

74ABT125

Quad Buffer with 3-STATE Outputs

General Description

The ABT125 contains four independent non-inverting buffers with 3-STATE outputs.

Features

- Non-inverting buffers
- Output sink capability of 64 mA, source capability of 32 mA
- Guaranteed latchup protection
- High impedance glitch free bus loading during entire power up and power down cycle
- Nondestructive hot insertion capability
- Disable time less than enable time to avoid bus contention

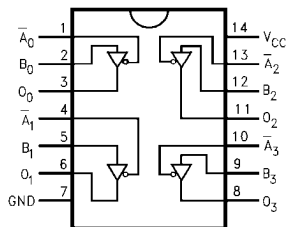
Ordering Code:

Order Number	Package Number	Package Description
74ABT125CSC	M14A	14-Lead Small Outline Integrated Circuit (SOIC), JEDEC MS-120, 0.150" Narrow Body
74ABT125CSJ	M14D	14-Lead Small Outline Package (SOP), EIAJ TYPE II, 5.3mm Wide
74ABT125CMTC	MTC14	14-Lead Thin Shrink Small Outline Package (TSSOP), JEDEC MO-153, 4.4mm Wide

Device also available in Tape and Reel. Specify by appending suffix letter "X" to the ordering code.

Connection Diagram

Pin Assignment for SOIC, EIAJ and TSSOP



Pin Descriptions

Pin Names	Descriptions
$\bar{A}_n, B_n$	Inputs
O_n	Outputs

Function Table

Inputs		Output
A_n	B_n	O_n
L	L	L
L	H	H
H	X	Z

H = HIGH Voltage Level
L = LOW Voltage Level
Z = HIGH Impedance
X = Immaterial

74ABT125 Quad Buffer with 3-STATE Outputs

Absolute Maximum Ratings(Note 1)

Storage Temperature	–65°C to +150°C
Ambient Temperature under Bias	–55°C to +125°C
Junction Temperature under Bias	–55°C to +150°C
V _{CC} Pin Potential to Ground Pin	–0.5V to +7.0V
Input Voltage (Note 2)	–0.5V to +7.0V
Input Current (Note 2)	–30 mA to +5.0 mA
Voltage Applied to Any Output in the Disabled or Power-Off State	–0.5V to 5.5V
in the HIGH State	–0.5V to V _{CC}
Current Applied to Output in LOW State (Max)	twice the rated I _{OL} (mA)

DC Latchup Source Current

(Across Comm Operating Range)

–300 mA

Over Voltage Latchup (I/O)

10V

Recommended Operating Conditions

Free Air Ambient Temperature	–40°C to +85°C
Supply Voltage	+4.5V to +5.5V
Minimum Input Edge Rate ($\Delta V/\Delta t$)	
Data Input	50 mV/ns
Enable Input	20 mV/ns

Note 1: Absolute maximum ratings are values beyond which the device may be damaged or have its useful life impaired. Functional operation under these conditions is not implied.

Note 2: Either voltage limit or current limit is sufficient to protect inputs.

DC Electrical Characteristics

Symbol	Parameter	Min	Typ	Max	Units	V _{CC}	Conditions
V _{IH}	Input HIGH Voltage			0.8	V		Recognized HIGH Signal
V _{IL}	Input LOW Voltage			–1.2	V		Recognized LOW Signal
V _{CD}	Input Clamp Diode Voltage				V	Min	I _{IN} = –18 mA
V _{OH}	Output HIGH Voltage	2.5			V	Min	I _{OH} = –3 mA
		2.0			V	Min	I _{OH} = –32 mA
V _{OL}	Output LOW Voltage			0.55	V	Min	I _{OL} = 64 mA
I _{IH}	Input HIGH Current			1	μA	Max	V _{IN} = 2.7V (Note 3)
				1	μA	Max	V _{IN} = V _{CC}
I _{BVI}	Input HIGH Current Breakdown Test			7	μA	Max	V _{IN} = 7.0V
I _{IL}	Input LOW Current			–1	μA	Max	V _{IN} = 0.5V (Note 3)
				–1	μA	Max	V _{IN} = 0.0V
V _{ID}	Input Leakage Test				V	0.0	I _{ID} = 1.9 μA, All Other Pin Grounded
I _{OZH}	Output Leakage Current			10	μA	0–5.5V	V _{OUT} = 2.7V; $\overline{OE}_n$ = 2.0V
I _{OZL}	Output Leakage Current			–10	μA	0–5.5V	V _{OUT} = 0.5V; $\overline{OE}_n$ = 2.0V
I _{OS}	Output Short-Circuit Current			–275	mA	Max	V _{OUT} = 0.0V
I _{CEX}	Output HIGH Leakage Current			50	μA	Max	V _{OUT} = V _{CC}
I _{ZZ}	Bus Drainage Test			100	μA	0.0	V _{OUT} = 5.5V; All Others GND
I _{CCH}	Power Supply Current			50	μA	Max	All Outputs HIGH
I _{CCL}	Power Supply Current			15	mA	Max	All Outputs LOW
I _{CCZ}	Power Supply Current			50	μA	Max	$\overline{OE}_n$ = V _{CC} ; All Others at V _{CC} or Ground
I _{CCT}	Additional I _{CC} /Input Outputs Enabled Outputs 3-STATE Outputs 3-STATE			1.5 1.5 50	mA mA μA	Max	V _I = V _{CC} – 2.1V Enable Input V _I = V _{CC} – 2.1V Data Input V _I = V _{CC} – 2.1V All Others at V _{CC} or Ground
I _{CCD}	Dynamic I _{CC} No Load (Note 3)			0.1	mA/ MHz	Max	Outputs Open $\overline{OE}_n$ = GND, (Note 4) One Bit Toggling, 50% Duty Cycle

Note 3: Guaranteed, but not tested.

