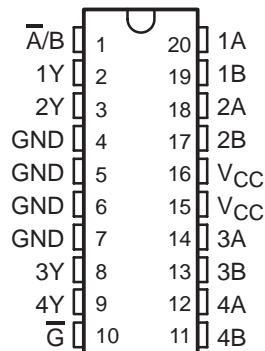


# QUADRUPLE 2-LINE TO 1-LINE DATA SELECTOR/MULTIPLEXER WITH 3-STATE OUTPUTS

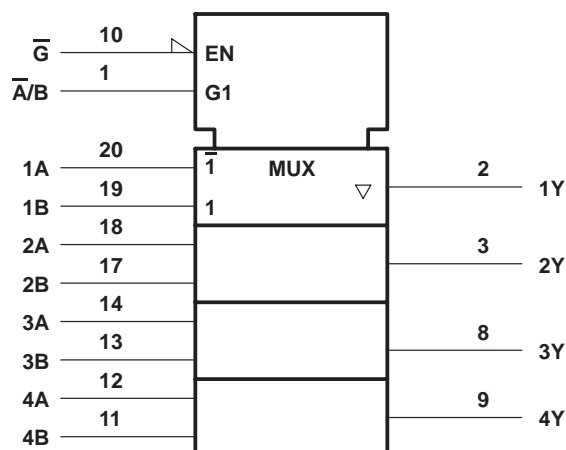
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- 3-State Outputs Interface Directly With System Bus
- Flow-Through Architecture to Optimize PCB Layout
- Center-Pin  $V_{CC}$  and GND Configurations to Minimize High-Speed Switching Noise
- EPIC™ (Enhanced-Performance Implanted CMOS) 1- $\mu$ m Process
- 500-mA Typical Latch-Up Immunity at 125°C
- Provides Bus Interface from Multiple Sources in High-Performance Systems
- Package Options Include Plastic Small Outline Packages, and Standard Plastic 300-mil DIPs

DW OR N PACKAGE  
(TOP VIEW)



logic symbol †



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

## description

This device is designed to multiplex signals from 4-bit data sources to 4-output data lines in bus-organized systems. The 3-state outputs will not load the data lines when the output control pin ( $\bar{G}$ ) is at a high logic level.

The 74AC11258 is characterized for operation from  $-40^{\circ}\text{C}$  to  $85^{\circ}\text{C}$ .

FUNCTION TABLE

INPUTS		DATA		OUTPUT Y
OUTPUT CONTROL $\bar{G}$	SELECT $\bar{A}/\bar{B}$	A	B	
H	X	X	X	Z
L	L	L	X	H
L	L	H	X	L
L	H	X	L	H
L	H	X	H	L

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PRODUCTION DATA information is current as of publication date. Products conform to specifications per the terms of Texas Instruments standard warranty. Production processing does not necessarily include testing of all parameters.

