

54ABT241

Octal Buffer/Line Driver with TRI-STATE® Outputs

General Description

The ABT241 is an octal buffer and line driver with 3-STATE outputs designed to be employed as a memory and address driver, clock driver, or bus-oriented transmitter/receiver.

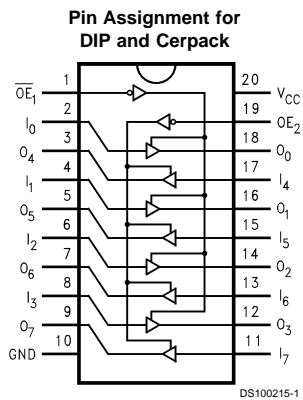
Features

- Non-inverting buffers
- Output sink capability of 48 mA, source capability of 24 mA
- Guaranteed latchup protection
- High impedance glitch free bus loading during entire power up and power down cycle
- Nondestructive hot insertion capability
- Standard Microcircuit Drawing (SMD) 5962-9322701

Ordering Code

Military	Package Number	Package Description
54ABT241J-QML	J20A	20-Lead Ceramic Dual-In-Line
54ABT241W-QML	W20A	20-Lead Cerpack
54ABT241E-QML	E20A	20-Lead Ceramic Leadless Chip Carrier, Type C

Connection Diagram

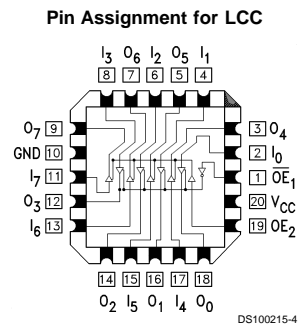


Pin Names	Description
\overline{OE}_1	Output Enable Input (Active Low)
OE_2	Output Enable Input (Active High)
I_0-I_7	Inputs
O_0-O_7	Outputs

Truth Table

\overline{OE}_1	I_{0-3}	O_{0-3}	\overline{OE}_2	I_{4-7}	O_{4-7}
H	X	Z	L	X	Z
L	H	H	H	H	H
L	L	L	H	L	L

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



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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	
Ceramic	-55°C to +175°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 (Over Comm Operating Range)	-500 mA
Over Voltage Latchup (I/O)	10V

Recommended Operating Conditions

Free Air Ambient Temperature	
Military	-55°C to +125°C
Supply Voltage	
Military	+4.5V to +5.5V
Minimum Input Edge Rate	(ΔV/Δt)
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	2.0			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	54ABT	2.5		V	Min	I _{OH} = -3 mA
		54ABT	2.0		V	Min	I _{OH} = -24 mA
V _{OL}	Output LOW Voltage	54ABT		0.55	V	Min	I _{OL} = 48 mA
I _{IH}	Input HIGH Current			5	μA	Max	V _{IN} = 2.7V (Note 4)
				5	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			-5	μA	Max	V _{IN} = 0.5V (Note 4)
				-5	μA	Max	V _{IN} = 0.0V
V _{ID}	Input Leakage Test	4.75			V	0.0	I _{ID} = 1.9 μA All Other Pins Grounded
I _{OZH}	Output Leakage Current			50	μA	0 - 5.5V	V _{OUT} = 2.7V; $\overline{OE}_n = 2.0V$
I _{OZL}	Output Leakage Current			-50	μA	0 - 5.5V	V _{OUT} = 0.5V; $\overline{OE}_n = 2.0V$
I _{OS}	Output Short-Circuit Current	-100		-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			30	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		2.5	mA	Max	V _I = V _{CC} - 2.1V
		Outputs 3-STATE		2.5	mA	Max	Enable Input V _I = V _{CC} - 2.1V
		Outputs 3-STATE		50	μA	Max	Data Input V _I = V _{CC} - 2.1V All Others at V _{CC} or Ground
I _{CCD}	Dynamic I _{CC}	No Load			mA/ MHz	Max	Outputs Open $\overline{OE}_n = GND$, (Note 3) One Bit Toggling, 50% Duty Cycle

Note 3: For 8 bits toggling, I_{CCD} < 0.8 mA/MHz.

Note 4: Guaranteed, but not tested.

