

## 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 latching 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

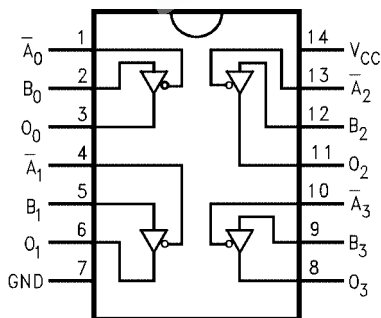
### Ordering Code:

Order Number	Package Number	Package Description
74ABT125CSC	M14A	14-Lead Small Outline Integrated Circuit (SOIC), JEDEC MS-012, 0.150" Narrow
74ABT125CSJ	M14D	Pb-Free 14-Lead Small Outline Package (SOP), EIAJ TYPE II, 5.3mm Wide
74ABT125CMT	MTC14	14-Lead Thin Shrink Small Outline Package (TSSOP), JEDEC MO-153, 4.4mm Wide
74ABT125CMTCX_NL (Note 1)	MTC14	Pb-Free 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.  
Pb-Free package per JEDEC J-STD-020B.

Note 1: "\_NL" indicates Pb-Free package (per JEDEC J-STD-020B). Device available in Tape and Reel only.

### Connection Diagram



### Pin Descriptions

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

### Function Table

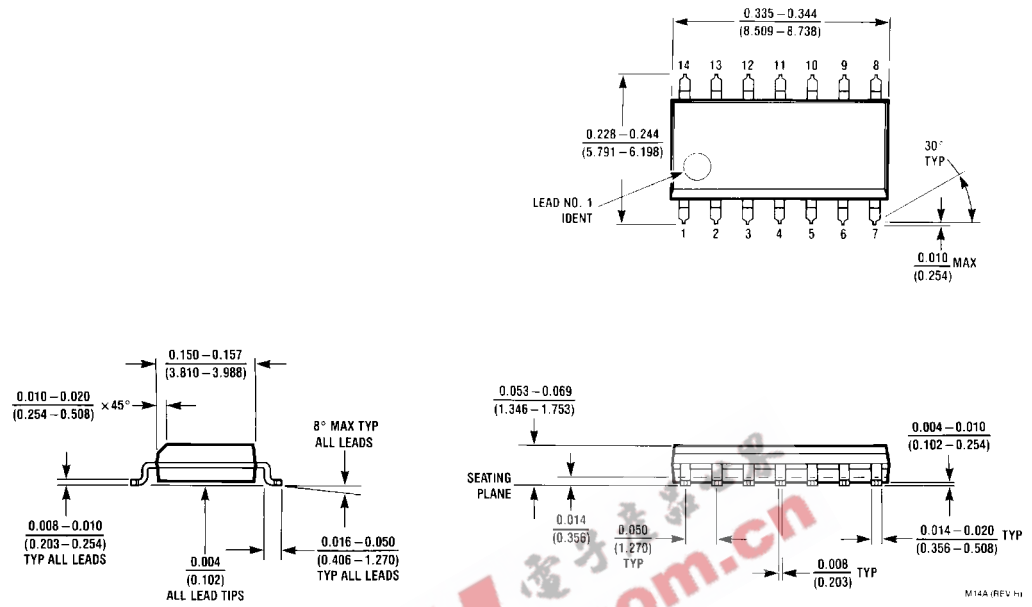
Inputs		Output
$A_n$	$B_n$	$O_n$
L	L	L
L	H	H
H	X	Z

