputs must be held high or low to prevent them from floating.

Electrical Characteristics

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

PARAMETER	TEST CONDITIONS	T _A = 25°C			MIN	MAX	UNIT
		MIN	TYP ⁽¹⁾	MAX			
V _{IK}	V _{CC} = 4.5 V, I _I = –18 mA			–1.2	–1.2		V
V _{OH}	V _{CC} = 4.5 V, I _{OH} = –3 mA	2.5			2.5		V
	V _{CC} = 5 V, I _{OH} = –3 mA	3			3		
	V _{CC} = 4.5 V, I _{OH} = –24 mA	2			2		
V _{OL}	V _{CC} = 4.5 V, I _{OL} = 48 mA			0.55	0.55		V
V _{hys}			100				mV
I _I	V _{CC} = 0 to 5.5 V, V _I = V _{CC} or GND			±1	±1		μA
I _{OZPU} ⁽²⁾	V _{CC} = 0 to 2.1 V, V _O = 0.5 V to 2.7 V, $\overline{OE} = X$			±50	±50		μA
I _{OZPD} ⁽²⁾	V _{CC} = 2.1 V to 0, V _O = 0.5 V to 2.7 V, $\overline{OE} = X$			±50	±50		μA
I _{OZH}	V _{CC} = 2.1 V to 5.5 V, V _O = 2.7 V, $\overline{OE} \geq 2$ V			10	10		μA
I _{OZL}	V _{CC} = 2.1 V to 5.5 V, V _O = 0.5 V, $\overline{OE} \geq 2$ V			–10	–10		μA
I _{off}	V _{CC} = 0, V _I or V _O ≤ 4.5 V			±100			μA
I _{CEX}	Outputs high			50	50		μA
I _O ⁽³⁾	V _{CC} = 5.5 V, V _O = 2.5 V	–50	–100	–180	–50	–180	mA
I _{CC}	Outputs high			2	2		mA
	Outputs low			85	85		
	Outputs disabled			2	2		
ΔI _{CC} ⁽⁴⁾	V _{CC} = 5.5 V, One input at 3.4 V, Other inputs at V _{CC} or GND			1.5	1.5		mA
C _i	V _I = 2.5 V or 0.5 V		3.5				pF
C _o	V _O = 2.5 V or 0.5 V		9.5				pF

(1) All typical values are at V_{CC} = 5 V.

(2) This parameter is characterized, but not production tested.

(3) Not more than one output should be tested at a time, and the duration of the test should not exceed one second.

(4) This is the increase in supply current for each input that is at the specified TTL voltage level, rather than V_{CC} or GND.

Timing Requirements

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

		V _{CC} = 5 V, T _A = 25°C		MIN	MAX	UNIT
		MIN	MAX			
t _w	Pulse duration, LE high	3.3		3.3		ns
t _{su}	Setup time, data before LE↓	1.5		2.4		ns
t _h	Hold time, data after LE↓	1		2.2		ns

SN74ABT16373A-EP

16-BIT TRANSPARENT D-TYPE LATCH

WITH 3-STATE OUTPUTS

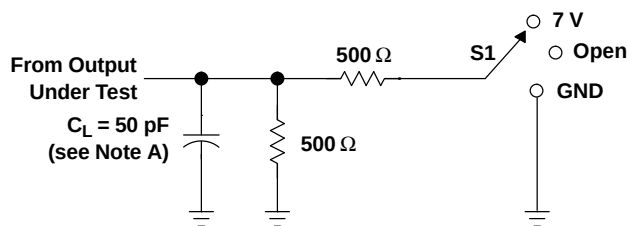
SCBS810 – MARCH 2006

Switching Characteristics

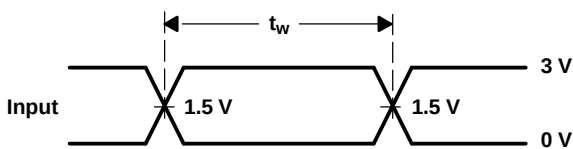
over recommended ranges of supply voltage and operating free-air temperature, $C_L = 50$ pF (unless otherwise noted)
(see [Figure 1](#))

