

Features

- Wide Supply Voltage Range From 1.65V To 5.5V.
- 5 V tolerant input/output for interfacing with 5 V logic
- ± 24 -mA Output Drive at 3.3 V
- Latch-up performance exceeds 100mA
- ESD Protection Exceeds JESD 22
 - 2000-V Human-Body Model (A114-A)
 - 200-V Machine Model (A115-A)
 - 1000-V Charged-Device Model (C101)

General Description

The NL27WZ17 is a high-performance, low-power, low-voltage, Si-gate CMOS device which provides two independent buffers with Schmitt trigger action. It is capable of transforming slowly changed input signals into sharply defined, jitter-free output signals.

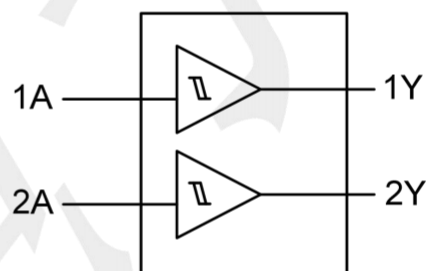
Ordering Information

ORDER NUMBER	PACKAGE DESCRIPTION	PACKAGE OPTION	MARKING
NL27WZ17DTT1G-TP	SOT23-6	Tape and Reel,3000	M7Y
NL27WZ17DFT2G-TP	SOT363	Tape and Reel,3000	M7P

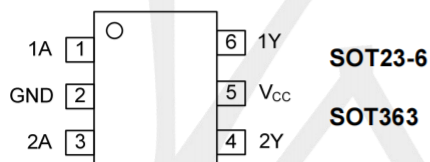
Applications

- AV Receiver
- Audio Dock:Portable
- Blu-ray Player and Home Theater
- Embedded PC
- Personal Digital Assistant(PDA)
- Power:Telecom/Server AC/DC Supply:Single Controller:Analog and Digital

Logic Diagram



Pin Configuratio



Function Table

INPUT(A)	OUTPUT(Y)
L	L
H	H

Note:H: HIGH voltage level;L: LOW voltage level.

Absolute Maximum Ratings (Unless otherwise specified)

PARAMETER	SYMBOL	CONDITIONS	RATINGS	UNIT
Supply Voltage	VCC		-0.5 ~ +6.5	V
Input Voltage	VIN		-0.5 ~ +6.5	V
Output Voltage	VOU	High-Impedance & Power-Off State	-0.5 ~ +6.5	V
		High State & Low State	-0.5 ~ VCC+0.5	V
VCC or GND Current	ICC		±100	mA
Continuous Output Current	IOUT		±50	mA
Input Clamp Current	IIK	VIN < 0	-50	mA
Output Clamp Current	IOK	VOU < 0	-50	mA
Storage Temperature Range	TSTG		-65 ~ +150	°C
Junction to Ambient	θ_{JA}	SOT-23-6	230	°C/W
		SOT363	280	°C/W

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolute maximum ratings are stress ratings only and functional device operation is not implied.

Recommended Operating Conditions (Unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage	VCC	Operating	1.65	--	5.5	V
Input Voltage	VIN		0	--	5.5	V
Output Voltage	VOU	High or low state	0	--	VCC	V
High-Level Input Voltage	VT+	VCC = 1.65 V	0.7	--	1.4	V
		VCC = 2.3 V	1.0	--	1.7	V
		VCC = 3.0 V	1.3	--	2.2	V
		VCC = 4.5 V	1.9	--	3.1	V
		VCC = 5.5 V	2.2	--	3.7	V
Low-Level Input Voltage	VT-	VCC = 1.65 V	0.3	--	0.7	V
		VCC = 2.3 V	0.4	--	1.0	V
		VCC = 3.0 V	0.6	--	1.3	V
		VCC = 4.5 V	1.1	--	2.0	V
		VCC = 5.5 V	1.4	--	2.5	V
Hysteresis Voltage	ΔVT	VCC = 1.65 V	0.3	--	0.8	V
		VCC = 2.3 V	0.4	--	0.9	V
		VCC = 3.0 V	0.4	--	1.1	V
		VCC = 4.5 V	0.6	--	1.3	V
		VCC = 5.5 V	0.7	--	1.4	V
Operating Temperature	TA		-40	--	+125	°C

Electrical Characteristics (unless otherwise specified)