DC Electrical Characteristics

Symbol	Parameter	Min	Max	Units	V _{CC}	Conditions C _L = 50 pF, R _L = 500Ω
V _{OLP}	Quiet Output Maximum Dynamic V _{OL}		0.67	V	5.0	T _A = 25°C (Note 5)
V _{OLV}	Quiet Output Minimum Dynamic V _{OL}		-1.35	V	5.0	T _A = 25°C (Note 5)

Note 5: Max number of outputs defined as (n). n - 1 data inputs are driven 0V to 3V. One output at LOW. Guaranteed, but not tested.

AC Electrical Characteristics

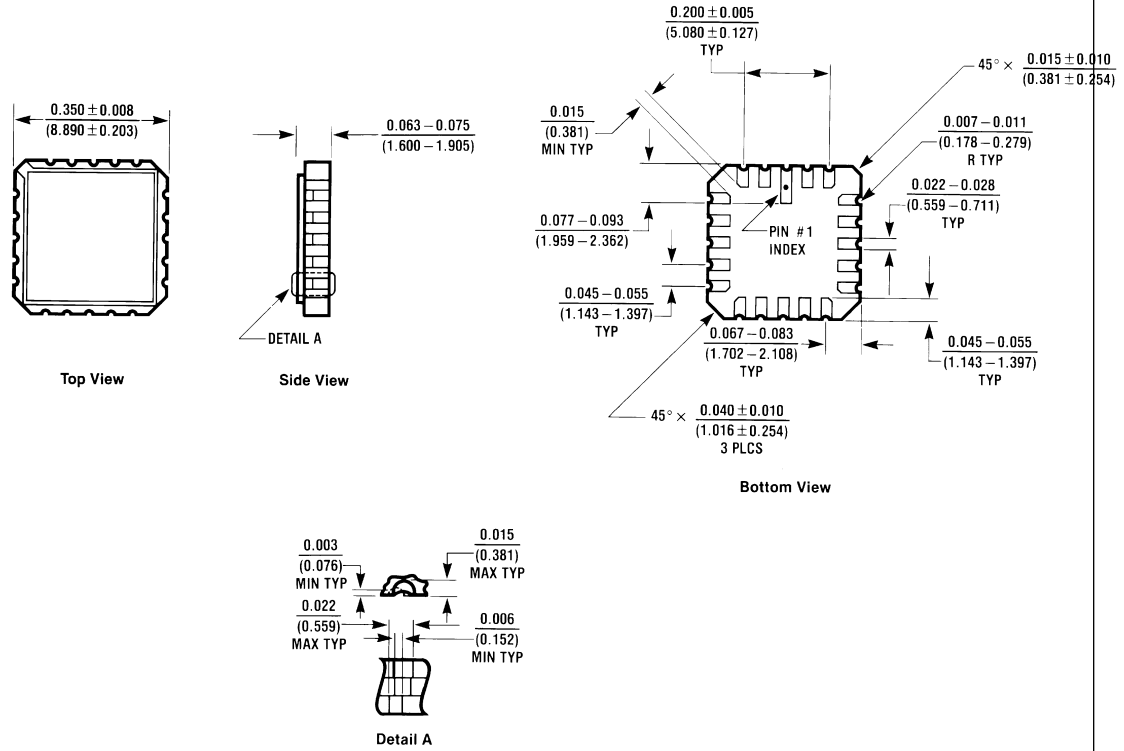
Symbol	Parameter	T _A = -55°C to +125°C V _{CC} = 4.5V-5.5V C _L = 50 pF		Units	Fig. No.
		Min	Max		
t _{PLH}	Propagation Delay	0.8	5.3	ns	
t _{PHL}	Data to Outputs	0.8	5.0		
t _{PZH}	Output Enable	1.0	7.0	ns	
t _{PZL}	Time	1.0	7.0		
t _{PHZ}	Output Disable	0.8	7.9	ns	
t _{PLZ}	Time	0.8	6.2		

Capacitance

Symbol	Parameter	Typ	Units	Conditions T _A = 25°C
C _{IN}	Input Capacitance	5.0	pF	V _{CC} = 0V
C _{OUT} (Note 6)	Output Capacitance	9.0	pF	V _{CC} = 5.0V

Note 6: C_{OUT} is measured at frequency f = 1 MHz, per MIL-STD-883B, Method 3012.

