

General Description

The ELN74SZ00 is a 2-input CMOS NAND gate, manufactured using silicon gate CMOS fabrication. CMOS low power circuit operation makes high speed LS-TTL operation achievable. As the ELN74SZ00 is integrated into mini molded, SOT-353/SOT23-5L package, high density mounting is possible.

With a wave forming buffer connected internally, stabilized output can be achieved as the circuit offers high noise immunity.

Features

- ◆ High speed operation : $t_{pd} = 2.6\text{ns}$ (TYP.)
- ◆ Operating voltage range : 1.2V ~ 6.0V
- ◆ Low power consumption : 1 μA (MAX.)
- ◆ CMOS 2-Input NAND gate
- ◆ Ultra small package : SOT-353
SOT23-5L

Applications

- ◆ Palmtops
- ◆ Digital equipment
- ◆ Portable electronic products

Package

- ◆ SOT-353/SOT23-5L



(Top View)

Functions

Input		Output
A	B	Y
L	L	H
L	H	H
H	L	H
H	H	L

H=High Level

L=Low Level

Pin Configuration

Pin Number	Pin Name	Function Description
1	B	Input B
2	A	Input A
3	GND	Ground
4	Y	Output Y
5	Vcc	Power supply

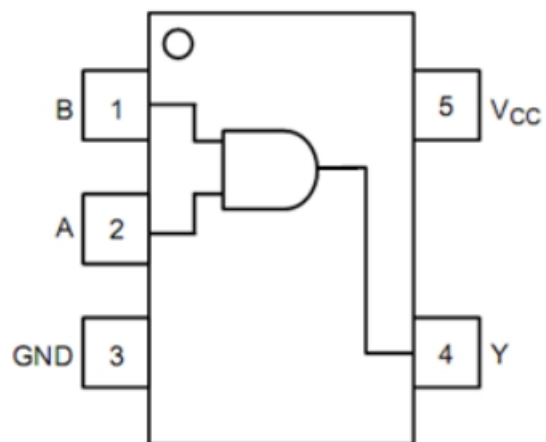


Fig 1. Pin Configuration



Ordering Information

Product name	Package	Mark	Symbol
ELN74SZ00KR	SOT-353	Z00K	NAND2
ELN74SZ00MR	SOT23-5L	Z00M	NAND2

Absolute Maximum Ratings

Supply voltage	-0.5V to 7V
Output voltage	-0.5V to $V_{cc}+0.3V$
Input voltage	-0.5V to 7V
Output current	$\pm 25mA$
Ground current	$\pm 50mA$
Storage temperature range	$-65^{\circ}C$ to $150^{\circ}C$
Lead temperature(soldering)	$260^{\circ}C$
Power dissipation PD (On PCB board , 25)	
SOT-353	150mW
SOT23-5L	250 mW