PARAMETER	FROM (INPUT)	TO (OUTPUT)	$V_{CC} = 5$ V, $T_A = 25^\circ\text{C}$			MIN	MAX	UNIT
			MIN	TYP	MAX			
t_{PLH}	D	Q	1.4	3.7	5.3	1.4	6.5	ns
t_{PHL}			2	4	5.4	2	6.5	
t_{PLH}	LE	Q	1.7	4.1	5.7	1.7	7	ns
t_{PHL}			2.3	4.3	5.6	2.3	6.3	
t_{PZH}	$\overline{OE}$	Q	1.1	3.4	5	1.1	6.4	ns
t_{PZL}			1.5	3.5	4.9	1.5	5.8	
t_{PHZ}	$\overline{OE}$	Q	2.4	5.1	7.1	2.4	8.3	ns
t_{PLZ}			1.6	4.4	6.3	1.6	8	

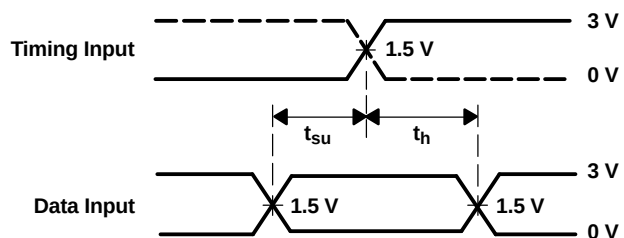
PARAMETER MEASUREMENT INFORMATION



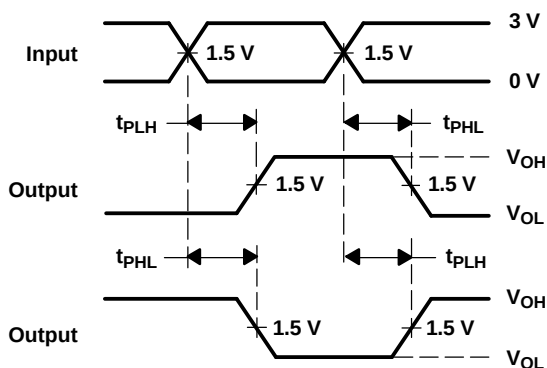
LOAD CIRCUIT



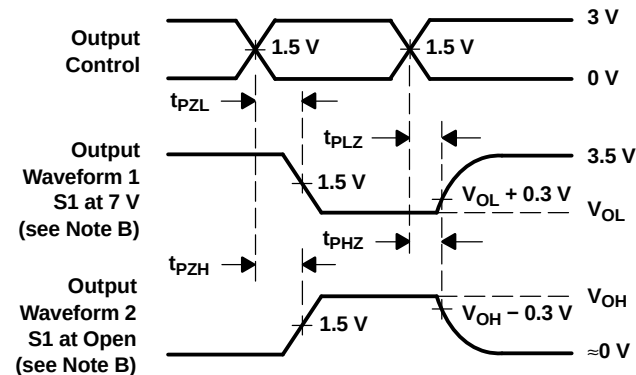
VOLTAGE WAVEFORMS
PULSE DURATION



VOLTAGE WAVEFORMS
SETUP AND HOLD TIMES



VOLTAGE WAVEFORMS
PROPAGATION DELAY TIMES
INVERTING AND NONINVERTING OUTPUTS



VOLTAGE WAVEFORMS
ENABLE AND DISABLE TIMES
LOW- AND HIGH-LEVEL ENABLING

- NOTES:
- C_L includes probe and jig capacitance.
 - 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.
 - All input pulses are supplied by generators having the following characteristics: $PRR \leq 10 \text{ MHz}$, $Z_O = 50 \Omega$, $t_r \leq 2.5 \text{ ns}$, $t_f \leq 2.5 \text{ ns}$.
 - The outputs are measured one at a time, with one transition per measurement.