**TEXAS  
INSTRUMENTS**

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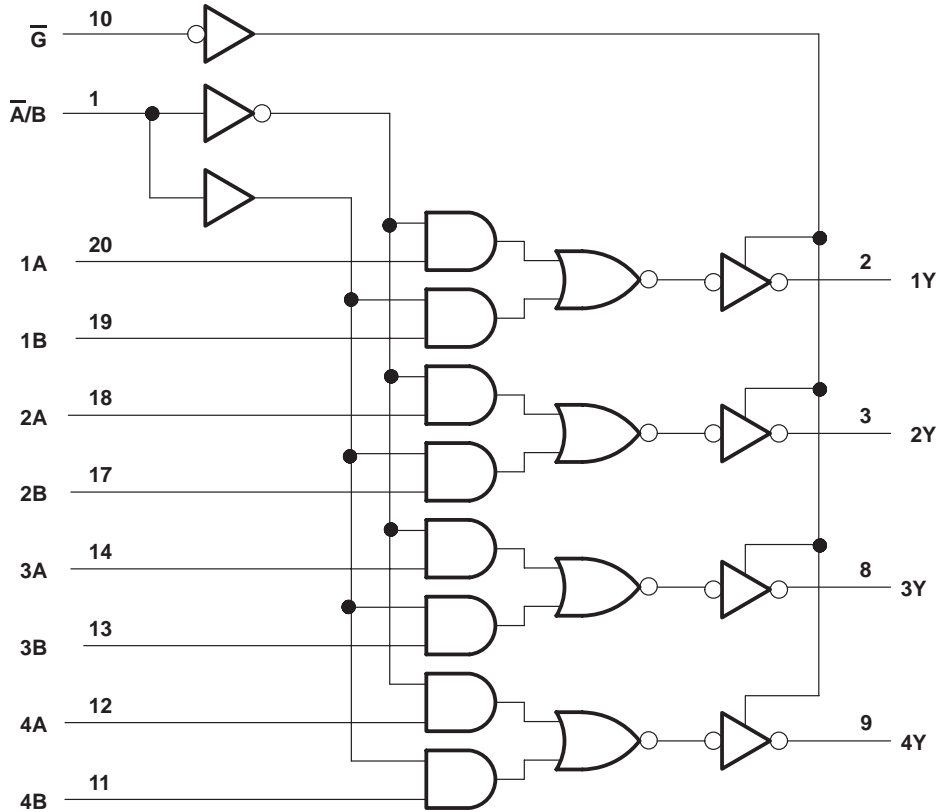
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**74AC11258**

**QUADRUPLE 2-LINE TO 1-LINE DATA SELECTOR/MULTIPLEXER WITH 3-STATE OUTPUTS**

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**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 7 V
Input voltage range, $V_I$ (see Note 1) .....	-0.5 V to $V_{CC} + 0.5$ V
Output voltage range, $V_O$ (see Note 1) .....	-0.5 V to $V_{CC} + 0.5$ V
Input clamp current, $I_{IK}$ ( $V_I < 0$ or $V_I > V_{CC}$ ) .....	$\pm 20$ mA
Output clamp current, $I_{OK}$ ( $V_O < 0$ or $V_O > V_{CC}$ ) .....	$\pm 50$ mA
Continuous output current, $I_O$ ( $V_O = 0$ to $V_{CC}$ ) .....	$\pm 50$ mA
Continuous current through $V_{CC}$ or GND .....	$\pm 100$ mA
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.

NOTE 1: The input and output voltage ratings may be exceeded if the input and output current ratings are observed.



# 74AC11258

## QUADRUPLE 2-LINE TO 1-LINE DATA SELECTOR/MULTIPLEXER WITH 3-STATE OUTPUTS

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### recommended operating conditions

		MIN	NOM	MAX	UNIT
V <sub>CC</sub>	Supply voltage	3	5	5.5	V
V <sub>IH</sub>	High-level input voltage	V <sub>CC</sub> = 3 V	2.1		V
		V <sub>CC</sub> = 4.5 V	3.15		
		V <sub>CC</sub> = 5.5 V	3.85		
V <sub>IL</sub>	Low-level input voltage	V <sub>CC</sub> = 3 V	0.9		V
		V <sub>CC</sub> = 4.5 V	1.35		
		V <sub>CC</sub> = 5.5 V	1.65		
V <sub>I</sub>	Input voltage	0	V <sub>CC</sub>		V
V <sub>O</sub>	Output voltage	0	V <sub>CC</sub>		V
I <sub>OH</sub>	High-level output current	V <sub>CC</sub> = 3 V	-4		mA
		V <sub>CC</sub> = 4.5 V	-24		
		V <sub>CC</sub> = 5.5 V	-24		
I <sub>OL</sub>	Low-level output current	V <sub>CC</sub> = 3 V	12		mA
		V <sub>CC</sub> = 4.5 V	24		
		V <sub>CC</sub> = 5.5 V	24		
Δt/Δv	Input transition rise or fall rate	0	10		ns/V
T <sub>A</sub>	Operating free-air temperature	-40	85		°C