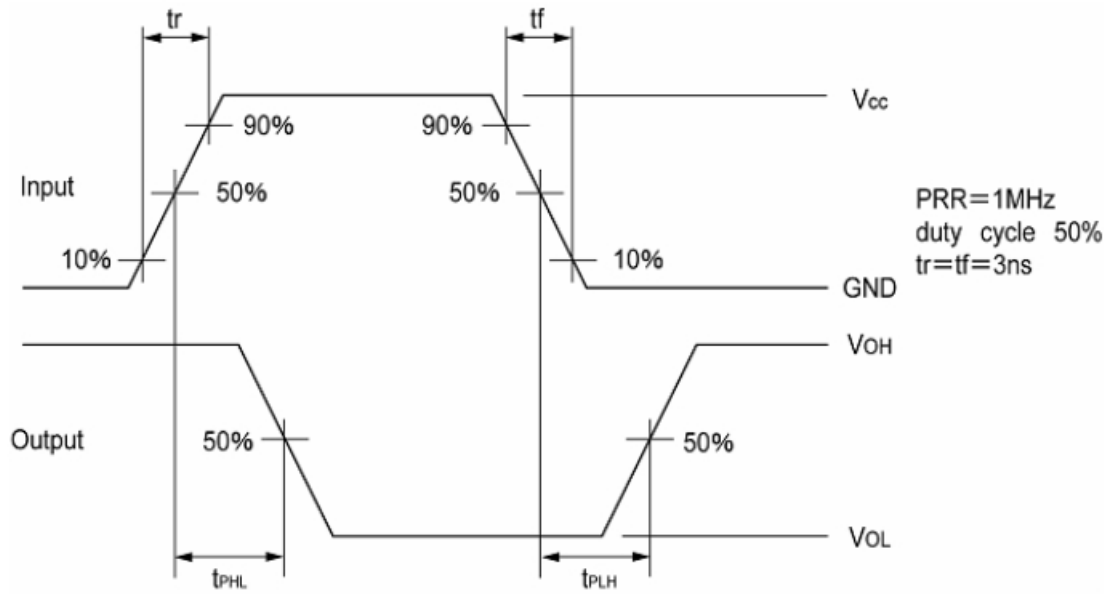
Recommended Operating Environment

Supply voltage	-2V to 5.5V
Output voltage	0V to VCC
Input voltage	0V to VCC
Operating temperature	$-40^{\circ}C$ to $85^{\circ}C$
Output current	$\pm 4mA@3V$
Output current	$\pm 8mA@4.5V$
Input signal rise and fall time	0-100ns/V@3.3V
Input signal rise and fall time	0-20ns/V@5.0V

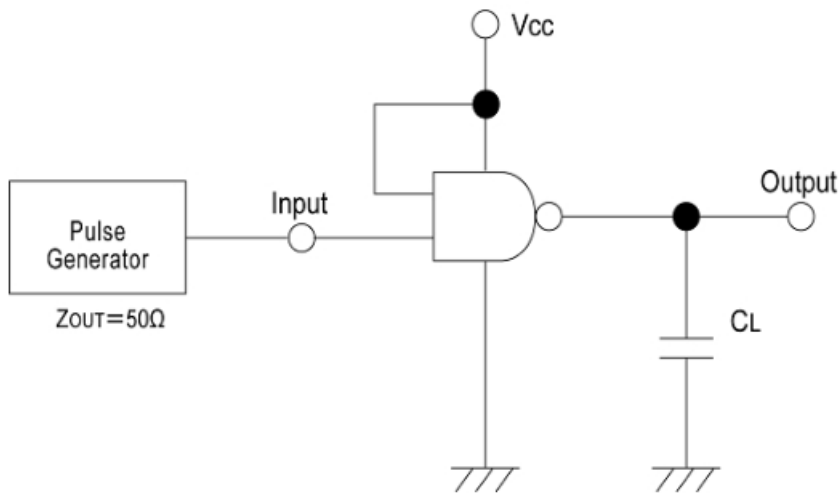
Electrical Characteristics

Parameter	Symbol	Voltage(V)	Conditions	Ta=25°C			Ta=-40-85°C		Unit				
				Min	Typ	Max	Min	Max					
Input voltage	V _{IH}	1.2		0.9	—	—	0.9	—	V				
		2.0		1.5	—	—	1.5	—					
		3.0		2.1	—	—	2.1	—					
		5.5		3.85	—	—	3.85	—					
	V _{IL}	1.2		—	—	0.3	—	0.3	V				
		2.0		—	—	0.5	—	0.5					
		3.0		—	—	0.9	—	0.9					
		5.5		—	—	1.65	—	1.65					
Output voltage	V _{OH}	2.0	V _{IN} =V _{IH} Or V _{IN} =V _{IL}	I _{OH} =-50μA	1.9	2.0	—	1.9	—	V			
		3.0			2.9	3.0	—	2.9	—				
		4.5			4.4	4.5	—	4.4	—				
		3.0			2.58	—	—	2.48	—				
	V _{OL}	V _{IN} =V _{IH}	2.0	I _{OH} =50μA	—	—	0.1	—	0.1	V			
					3.0	—	—	0.1	—		0.1		
					4.5	—	—	0.1	—		0.1		
			3.0		I _{OH} =4mA	—	—	0.36	—		0.44		
						4.5	I _{OH} =8mA	—	—		0.36	—	0.44
								—	—		0.36	—	0.44
Input current	I _{IN}	0-5.5	V _{IN} =V _{CC} or GND	-0.1	—	0.1	-1.0	1.0	μA				
Quiescent current	I _{CC}	5.5	V _{IN} =V _{CC} or GND, I _{OUT} =0μA	—	—	1	—	10	μA				
Delay time	t _{PLH}	3.3	CL=15pF	—	3.7	7.9	1.0	9.5	nS				
			CL=50pF	—	5.4	11.4	1.0	13.0					
		5.0	CL=15pF	—	2.7	5.5	1.0	6.5					
			CL=50pF	—	3.6	7.5	1.0	8.5					
	t _{PHL}	3.3	CL=15pF	—	3.3	7.9	1.0	9.5					
			CL=50pF	—	4.6	11.4	1.0	13.0					
		5.0	CL=15pF	—	2.5	5.5	1.0	6.5					
			CL=50pF	—	3.5	7.5	1.0	8.5					
Input capacitance	C _{IN}	5.0	V _{IN} =V _{CC} or GND	—	2	10	—	10	pF				
Power dissipation capacitance	C _{PD}	—	No Load, f=1MHz	—	9.3	—	—	—	pF				

