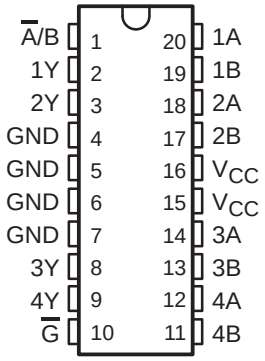
- **3-State Outputs Interface Directly With System Bus**
- **Flow-Through Architecture to Optimize PCB Layout**
- **Center-Pin V_{CC} and GND Configurations to Minimize High-Speed Switching Noise**
- **EPIC™ (Enhanced-Performance Implanted CMOS) 1-μm Process**
- **500-mA Typical Latch-Up Immunity at 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)



description

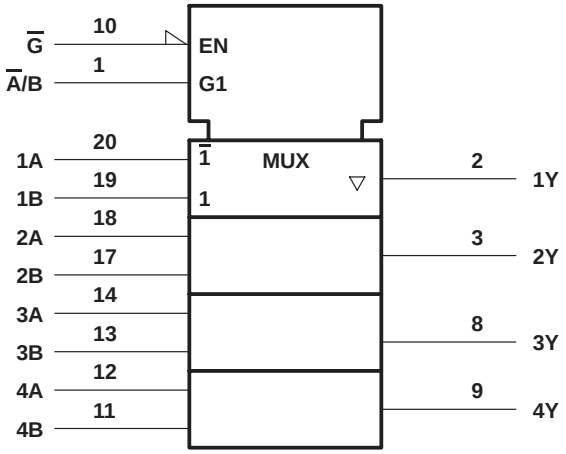
This device is designed to multiplex signals from 4-bit data sources to 4-output data lines in bus-organized systems. The 3-state outputs will not load the data lines when the output control pin ($\overline{G}$) is at a high logic level.

The 74AC11258 is characterized for operation from – 40°C to 85°C.

FUNCTION TABLE

INPUTS				OUTPUT Y
OUTPUT CONTROL $\overline{G}$	SELECT $\overline{A}$/B	DATA A	DATA 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

logic symbol †



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

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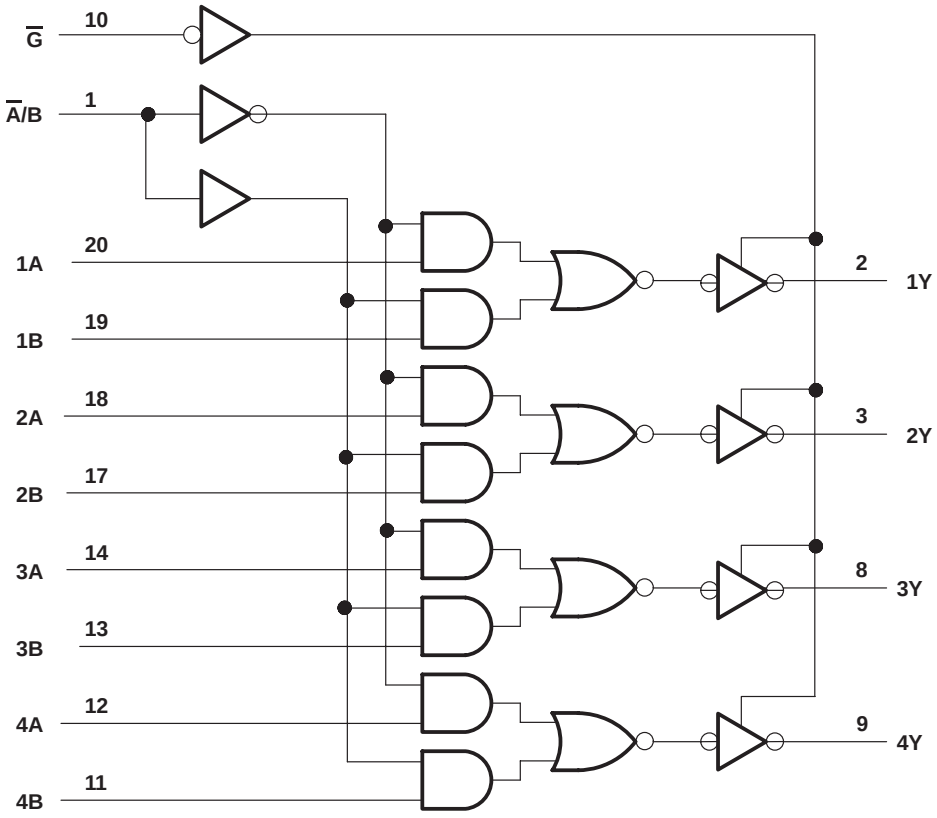
logic diagram (positive logic)



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}) . . . . . ± 20 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
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.