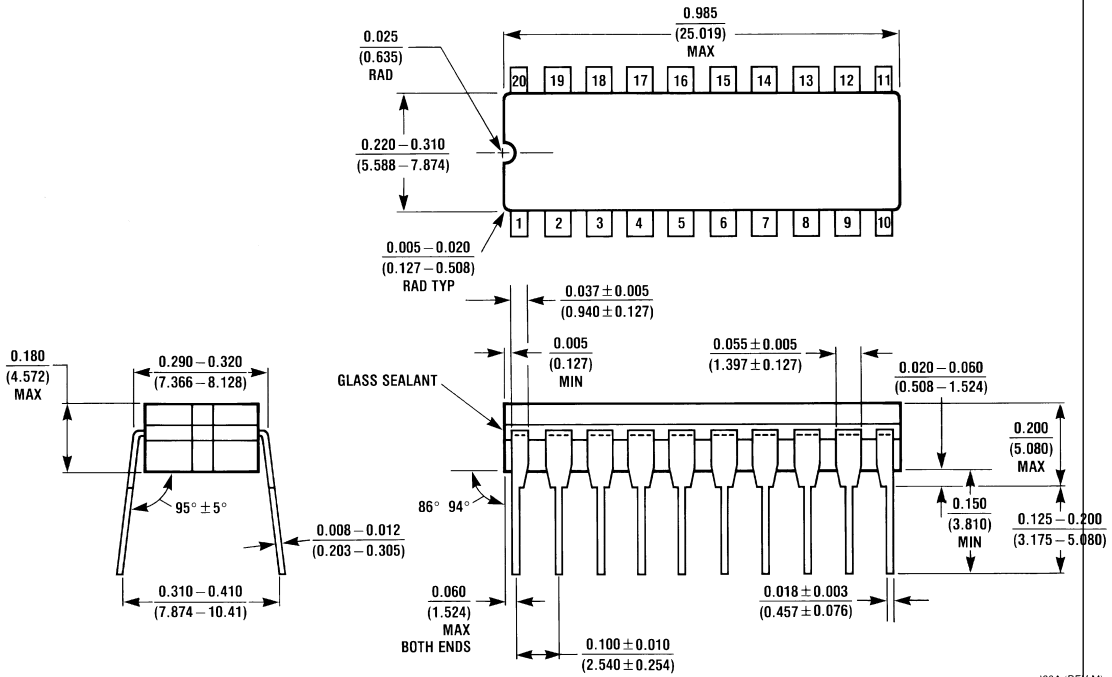
Physical Dimensions inches (millimeters) unless otherwise noted



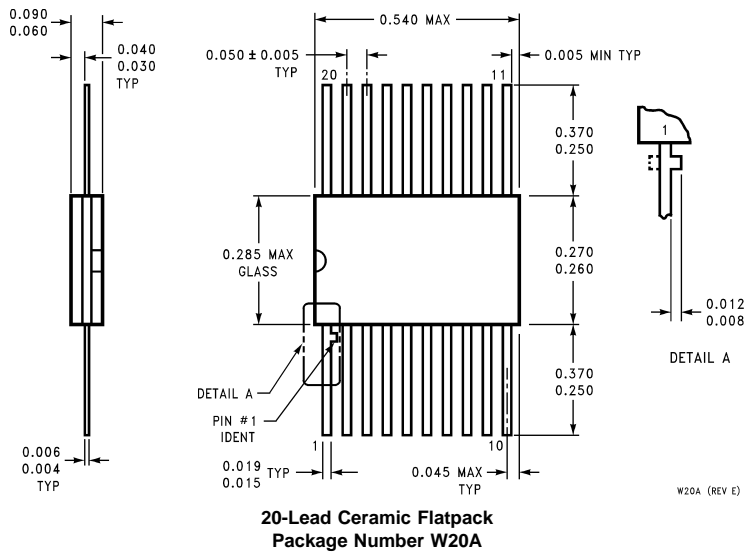
20-Lead Ceramic Leadless Chip Carrier
Package Number E20A

E20A (REV. D)

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



**20-Lead Ceramic Dual-In-Line
Package Number J20A**



**20-Lead Ceramic Flatpack
Package Number W20A**

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