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

PARAMETER	TEST CONDITIONS	V <sub>CC</sub>	T <sub>A</sub> = 25°C			MIN	MAX	UNIT
			MIN	TYP	MAX			
V <sub>OH</sub>	I <sub>OH</sub> = -50 μA	3 V	2.9		2.9		V	
		4.5 V	4.4		4.4			
		5.5 V	5.4		5.4			
	I <sub>OH</sub> = -4 mA	3 V	2.58		2.48			
		4.5 V	3.94		3.8			
		5.5 V	4.94		4.8			
I <sub>OH</sub> = -75 mA <sup>†</sup>	5.5 V			3.85				
V <sub>OL</sub>	I <sub>OL</sub> = 50 μA	3 V	0.1		0.1		V	
		4.5 V	0.1		0.1			
		5.5 V	0.1		0.1			
	I <sub>OL</sub> = 12 mA	3 V	0.36		0.44			
		4.5 V	0.36		0.44			
	I <sub>OL</sub> = 24 mA	4.5 V	0.36		0.44			
		5.5 V	0.36		0.44			
I <sub>OL</sub> = 75 mA <sup>†</sup>	5.5 V			1.65				
I <sub>OZ</sub>	V <sub>O</sub> = V <sub>CC</sub> or GND	5.5 V	±0.5		±5		μA	
I <sub>I</sub>	V <sub>I</sub> = V <sub>CC</sub> or GND	5.5 V	±0.1		±1		μA	
I <sub>CC</sub>	V <sub>I</sub> = V <sub>CC</sub> or GND, I <sub>O</sub> = 0	5.5 V	8		80		μA	
C <sub>i</sub>	V <sub>I</sub> = V <sub>CC</sub> or GND	5 V	4				pF	
C <sub>o</sub>	V <sub>O</sub> = V <sub>CC</sub> or GND	5 V	10				pF	

<sup>†</sup> Not more than one output should be tested at a time, and the duration of the test should not exceed 10 ms.



# 74AC11258

## QUADRUPLE 2-LINE TO 1-LINE DATA SELECTOR/MULTIPLEXER WITH 3-STATE OUTPUTS

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switching characteristics over operating free-air temperature range,  $V_{CC} = 3.3 V \pm 0.3 V$  (unless otherwise noted)

PARAMETER	FROM (INPUT)	TO (OUTPUT)	$T_A = 25^\circ C$			MIN	MAX	UNIT
			MIN	TYP	MAX			
$t_{PLH}$	A or B	Y	1.5	5.3	7	1.5	7.7	ns
$t_{PHL}$			1.5	6	7.9	1.5	9.2	
$t_{PLH}$	$\bar{A}/B$	Any Y	1.5	5.6	7.9	1.5	8.7	ns
$t_{PHL}$			1.5	6.7	9.1	1.5	10.1	
$t_{PZH}$	$\bar{G}$	Any Y	1.5	5.3	7.1	1.5	7.7	ns
$t_{PZL}$			1.5	6.8	9.1	1.5	10.2	
$t_{PHZ}$	$\bar{G}$	Any Y	1.5	5.4	6.9	1.5	7.4	ns
$t_{PLZ}$			1.5	6	7.8	1.5	8.4	

switching characteristics over operating free-air temperature range,  $V_{CC} = 5 V \pm 0.5 V$  (unless otherwise noted)

PARAMETER	FROM (INPUT)	TO (OUTPUT)	$T_A = 25^\circ C$			MIN	MAX	UNIT
			MIN	TYP	MAX			
$t_{PLH}$	A or B	Y	1.5	3.3	5	1.5	5.4	ns
$t_{PHL}$			1.5	4	6.1	1.5	6.8	
$t_{PLH}$	$\bar{A}/B$	Any Y	1.5	3.6	5.8	1.5	6.3	ns
$t_{PHL}$			1.5	4.4	6.7	1.5	7.5	
$t_{PZH}$	$\bar{G}$	Any Y	1.5	3.5	5.3	1.5	5.7	ns
$t_{PZL}$			1.5	4.5	6.8	1.5	7.5	
$t_{PHZ}$	$\bar{G}$	Any Y	1.5	4.5	6.1	1.5	6.5	ns
$t_{PLZ}$			1.5	4.7	6.4	1.5	6.9	

