

SLV74AC125

Quad Buffer with 3-State Outputs

Features

- Outputs Source/Sink
- AEC-Q100 Qualified and PPAP Capable (Grade 3)
- These Devices are Pb-Free and are RoHS Compliant

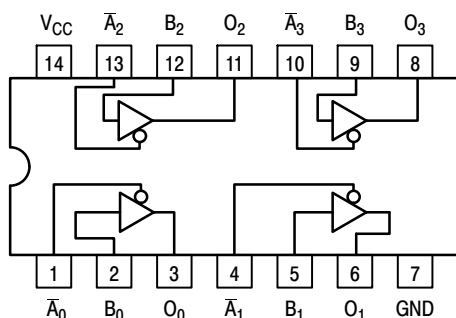


Figure 1. Pinout: 14-Lead Packages Conductors
(Top View)

PIN ASSIGNMENT

PIN	FUNCTION
$\bar{A}_n$, B_n	Inputs
O_n	Outputs

FUNCTION TABLE

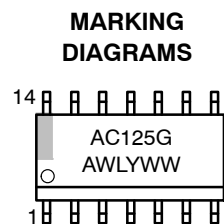
Inputs		Output
$\bar{A}_n$	B_n	O_n
L	L	L
L	H	H
H	X	Z

NOTE: H = High Voltage Level;
L = Low Voltage Level;
Z = High Impedance;
X = Immaterial



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A = Assembly Location
WL = Wafer Lot
YY = Year
WW = Work Week
G = Pb-Free Package

ORDERING INFORMATION

Device	Package	Shipping†
SLV74AC125DR2G	SOIC-14 (Pb-Free)	2500/Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CC}	DC Supply Voltage (Referenced to GND)	-0.5 to +7.0	V
V_{in}	DC Input Voltage (Referenced to GND)	-0.5 to $V_{CC} + 0.5$	V
V_{out}	DC Output Voltage (Referenced to GND)	-0.5 to $V_{CC} + 0.5$	V
I_{in}	DC Input Current, per Pin	± 20	mA
I_{out}	DC Output Sink/Source Current, per Pin	± 50	mA
I_{CC}	DC V_{CC} or GND Current per Output Pin	± 50	mA
T_{stg}	Storage Temperature	-65 to +150	°C

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

RECOMMENDED OPERATING CONDITIONS

Symbol	Parameter	Min	Typ	Max	Unit
V_{CC}	Supply Voltage	2.0	5.0	6.0	V
V_{in}, V_{out}	DC Input Voltage, Output Voltage (Ref. to GND)	0	-	V_{CC}	V
t_r, t_f	Input Rise and Fall Time (Note 1) *AC Devices except Schmitt Inputs	$V_{CC} @ 3.0\text{ V}$	-	150	ns/V
		$V_{CC} @ 4.5\text{ V}$	-	40	
		$V_{CC} @ 5.5\text{ V}$	-	25	
T_A	Operating Ambient Temperature Range	-40	25	85	°C
T_J	Junction Temperature	-	-	125	°C
θ_{JA}	Thermal Resistance, Junction-to-Air (Note 2)	-	-	101	°C/W
I_{OH}	Output Current - HIGH	-	-	-24	mA
I_{OL}	Output Current - LOW	-	-	24	mA

1. V_{in} from 30% to 70% V_{CC} ; see individual Data Sheets for devices that differ from the typical input rise and fall times.
2. The package thermal impedance is calculated in accordance with JESD 51-7.

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DC CHARACTERISTICS

Symbol	Parameter	V _{CC} (V)	T _A = +25°C		T _A = -40°C to +85°C		Unit	Conditions
			Typ	Guaranteed Limits				
V _{IH}	Minimum High Level Input Voltage	3.0	1.5	2.1	2.1	V	V _{OUT} = 0.1 V or V _{CC} - 0.1 V	
		4.5	2.25	3.15	3.15			
		5.5	2.75	3.85	3.85			
V _{IL}	Maximum Low Level Input Voltage	3.0	1.5	0.9	0.9	V	V _{OUT} = 0.1 V or V _{CC} - 0.1 V	
		4.5	2.25	1.35	1.35			
		5.5	2.75	1.65	1.65			
V _{OH}	Minimum High Level Output Voltage	3.0	2.99	2.9	2.9	V	I _{OUT} = - 50 μA	
		4.5	4.46	4.4	4.4			
		5.5	5.49	5.4	5.4			
		3.0	-	2.56	2.46	V	*V _{IN} = V _{IL} or V _{IH} -12 mA I _{OH} - 24 mA - 24 mA	
		4.5	-	3.86	3.76			
		5.5	-	4.86	4.76			
V _{OL}	Minimum Low Level Output Voltage	3.0	0.002	0.1	0.1	V	I _{OUT} = 50 μA	
		4.5	0.001	0.1	0.1			
		5.5	0.001	0.1	0.1			
		3.0	-	0.36	0.44	V	*V _{IN} = V _{IL} or V _{IH} 12 mA I _{OL} 24 mA 24 mA	
		4.5	-	0.36	0.44			
		5.5	-	0.36	0.44			
I _{IN}	Maximum Input Leakage Current	5.5	-	±0.1	±1.0	μA	V _I = V _{CC} , GND	
I _{OZ}	V _I (OE) = V _{IL} , V _{IH} V _I = V _{CC} , GND V _O = V _{CC} , GND	5.5	-	±0.5	±5.0	μA	V _I (OE) = V _{IL} , V _{IH} V _I = V _{CC} , GND V _O = V _{CC} , GND	
I _{OLD}	†Minimum Dynamic	5.5	-	-	75	mA	V _{OLD} = 1.65 V Max	
I _{OHD}	Output Current	5.5	-	-	-75	mA	V _{OHD} = 3.85 V Min	
I _{CC}	Maximum Quiescent Supply Current	5.5	-	8.0	80	μA	V _{IN} = V _{CC} or GND	

*All outputs loaded; thresholds on input associated with output under test.