Figure 1. Load Circuit and Voltage Waveforms

APPLICATION INFORMATION

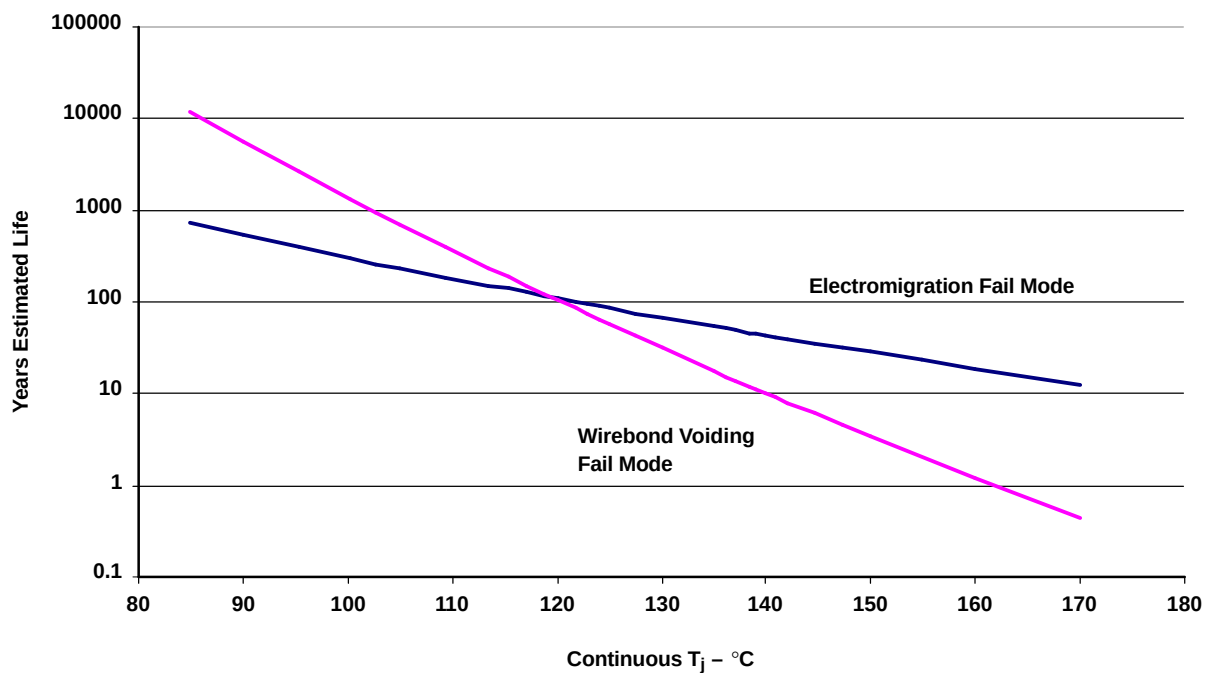


Figure 2. CABT16373AMDLREP Operating Life Derating Chart

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)
CABT16373AMDLEP	Active	Production	SSOP (DL) 48	1000 LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-55 to 125	ABT16373AMEP
V62/06628-01XE	Active	Production	SSOP (DL) 48	1000 LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-55 to 125	ABT16373AMEP

⁽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.

Important Information and Disclaimer: The information provided on this page represents TI's knowledge and belief as of the date that it is provided. TI bases its knowledge and belief on information provided by third parties, and makes no representation or warranty as to the accuracy of such information. Efforts are underway to better integrate information from third parties. TI has taken and continues to take reasonable steps to provide representative and accurate information but may not have conducted destructive testing or chemical analysis on incoming materials and chemicals. TI and TI suppliers consider certain information to be proprietary, and thus CAS numbers and other limited information may not be available for release.

In no event shall TI's liability arising out of such information exceed the total purchase price of the TI part(s) at issue in this document sold by TI to Customer on an annual basis.