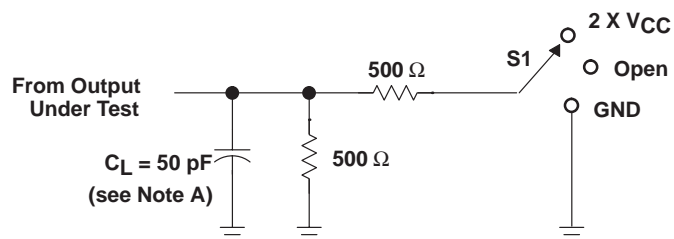
operating characteristics,  $V_{CC} = 5 V, T_A = 25^\circ C$

PARAMETER		TEST CONDITIONS	TYP	UNIT
$C_{pd}$	Power dissipation capacitance	$C_L = 50 \text{ pF}, f = 1 \text{ MHz}$	33	pF
	Outputs enabled		13	
	Outputs disabled			

# QUADRUPLE 2-LINE TO 1-LINE DATA SELECTOR/MULTIPLEXER WITH 3-STATE OUTPUTS

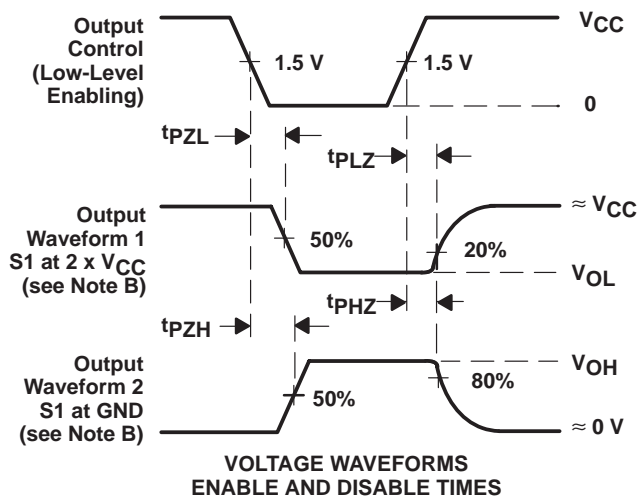
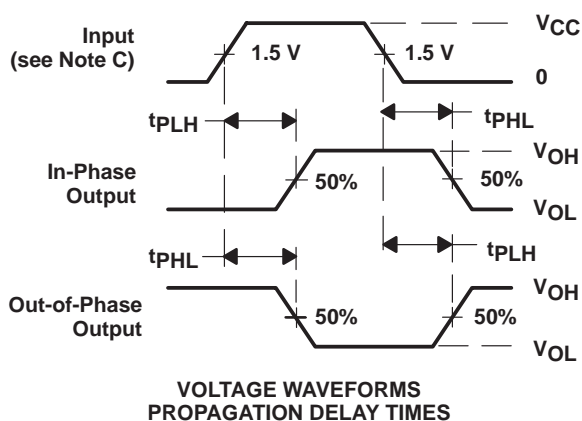
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## PARAMETER MEASUREMENT INFORMATION



LOAD CIRCUIT

TEST	S1
$t_{PLH}/t_{PHL}$	OPEN
$t_{PLZ}/t_{PZL}$	2 x $V_{CC}$
$t_{PHZ}/t_{PZH}$	GND



NOTES: A.  $C_L$  includes probe and jig capacitance.

B. 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.

C. All input pulses are supplied by generators having the following characteristics:  $PRR \leq 10 \text{ MHz}$ ,  $Z_O = 50 \Omega$ ,  $t_r \leq 2.5 \text{ ns}$ ,  $t_f \leq 2.5 \text{ ns}$ .

D. The outputs are measured one at a time with one input transition per measurement.

**Figure 1. Load Circuit and Voltage Waveforms**

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