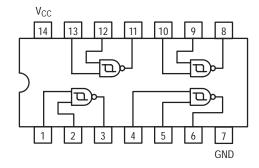
SN74LS132

Quad 2-Input Schmitt Trigger NAND Gate

The SN74LS132 contains four 2-Input NAND Gates which accept standard TTL input signals and provide standard TTL output levels. They are capable of transforming slowly changing input signals into sharply defined, jitter-free output signals. Additionally, they have greater noise margin than conventional NAND Gates.

Each circuit contains a 2-input Schmitt trigger followed by a Darlington level shifter and a phase splitter driving a TTL totem pole output. The Schmitt trigger uses positive feedback to effectively speed-up slow input transitions, and provide different input threshold voltages for positive and negative-going transitions. This hysteresis between the positive-going and negative-going input thresholds (typically 800 mV) is determined internally by resistor ratios and is essentially insensitive to temperature and supply voltage variations. As long as one input remains at a more positive voltage than $V_{\rm T+}({\rm MAX})$, the gate will respond to the transitions of the other input as shown in Figure 1.

LOGIC AND CONNECTION DIAGRAM DIP (TOP VIEW)



GUARANTEED OPERATING RANGES

Symbol	Parameter	Min	Тур	Max	Unit
V _{CC}	Supply Voltage	4.75	5.0	5.25	V
T _A	Operating Ambient Temperature Range	0	25	70	°C
I _{OH}	Output Current – High			-0.4	mA
I _{OL}	Output Current – Low			8.0	mA



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LOW POWER SCHOTTKY



N SUFFIX CASE 646



SOIC D SUFFIX CASE 751A

ORDERING INFORMATION

Device	Package	Shipping	
SN74LS132N	14 Pin DIP	2000 Units/Box	
SN74LS132D	14 Pin	2500/Tape & Reel	

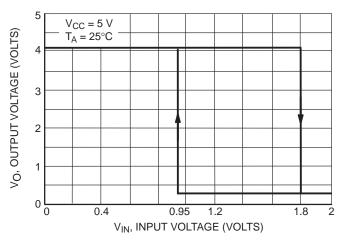


Figure 1. V_{IN} versus V_{OUT} Transfer Function

DC CHARACTERISTICS OVER OPERATING TEMPERATURE RANGE (unless otherwise specified)

		Limits				
Symbol	Parameter	Min	Тур	Max	Unit	Test Conditions
V _{T+}	Positive-Going Threshold Voltage	1.5		2.0	V	V _{CC} = 5.0 V
V _{T-}	Negative-Going Threshold Voltage	0.6		1.1	V	V _{CC} = 5.0 V
$V_{T+} - V_{T-}$	Hysteresis	0.4	0.8		V	V _{CC} = 5.0 V
V _{IK}	Input Clamp Diode Voltage		-0.65	-1.5	V	$V_{CC} = MIN$, $I_{IN} = -18 \text{ mA}$
V _{OH}	Output HIGH Voltage	2.7	3.4		V	$V_{CC} = MIN$, $I_{OH} = -400 \mu A$, $V_{IN} = V_{IL}$
V	Output I OW/ Voltage		0.25	0.4	V	V_{CC} = MIN, I_{OL} = 4.0 mA, V_{IN} = 2.0 V
V _{OL}	Output LOW Voltage		0.35	0.5	V	$V_{CC} = MIN, I_{OL} = 8.0 \text{ mA}, V_{IN} = 2.0 \text{ V}$
I _{T+}	Input Current at Positive-Going Threshold		-0.14		mA	V _{CC} = 5.0 V, V _{IN} = V _{T+}
I _T	Input Current at Negative-Going Threshold		-0.18		mA	V _{CC} = 5.0 V, V _{IN} = V _T
	Leavest HOLL Owners			20	μΑ	$V_{CC} = MAX, V_{IN} = 2.7 V$
Iн	Input HIGH Current			0.1	mA	V _{CC} = MAX, V _{IN} = 7.0 V
I _{IL}	Input LOW Current			-0.4	mA	$V_{CC} = MAX, V_{IN} = 0.4 V$
I _{OS}	Output Short Circuit Current (1)	-20		-100	mA	V _{CC} = MAX, V _{OUT} = 0 V
Icc	Power Supply Current Total, Output HIGH		5.9	11	mA	V _{CC} = MAX, V _{IN} = 0 V
	Total, Output LOW		8.2	14	mA	$V_{CC} = MAX, V_{IN} = 4.5 V$

Note 1: Not more than one output should be shorted at a time, nor for more than 1 second.