†Maximum test duration 2.0 ms, one input loaded at a time.

NOTE: I_{IN} and I_{CC} @ 3.0 V are guaranteed to be less than or equal to the respective limit @ 5.5 V.

AC CHARACTERISTICS

Symbol	Parameter	V _{CC} * (V)	T _A = +25°C C _L = 50 pF		T _A = -40°C to +85°C C _L = 50 pF		Unit
			Min	Max	Min	Max	
t _{PLH}	Propagation Delay Data to Output	3.3	1.0	9.0	1.0	10	ns
		5.0	1.0	7.0	1.0	7.5	
t _{PHL}	Propagation Delay Data to Output	3.3	1.0	9.0	1.0	10	ns
		5.0	1.0	7.0	1.0	7.5	
t _{PZH}	Output Enable Time	3.3	1.0	10.5	1.0	11	ns
		5.0	1.0	7.0	1.0	8.0	
t _{PZL}	Output Enable Time	3.3	1.0	10	1.0	11	ns
		5.0	1.0	8.0	1.0	8.5	
t _{PHZ}	Output Disable Time	3.3	1.0	10	1.0	10.5	ns
		5.0	1.0	9.0	1.0	9.5	
t _{PLZ}	Output Disable Time	3.3	1.0	10.5	1.0	11.5	ns
		5.0	1.0	9.0	1.0	9.5	

*Voltage Range 3.3 V is 3.3 V ±0.3 V.

Voltage Range 5.0 V is 5.0 V ±0.5 V.

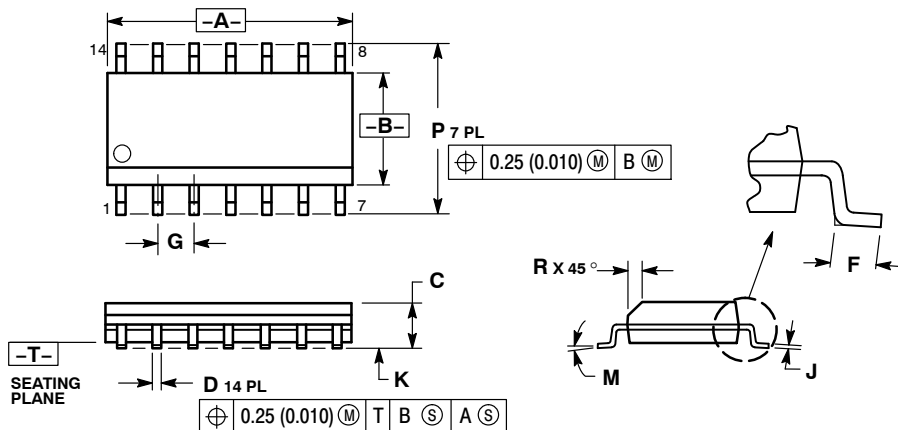
CAPACITANCE

Symbol	Parameter	Value (Typ)	Unit	Test Conditions
C _{IN}	Input Capacitance	4.5	pF	V _{CC} = 5.0 V
C _{PD}	Power Dissipation Capacitance	45	pF	V _{CC} = 5.0 V

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PACKAGE DIMENSIONS

SOIC-14 CASE 751A-03 ISSUE H

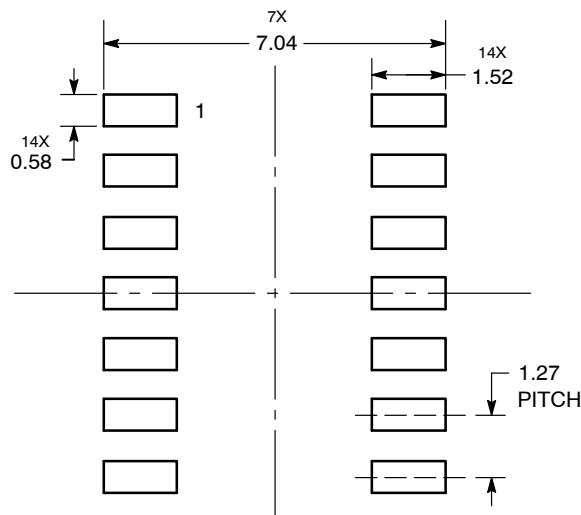


NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETER.
3. DIMENSIONS A AND B DO NOT INCLUDE MOLD PROTRUSION.
4. MAXIMUM MOLD PROTRUSION 0.15 (0.006) PER SIDE.
5. DIMENSION D DOES NOT INCLUDE DAMBAR PROTRUSION. ALLOWABLE DAMBAR PROTRUSION SHALL BE 0.127 (0.005) TOTAL IN EXCESS OF THE D DIMENSION AT MAXIMUM MATERIAL CONDITION.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	8.55	8.75	0.337	0.344
B	3.80	4.00	0.150	0.157
C	1.35	1.75	0.054	0.068
D	0.35	0.49	0.014	0.019
F	0.40	1.25	0.016	0.049
G	1.27 BSC		0.050 BSC	
J	0.19	0.25	0.008	0.009
K	0.10	0.25	0.004	0.009
M	0°	7°	0°	7°
P	5.80	6.20	0.228	0.244
R	0.25	0.50	0.010	0.019

SOLDERING FOOTPRINT*



DIMENSIONS: MILLIMETERS

*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

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