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

Absolute Maximum Ratings (Note 2)		Recommended Operating Conditions					
Storage Temperature	-65°C to +150°C	Free Air Ambient Temperature	-40°C to +85°C				
Ambient Temperature under Bias	-55°C to +125°C	Supply Voltage	+4.5V to +5.5V				
Junction Temperature under Bias	-55°C to +150°C	Minimum Input Edge Rate ( $\Delta V/\Delta t$ )					
$V_{CC}$ Pin Potential to Ground Pin	-0.5V to +7.0V	Data Input	50 mV/ns				
Input Voltage (Note 3)	-0.5V to +7.0V	Enable Input	20 mV/ns				
Input Current (Note 3)	-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						
<p><b>Note 2:</b> 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.</p> <p><b>Note 3:</b> Either voltage limit or current limit is sufficient to protect inputs.</p>							
DC Electrical Characteristics							
Symbol	Parameter	Min	Typ	Max	Units	$V_{CC}$	Conditions
$V_{IH}$	Input HIGH Voltage				V		Recognized HIGH Signal
$V_{IL}$	Input LOW Voltage			0.8	V		Recognized LOW Signal
$V_{CD}$	Input Clamp Diode Voltage			-1.2	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	$\mu$ A	Max	$V_{IN} = 2.7$ V (Note 4)
				1	$\mu$ A	Max	$V_{IN} = V_{CC}$
$I_{BVI}$	Input HIGH Current Breakdown Test			7	$\mu$ A	Max	$V_{IN} = 7.0$ V
$I_{IL}$	Input LOW Current			-1	$\mu$ A	Max	$V_{IN} = 0.5$ V (Note 4)
				-1	$\mu$ A	Max	$V_{IN} = 0.0$ V
$I_{ID}$	Input Leakage Test				V	0.0	$I_{ID} = 1.9$ $\mu$ A, All Other Pin Grounded
$I_{OZH}$	Output Leakage Current			10	$\mu$ A	0-5.5V	$V_{OUT} = 2.7$ V; $\overline{OE}_n = 2.0$ V
$I_{OZL}$	Output Leakage Current			-10	$\mu$ A	0-5.5V	$V_{OUT} = 0.5$ V; $\overline{OE}_n = 2.0$ V
$I_{OS}$	Output Short-Circuit Current			-275	mA	Max	$V_{OUT} = 0.0$ V
$I_{CEX}$	Output HIGH Leakage Current			50	$\mu$ A	Max	$V_{OUT} = V_{CC}$
$I_{ZZ}$	Bus Drainage Test			100	$\mu$ A	0.0	$V_{OUT} = 5.5$ V; All Others GND
$I_{CCH}$	Power Supply Current			50	$\mu$ A	Max	All Outputs HIGH
$I_{CCL}$	Power Supply Current			15	mA	Max	All Outputs LOW
$I_{CCZ}$	Power Supply Current			50	$\mu$ A	Max	$\overline{OE}_n = V_{CC}$ ; All Others at $V_{CC}$ or Ground
$I_{CCT}$	Additional $I_{CC}$ /Input	Outputs Enabled		1.5	mA	Max	$V_i = V_{CC} - 2.1$ V
		Outputs 3-STATE		1.5	mA	Max	Enable Input $V_i = V_{CC} - 2.1$ V
		Outputs 3-STATE		50	$\mu$ A	Max	Data Input $V_i = V_{CC} - 2.1$ V
						Max	All Others at $V_{CC}$ or Ground
$I_{CCD}$	Dynamic $I_{CC}$ (Note 4)	No Load		0.1	mA/ MHz	Max	Outputs Open $\overline{OE}_n = GND$ , (Note 5) One Bit Toggling, 50% Duty Cycle
<p><b>Note 4:</b> Guaranteed, but not tested.</p> <p><b>Note 5:</b> For 8 bits toggling, <math>I_{CCD} &lt; 0.8</math> mA/MHz.</p>							

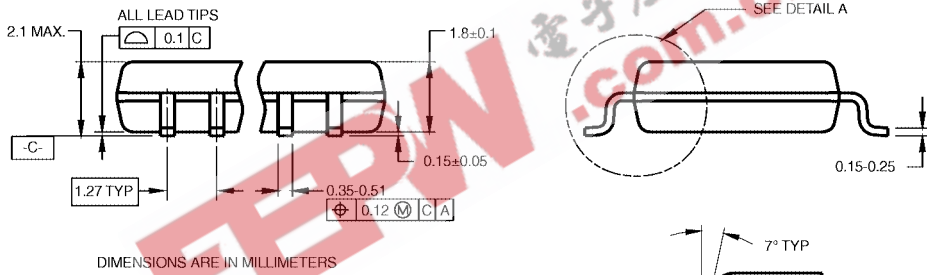
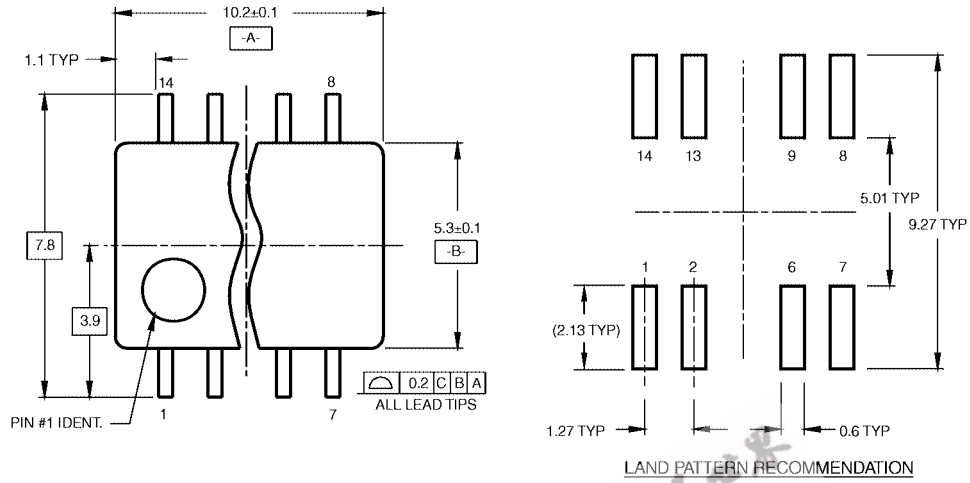
AC Electrical Characteristics							
Symbol	Parameter	T <sub>A</sub> = +25°C V <sub>CC</sub> = +5V C <sub>L</sub> = 50 pF		T <sub>A</sub> = -40°C to +85°C V <sub>CC</sub> = 4.5V–5.5V C <sub>L</sub> = 50 pF		Units	
		Min	Typ	Max	Min		Max
t <sub>PLH</sub>	Propagation Delay	1.0		4.6	1.0	4.6	ns
t <sub>PHL</sub>	Data to Outputs	1.0		4.9	1.0	4.9	
t <sub>PZH</sub>	Output Enable	1.0		5.1	1.0	5.1	ns
t <sub>PZL</sub>	Time	1.0		6.8	1.0	6.8	
t <sub>PHZ</sub>	Output Disable	1.0		6.2	1.0	6.2	ns
t <sub>PLZ</sub>	Time	1.0		5.5	1.0	5.5	
Capacitance							
Symbol	Parameter	Typ	Units	Conditions T <sub>A</sub> = 25°C			
C <sub>IN</sub>	Input Capacitance	5.0	pF	V <sub>CC</sub> = 0V			
C <sub>OUT</sub> (Note 6)	Output Capacitance	9.0	pF	V <sub>CC</sub> = 5.0V			
<p><b>Note 6:</b> C<sub>OUT</sub> is measured at frequency f = 1 MHz, per MIL-STD-883, Method 3012.</p>							