OTHER QUALIFIED VERSIONS OF SN74ABT16373A-EP :

- Catalog : [SN74ABT16373A](#)

- Military : [SN54ABT16373A](#)

NOTE: Qualified Version Definitions:

- Catalog - TI's standard catalog product
- Military - QML certified for Military and Defense Applications

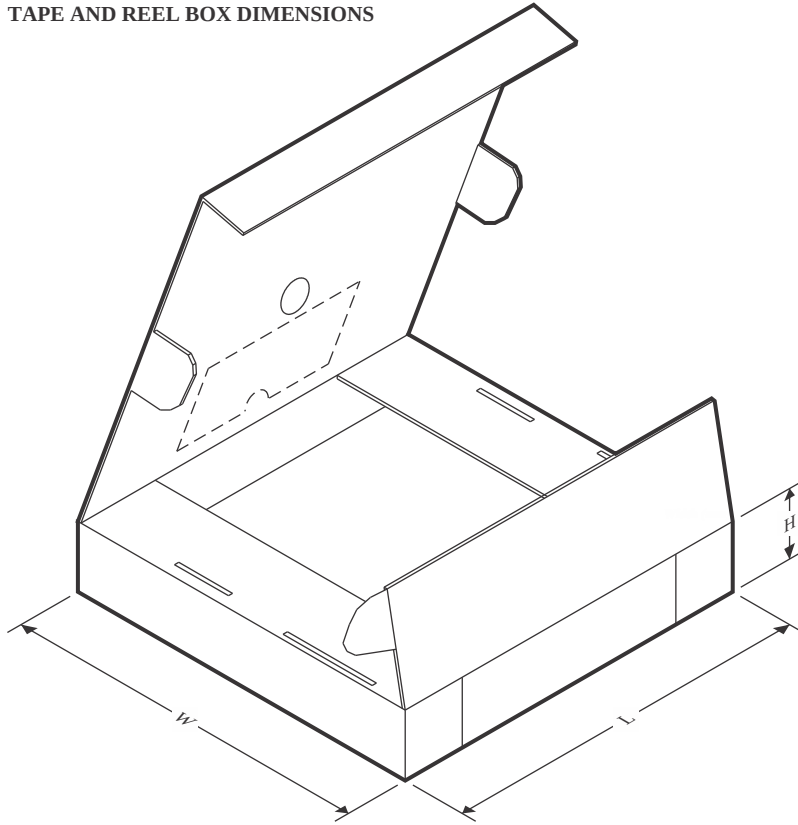
TAPE AND REEL INFORMATION



*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
CABT16373AMDREP	SSOP	DL	48	1000	330.0	32.4	11.35	16.2	3.1	16.0	32.0	Q1