recommended operating conditions

			MIN	NOM	MAX	UNIT
V_{CC}	Supply voltage		3	5	5.5	V
V_{IH}	High-level input voltage	V_{CC} = 3 V	2.1			V
		V_{CC} = 4.5 V	3.15			
		V_{CC} = 5.5 V	3.85			
V_{IL}	Low-level input voltage	V_{CC} = 3 V			0.9	V
		V_{CC} = 4.5 V			1.35	
		V_{CC} = 5.5 V			1.65	
V_I	Input voltage		0		V_{CC}	V
V_O	Output voltage		0		V_{CC}	V
I_{OH}	High-level output current	V_{CC} = 3 V			– 4	mA
		V_{CC} = 4.5 V			– 24	
		V_{CC} = 5.5 V			–24	
I_{OL}	Low-level output current	V_{CC} = 3 V			12	mA
		V_{CC} = 4.5 V			24	
		V_{CC} = 5.5 V			24	
$\Delta t/\Delta v$	Input transition rise or fall rate		0		10	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}	T_A = 25°C			MIN	MAX	UNIT
			MIN	TYP	MAX			
V_{OH}	I_{OH} = – 50 μA	3 V	2.9			2.9		V
		4.5 V	4.4			4.4		
		5.5 V	5.4			5.4		
	I_{OH} = – 4 mA	3 V	2.58			2.48		
	I_{OH} = – 24 mA	4.5 V	3.94			3.8		
		5.5 V	4.94			4.8		
	I_{OH} = – 75 mA†	5.5 V				3.85		
V_{OL}	I_{OL} = 50 μA	3 V			0.1		0.1	V
		4.5 V			0.1		0.1	
		5.5 V			0.1		0.1	
	I_{OL} = 12 mA	3 V			0.36		0.44	
	I_{OL} = 24 mA	4.5 V			0.36		0.44	
		5.5 V			0.36		0.44	
	I_{OL} = 75 mA†	5.5 V					1.65	
I_{OZ}	V_O = V_{CC} or GND	5.5 V			± 0.5		± 5	μA
I_I	V_I = V_{CC} or GND	5.5 V			± 0.1		± 1	μA
I_{CC}	V_I = V_{CC} or GND, I_O = 0	5.5 V			8		80	μA
C_i	V_I = V_{CC} or GND	5 V		4				pF
C_o	V_O = V_{CC} or GND	5 V		10				pF

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

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

PARAMETER	FROM (INPUT)	TO (OUTPUT)	T_A = 25°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}	$\overline{A}$/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}	$\overline{G}$	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}	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	

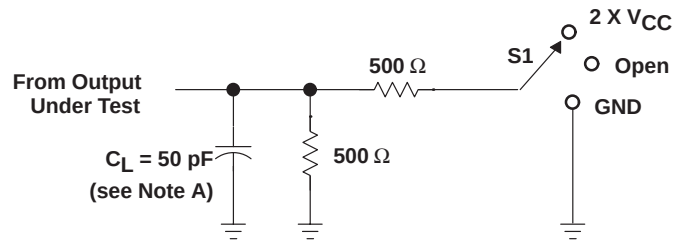
switching characteristics over operating free-air temperature range, V_{CC} = 5 V ± 0.5 V (unless otherwise noted)

PARAMETER	FROM (INPUT)	TO (OUTPUT)	T_A = 25°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}	$\overline{A}$/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}	$\overline{G}$	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}	$\overline{G}$	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°C

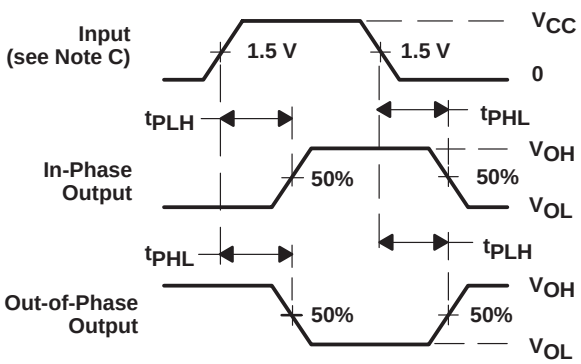
PARAMETER			TEST CONDITIONS	TYP	UNIT
C_{pd}	Power dissipation capacitance	Outputs enabled	C_L = 50 pF, f = 1 MHz	33	pF
		Outputs disabled		13	

PARAMETER MEASUREMENT INFORMATION

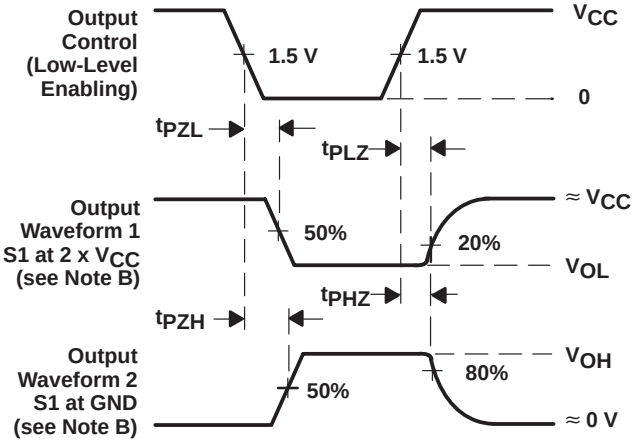


TEST	S1
t_{PLH}/t_{PHL}	OPEN
t_{PLZ}/t_{PZL}	2 x V_{CC}
t_{PHZ}/t_{PZH}	GND

LOAD CIRCUIT



VOLTAGE WAVEFORMS
PROPAGATION DELAY TIMES



VOLTAGE WAVEFORMS
ENABLE AND DISABLE TIMES

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 ≤ 10 MHz, Z_O = 50 Ω, t_r ≤ 2.5 ns, t_f ≤ 2.5 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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