AC CHARACTERISTICS $(T_A = 25^{\circ}C)$

		Limits				
Symbol	Parameter	Min	Тур	Max	Unit	Test Conditions
t _{PLH}	Turn-Off Delay, Input to Output			22	ns	V _{CC} = 5.0 V
t _{PHL}	Turn-On Delay, Input to Output			22	ns	C _L = 15 pF

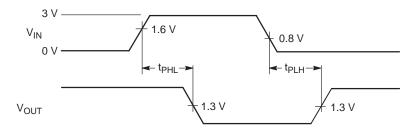


Figure 2. AC Waveforms

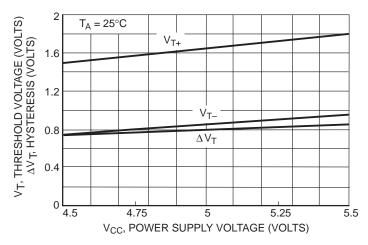


Figure 3. Threshold Voltage and Hysteresis versus Power Supply Voltage

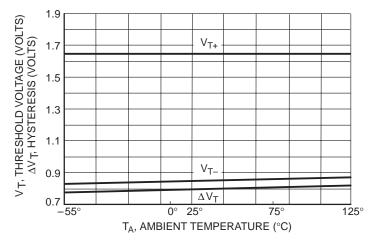


Figure 4. Threshold Voltage and Hysteresis versus Temperature

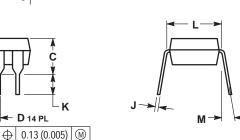
SN74LS132

PACKAGE DIMENSIONS

В

-T-SEATING PLANE

N SUFFIX PLASTIC PACKAGE CASE 646-06 ISSUE M

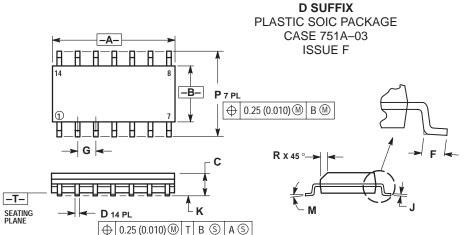


NOTES:

- 1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.

- CONTROLLING DIMENSION: INCH.
 DIMENSION L TO CENTER OF LEADS WHEN FORMED PARALLEL.
 DIMENSION B DOES NOT INCLUDE MOLD FLASH.
- ROUNDED CORNERS OPTIONAL

	INC	HES	MILLIMETERS			
DIM	MIN	MAX	MIN	MAX		
Α	0.715	0.770	18.16	18.80		
В	0.240	0.260	6.10	6.60		
С	0.145	0.185	3.69	4.69		
D	0.015	0.021	0.38	0.53		
F	0.040	0.070	1.02	1.78		
G	0.100	0.100 BSC		2.54 BSC		
Н	0.052	0.095	1.32	2.41		
J	0.008	0.015	0.20	0.38		
K	0.115	0.135	2.92	3.43		
L	0.290	0.310	7.37	7.87		
M		10°		10°		
N	0.015	0.039	0.38	1.01		



NOTES

- 1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
- CONTROLLING DIMENSION: MILLIMETER
 DIMENSIONS A AND B DO NOT INCLUDE MOLD PROTRUSION.
- 4. MAXIMUM MOLD PROTRUSION 0.15 (0.006)
- 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.

	MILLIN	IETERS	INCHES		
DIM	MIN	MAX	MIN	MAX	
Α	8.55	8.75	0.337	0.344	
В	3.80	4.00	0.150	0.157	
С	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°	
Р	5.80	6.20	0.228	0.244	
R	0.25	0.50	0.010	0.019	

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