TAPE AND REEL BOX DIMENSIONS

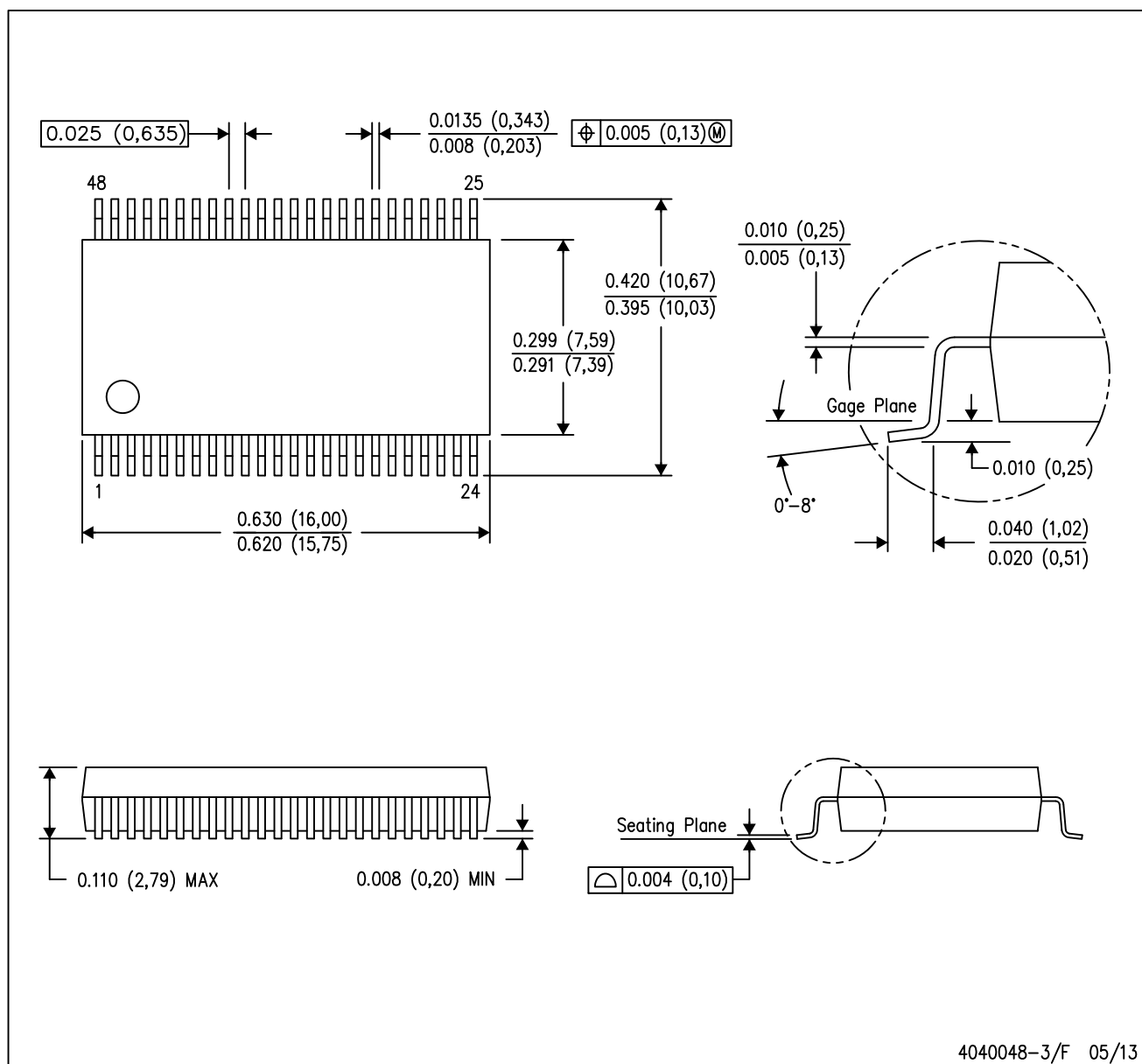


*All dimensions are nominal

Device	Package Type	Package Drawing	Pins	SPQ	Length (mm)	Width (mm)	Height (mm)
CABT16373AMDREP	SSOP	DL	48	1000	356.0	356.0	53.0

DL (R-PDSO-G48)

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 MO-118

IMPORTANT NOTICE AND DISCLAIMER

TI PROVIDES TECHNICAL AND RELIABILITY DATA (INCLUDING DATASHEETS), DESIGN RESOURCES (INCLUDING REFERENCE DESIGNS), APPLICATION OR OTHER DESIGN ADVICE, WEB TOOLS, SAFETY INFORMATION, AND OTHER RESOURCES "AS IS" AND WITH ALL FAULTS, AND DISCLAIMS ALL WARRANTIES, EXPRESS AND IMPLIED, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT OF THIRD PARTY INTELLECTUAL PROPERTY RIGHTS.

These resources are intended for skilled developers designing with TI products. You are solely responsible for (1) selecting the appropriate TI products for your application, (2) designing, validating and testing your application, and (3) ensuring your application meets applicable standards, and any other safety, security, regulatory or other requirements.

These resources are subject to change without notice. TI grants you permission to use these resources only for development of an application that uses the TI products described in the resource. Other reproduction and display of these resources is prohibited. No license is granted to any other TI intellectual property right or to any third party intellectual property right. TI disclaims responsibility for, and you fully indemnify TI and its representatives against any claims, damages, costs, losses, and liabilities arising out of your use of these resources.

TI's products are provided subject to [TI's Terms of Sale](#), [TI's General Quality Guidelines](#), or other applicable terms available either on [ti.com](https://www.ti.com) or provided in conjunction with such TI products. TI's provision of these resources does not expand or otherwise alter TI's applicable warranties or warranty disclaimers for TI products. Unless TI explicitly designates a product as custom or customer-specified, TI products are standard, catalog, general purpose devices.

TI objects to and rejects any additional or different terms you may propose.

Copyright © 2025, Texas Instruments Incorporated

Last updated 10/2025