**Physical Dimensions** inches (millimeters) unless otherwise noted



14-Lead Small Outline Integrated Circuit (SOIC), JEDEC MS-012, 0.150" Narrow  
Package Number M14A

**Physical Dimensions** inches (millimeters) unless otherwise noted (Continued)

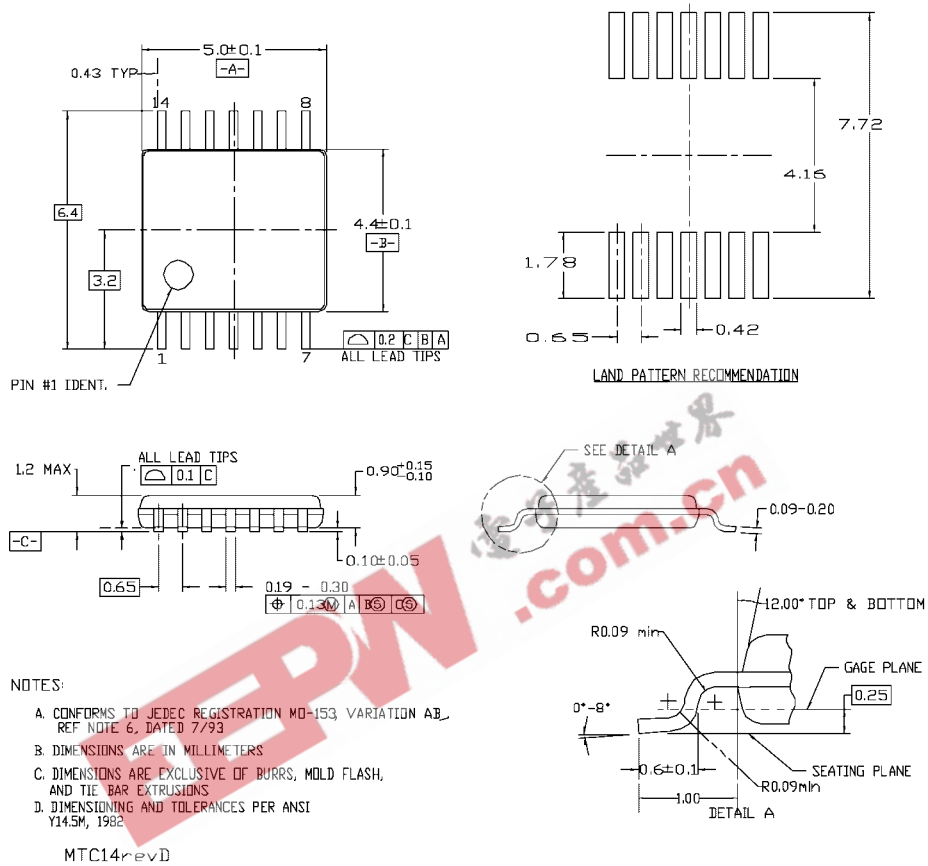


- NOTES:  
 A. CONFORMS TO EIAJ EDR-7320 REGISTRATION, ESTABLISHED IN DECEMBER, 1998.  
 B. DIMENSIONS ARE IN MILLIMETERS.  
 C. DIMENSIONS ARE EXCLUSIVE OF BURRS, MOLD FLASH, AND TIE BAR EXTRUSIONS.

M14DRevB1

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

**Physical Dimensions** inches (millimeters) unless otherwise noted (Continued)



**14-Lead Thin Shrink Small Outline Package (TSSOP), JEDEC MO-153, 4.4mm Wide Package Number MTC14**

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