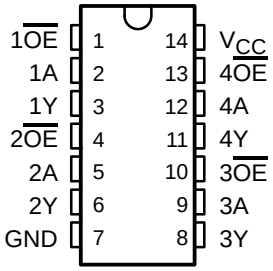
- **3-State Outputs Drive Bus Lines or Buffer Memory Address Registers**
- **Package Options Include Plastic Small-Outline Packages and Standard Plastic 300-mil DIPs**

D OR N PACKAGE
(TOP VIEW)



description

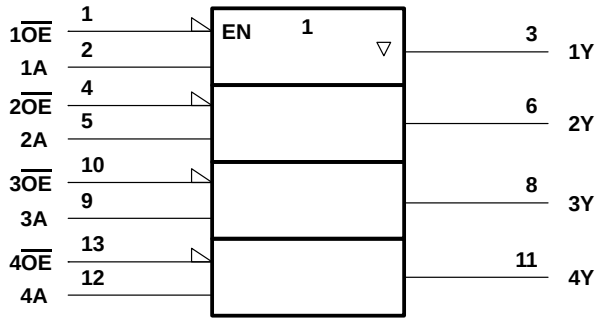
The SN74F125 features independent line drivers with 3-state outputs. Each output is disabled when the associated output enable ($\overline{OE}$) input is high.

The SN74F125 is characterized for operation from 0°C to 70°C.

FUNCTION TABLE
(each buffer)

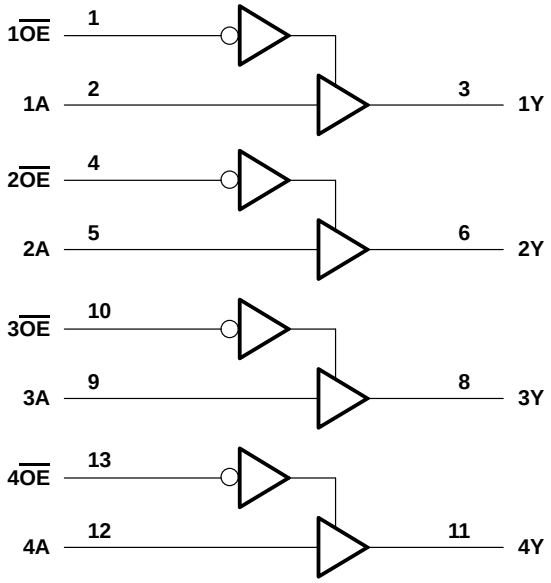
INPUTS		OUTPUT
$\overline{OE}$	A	Y
L	H	H
L	L	L
H	X	Z

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 7 V
Input voltage range, V_I (see Note 1) . . . . . –1.2 V to 7 V
Input current range . . . . . –30 mA to 5 mA
Voltage range applied to any output in the disabled or power-off state . . . . . –0.5 V to 5.5 V
Voltage range applied to any output in the high state . . . . . –0.5 V to V_{CC}
Current into any output in the low state . . . . . 128 mA
Operating free-air temperature range . . . . . 0°C to 70°C
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 voltage ratings may be exceeded provided the input current ratings are observed.

recommended operating conditions

		MIN	NOM	MAX	UNIT
V_{CC}	Supply voltage	4.5	5	5.5	V
V_{IH}	High-level input voltage	2			V
V_{IL}	Low-level input voltage			0.8	V
I_{IK}	Input clamp current			–18	mA
I_{OH}	High-level output current			– 15	mA
I_{OL}	Low-level output current			64	mA
T_A	Operating free-air temperature	0		70	°C

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

PARAMETER	TEST CONDITIONS		MIN	TYP‡	MAX	UNIT
V_{IK}	V_{CC} = 4.5 V,	I_I = –18 mA			–1.2	V
V_{OH}	V_{CC} = 4.5 V	I_{OH} = – 3 mA	2.4	3.3		V
		I_{OH} = – 15 mA	2	3.1		
	V_{CC} = 4.75 V,	I_{OH} = – 3 mA	2.7			
V_{OL}	V_{CC} = 4.5 V,	I_{OL} = 64 mA		0.4	0.55	V
I_I	V_{CC} = 0,	V_I = 7 V			0.1	mA
I_{IH}	V_{CC} = 5.5 V,	V_I = 2.7 V			20	µA
I_{IL}	V_{CC} = 5.5 V,	V_I = 0.5 V			–20	µA
I_{OZH}	V_{CC} = 5.5 V,	V_O = 2.7 V			50	µA
I_{OZL}	V_{CC} = 5.5 V,	V_O = 0.5 V			–50	µA
I_{OS}§	V_{CC} = 5.5 V,	V_O = 0	–100		–225	mA
I_{CCH}	V_{CC} = 5.5 V,	Outputs open		17	24	mA
I_{CCL}	V_{CC} = 5.5 V,	Outputs open		28	40	mA
I_{CCZ}	V_{CC} = 5.5 V,	Outputs open		25	35	mA

‡ All typical values are at V_{CC} = 5 V, T_A = 25°C.

§ Not more than one output should be shorted at a time, and the duration of the short circuit should not exceed one second.

switching characteristics (see Note 2)

PARAMETER	FROM (INPUT)	TO (OUTPUT)	V_{CC} = 5 V, C_L = 50 pF, R_L = 500 Ω, T_A = 25°C			V_{CC} = 4.5 V to 5.5 V, C_L = 50 pF, R_L = 500 Ω, T_A = MIN to MAX†		UNIT
			MIN	TYP	MAX	MIN	MAX	
t_{PLH}	A	Y	1.2	3.6	6	1.2	6.5	ns
t_{PHL}			2.2	5.1	7.5	2.2	8	
t_{PZH}	$\overline{OE}$	Y	2.7	5.1	7.5	2.7	8.5	ns
t_{PZL}			3.2	5.6	8	3.2	9	
t_{PHZ}	$\overline{OE}$	Y	1	3.1	5	1	6	ns
t_{PLZ}			1	3.1	5.5	1	6	

† For conditions shown as MIN or MAX, use the appropriate value specified under recommended operating conditions.

NOTE 2: Load circuits and waveforms are shown in Section 1.

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