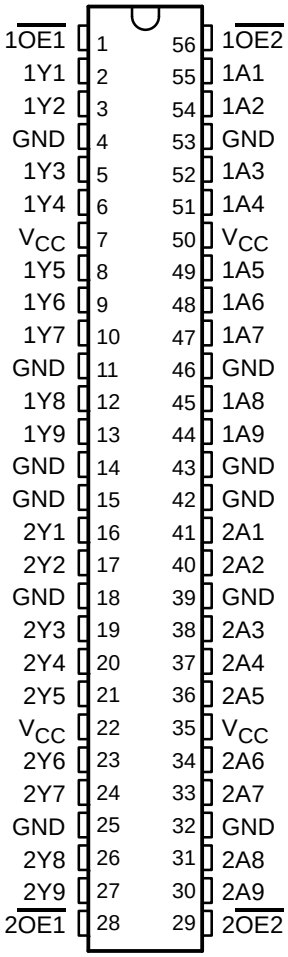
- **Member of the Texas Instruments *Widebus*™ Family**
- ***EPIC*™ (Enhanced-Performance Implanted CMOS) Submicron Process**
- **Designed to Facilitate Incident-Wave Switching for Line Impedances of 50 Ω or Greater**
- **Bus-Hold On Data Inputs Eliminates the Need for External Pullup/Pulldown Resistors**
- **Package Options Include Plastic 300-mil Shrink Small-Outline (DL) and Thin Shrink Small-Outline (DGG) Packages**

DGG OR DL PACKAGE
(TOP VIEW)



description

The SN74ALVC16825 is an 18-bit buffer and line driver designed for 2.7-V to 3.6-V V_{CC} operation. It will improve both the performance and density of 3-state memory address drivers, clock drivers, and bus-oriented receivers and transmitters.

The device can be used as two 9-bit buffers or one 18-bit buffer. It provides true data.

The 3-state control gate is a 2-input AND gate with active-low inputs so that if either output-enable ($\overline{OE1}$ or $\overline{OE2}$) input is high, all nine affected outputs are in the high-impedance state.

Active bus-hold circuitry is provided to hold unused or floating data inputs at a valid logic level.

The SN74ALVC16825 is available in TI's shrink small-outline package (DL), which provides twice the I/O pin count and functionality of standard small-outline packages in the same printed-circuit-board area.

The SN74ALVC16825 is characterized for operation from –40°C to 85°C.

FUNCTION TABLE
(each 9-bit section)

INPUTS			OUTPUT
$\overline{OE1}$	$\overline{OE2}$	A	Y
L	L	L	L
L	L	H	H
H	X	X	Z
X	H	X	Z

PRODUCT PREVIEW

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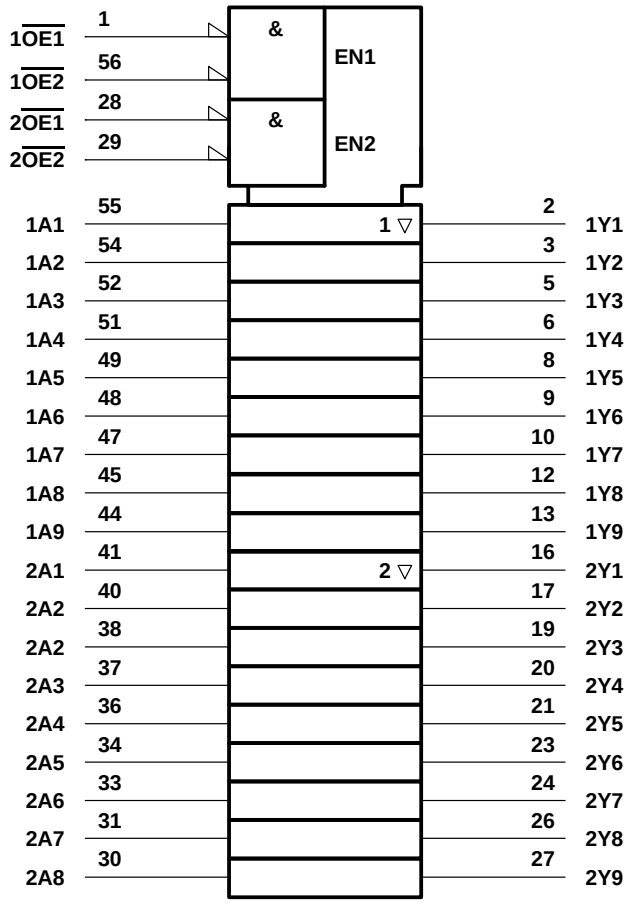
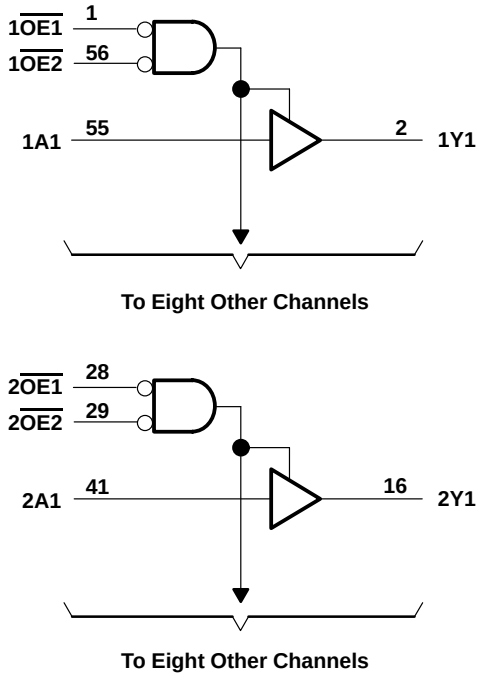
PRODUCT PREVIEW