Timing Chart



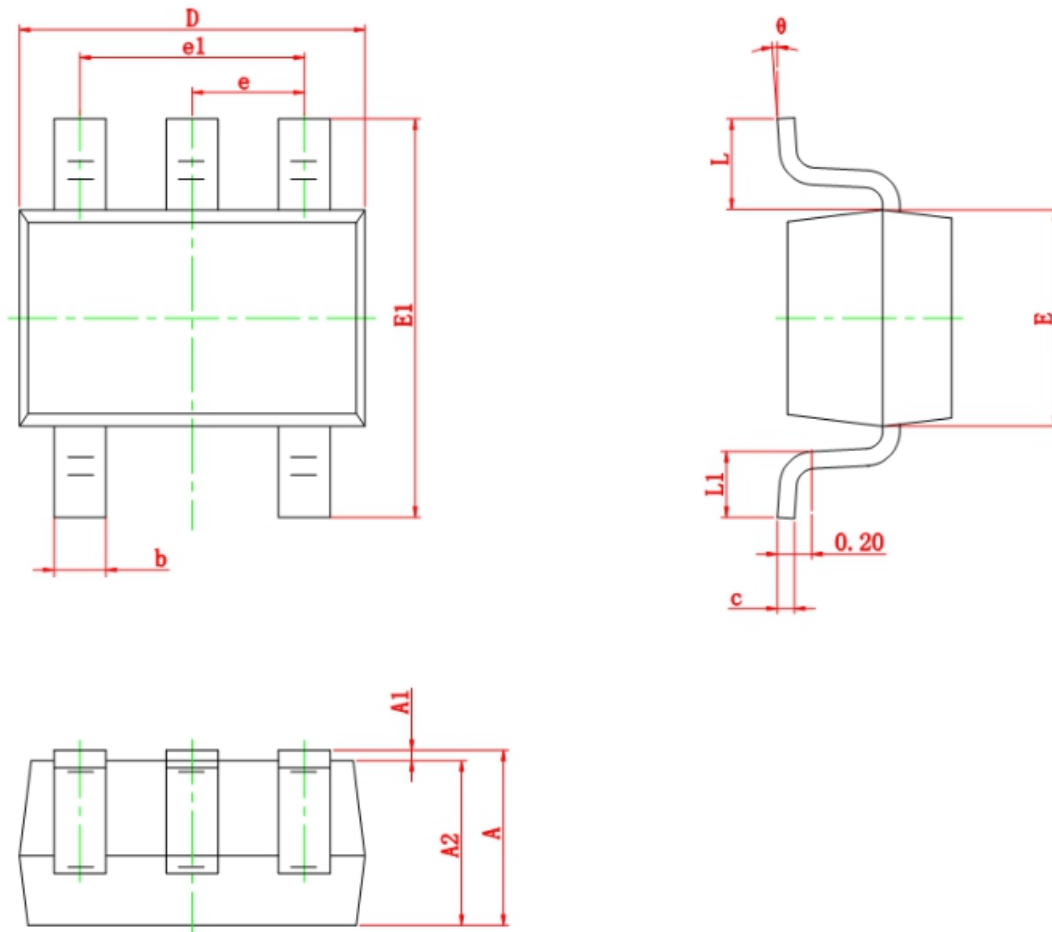
Test Circuit



Note: Open output when measuring supply current

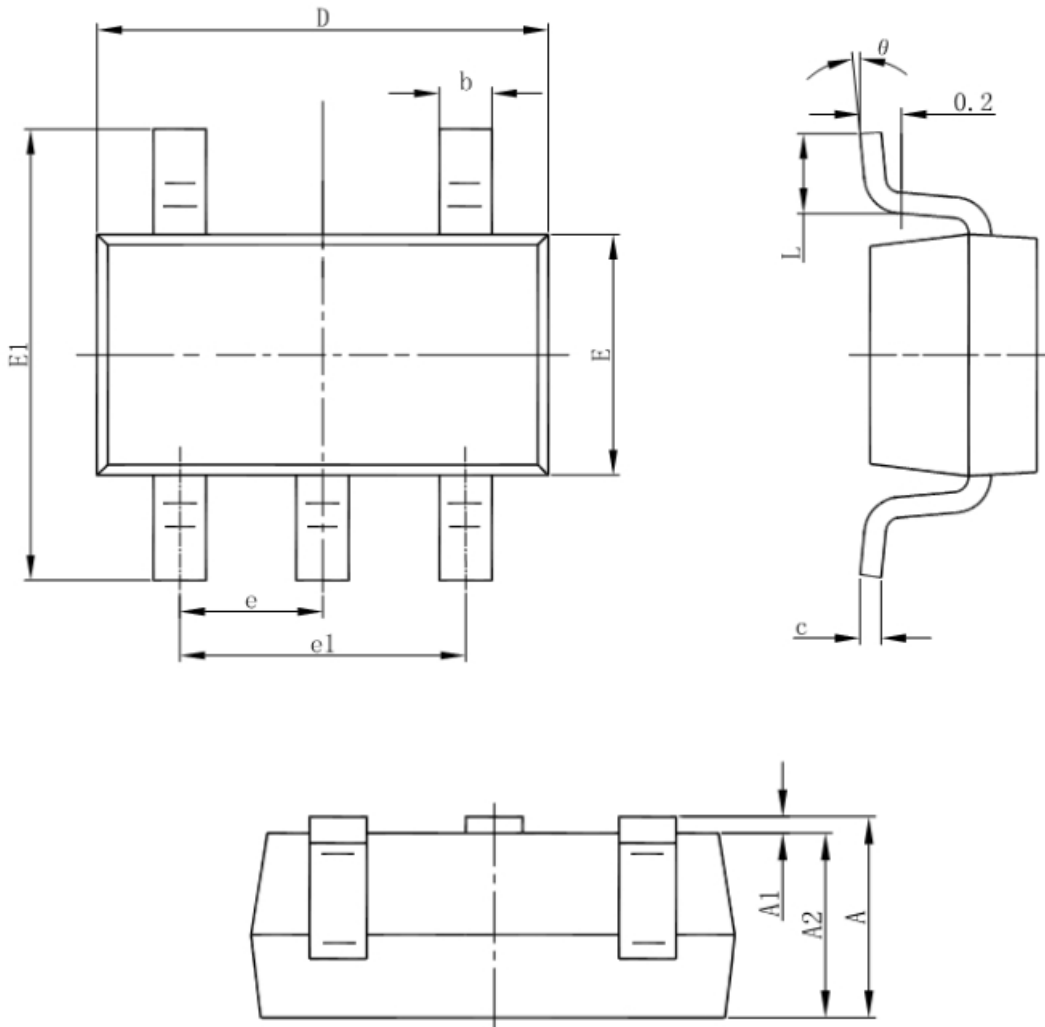
Package Information

◆SOT-353



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.150	0.350	0.006	0.014
c	0.080	0.150	0.003	0.006
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.450	0.085	0.096
e	0.650 TYP		0.026 TYP	
e1	1.200	1.400	0.047	0.055
L	0.525 REF		0.021 REF	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°

◆SOT23-5L



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°