Note 4: For 8 bits toggling, I_{CCD} < 0.8 mA/MHz.

AC Electrical Characteristics

(SOIC and SSOP package)

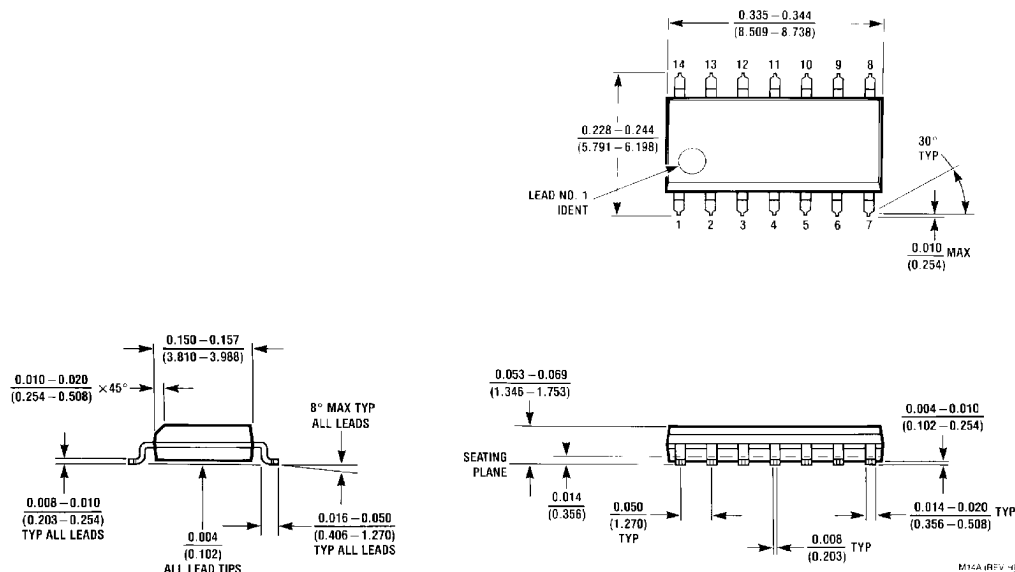
Symbol	Parameter	T _A = +25°C V _{CC} = +5V C _L = 50 pF			T _A = -40°C to +85°C V _{CC} = 4.5V–5.5V C _L = 50 pF		Units
		Min	Typ	Max	Min	Max	
t _{PLH}	Propagation Delay	1.0		4.6	1.0	4.6	ns
t _{PHL}	Data to Outputs	1.0		4.9	1.0	4.9	
t _{PZH}	Output Enable	1.0		5.1	1.0	5.1	ns
t _{PZL}	Time	1.0		6.8	1.0	6.8	
t _{PHZ}	Output Disable	1.0		6.2	1.0	6.2	ns
t _{PLZ}	Time	1.0		5.5	1.0	5.5	

Capacitance

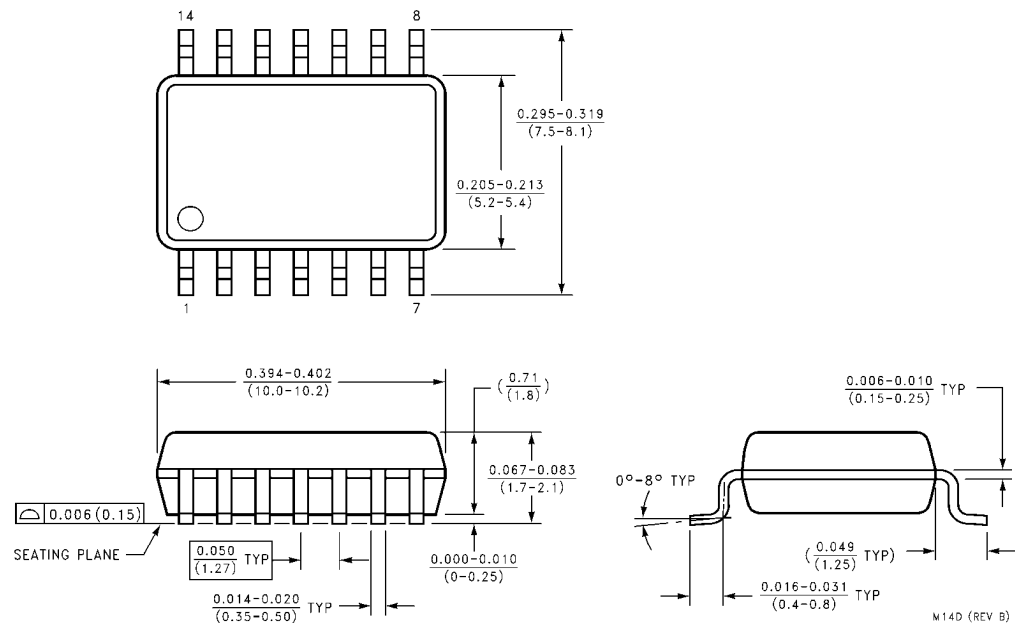
Symbol	Parameter	Typ	Units	Conditions T _A = 25°C
C _{IN}	Input Capacitance	5.0	pF	V _{CC} = 0V
C _{OUT} (Note 5)	Output Capacitance	9.0	pF	V _{CC} = 5.0V

Note 5: C_{OUT} is measured at frequency f = 1 MHz, per MIL-STD-883, Method 3012.

Physical Dimensions inches (millimeters) unless otherwise noted



**14-Lead Small Outline Integrated Circuit (SOIC), JEDEC MS-013, 0.300" Wide Body
Package Number M14A**



**14-Lead Small Outline Package (SOP), EIAJ TYPE II, 5.3mm Wide
Package Number M14D**