logic symbol†



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

logic diagram (positive logic)



absolute maximum ratings over operating free-air temperature range (unless otherwise noted)‡

Supply voltage range, V_{CC} . . . . . –0.5 V to 4.6 V
Input voltage range, V_I (except I/O ports) (see Note 1) . . . . . –0.5 V to 4.6 V
Input voltage range, V_I (I/O ports) (see Notes 1 and 2) . . . . . –0.5 V to V_{CC} + 0.5 V
Output voltage range, V_O (see Notes 1 and 2) . . . . . –0.5 V to V_{CC} + 0.5 V
Input clamp current, I_{IK} (V_I < 0) . . . . . –50 mA
Output clamp current, I_{OK} (V_O < 0 or V_O > V_{CC}) . . . . . ±50 mA
Continuous output current, I_O (V_O = 0 to V_{CC}) . . . . . ±50 mA
Continuous current through V_{CC} or GND . . . . . ±100 mA
Maximum power dissipation at T_A = 55°C (in still air) (see Note 3): DGG package . . . . . 1 W
DL package . . . . . 1.4 W
Storage temperature range . . . . . –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 clamp-current ratings are observed.
2. This value is limited to 4.6 V maximum.
3. The maximum package power dissipation is calculated using a junction temperature of 150°C and a board trace length of 750 mils. For more information, refer to the *Package Thermal Considerations* application note.

recommended operating conditions

			MIN	MAX	UNIT
V_{CC}	Supply voltage		2.7	3.6	V
V_{IH}	High-level input voltage	V_{CC} = 2.7 V to 3.6 V	2		V
V_{IL}	Low-level input voltage	V_{CC} = 2.7 V to 3.6 V		0.8	V
V_I	Input voltage		0	V_{CC}	V
V_O	Output voltage		0	V_{CC}	V
I_{OH}	High-level output current	V_{CC} = 2.7 V		–12	mA
		V_{CC} = 3 V		–24	
I_{OL}	Low-level output current	V_{CC} = 2.7 V		12	mA
		V_{CC} = 3 V		24	
$\Delta t/\Delta v$	Input transition rise or fall rate		0	5	ns/V
T_A	Operating free-air temperature		–40	85	°C

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

PARAMETER		TEST CONDITIONS		V_{CC}†	MIN	MAX	UNIT
V_{OH}		I_{OH} = –100 μA		MIN to MAX	V_{CC}–0.2		V
		I_{OH} = –12 mA		2.7 V	2.2		
				3 V	2.4		
		I_{OH} = –24 mA		3 V	2		
V_{OL}		I_{OL} = 100 μA		MIN to MAX		0.2	V
		I_{OL} = 12 mA		2.7 V		0.4	
		I_{OL} = 24 mA		3 V		0.55	
I_I	Control pins	V_I = V_{CC} or GND		3.6 V		±5	μA
$I_{I(hold)}$	Data pins	V_I = 0.8 V		3 V	75		μA
		V_I = 2 V			–75		
I_{OZ}‡		V_O = V_{CC} or GND		3.6 V		±10	μA
I_{CC}		V_I = V_{CC} or GND,	I_O = 0	3.6 V		40	μA
ΔI_{CC}		V_{CC} = 3 V to 3.6 V, Other inputs at V_{CC} or GND	One input at V_{CC} – 0.6 V,			750	μA
C_i		V_I = V_{CC} or GND		3.3 V			pF
C_o		V_O = V_{CC} or GND		3.3 V			pF

† For conditions shown as MIN or MAX, use the appropriate values under recommended operating conditions.
‡ For I/O ports, the parameter I_{OZ} includes the input leakage current.

PRODUCT PREVIEW

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