PARAMETER	SYMBOL	TEST Conditions	MIN	TYP	MAX	UNIT
High-Level Output Voltage	V _{OH}	V _{CC} =1.65V~5.5V, I _{OH} =-100μA	V _{CC} -0.1	--	--	V
		V _{CC} =1.65V, I _{OH} =-4mA	1.2	--	--	V
		V _{CC} =2.3V, I _{OH} =-8mA	1.9	--	--	V
		V _{CC} =3.0V, I _{OH} =-16mA	2.4	--	--	V
		V _{CC} =3.0V, I _{OH} =-24mA	2.3	--	--	V
		V _{CC} =4.5V, I _{OH} =-32mA	3.8	--	--	V
Low-Level Output Voltage	V _{OL}	V _{CC} =1.65 ~ 5.5V, I _{OL} =100μA	--	--	0.1	V
		V _{CC} =1.65V, I _{OL} =4mA	--	--	0.45	V
		V _{CC} =2.3V, I _{OL} =8mA	--	--	0.3	V
		V _{CC} =3.0V, I _{OL} =16mA	--	--	0.4	V
		V _{CC} =3.0V, I _{OL} =24mA	--	--	0.55	V
		V _{CC} =4.5V, I _{OL} =32mA	--	--	0.55	V
Input Leakage Current	I _{I(LEAK)}	V _{CC} =1.65V ~ 5.5V, V _{IN} =5.5V or GND	--	±0.1	±5	uA
Power OFF Leakage Current	I _{OFF}	V _{CC} =0V, V _{IN} or V _{OUT} =5.5V	--	±0.1	±10	uA
Quiescent Supply Current	I _{CC}	V _{CC} =1.65 ~ 5.5V, V _{IN} =V _{CC} or GND, I _{OUT} =0A	--	0.1	10	uA
Additional Quiescent Supply Current Per Input Pin	ΔI _{CC}	V _{CC} =3.0 ~ 5.5V, V _{IN} = V _{CC} -0.6V, I _O =0A, Other inputs at V _{CC} or GND	--	5	500	uA

OPERATING CHARACTERISTICS (f=10MHz, TA =25°C , unless otherwise specified)

PARAMETER	SYMBOL	TEST Conditions	MIN	TYP	MAX	UNIT
Input Capacitance	C _I	V _{IN} =V _{CC} or GND, V _{CC} =3.3V	--	4	--	pF
Power Dissipation Capacitance	C _{PD}	V _{CC} =5V, f=10MHz	--	21	--	pF

Notes: 1. C_{PD} is used to determine the dynamic power dissipation (P_D in μW).

$P_D = C_{PD} \times V_{CC}^2 \times f_i \times N + \sum (C_L \times V_{CC}^2 \times f_o)$ where:

f_i = Input Frequency in MHz; f_o = Output Frequency in MHz; C_L = Output Load Capacitance in PF;

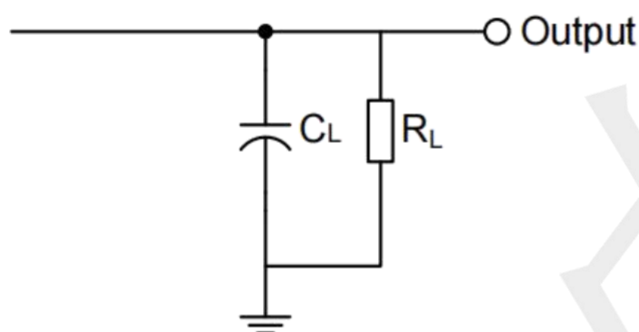
V_{CC} = Supply Voltage in Volts; N= Total Load Switching Outputs. $\sum (C_L \times V_{CC}^2 \times f_o)$ = Sum of Outputs.

2. The Condition is V_{IN} = GND to V_{CC}.

SWITCHING CHARACTERISTICS (see TEST CIRCUIT AND WAVEFORMS)

PARAMETER	SYMBOL	TEST Conditions	MIN	TYP	MAX	UNIT
Propagation delay nA to nY	t _{PLH} t _{PHL}	V _{CC} = 1.8V±0.15V, C _L =30pF, R _L =1KΩ	3.9	--	9.3	nS
		V _{CC} =2.5V±0.2V, C _L =30pF, R _L =500Ω	1.9	--	5.7	nS
		V _{CC} =3.3V±0.3V, C _L =50pF, R _L =500Ω	2.2	--	5.4	nS
		V _{CC} =5V±0.5V, C _L =50pF, R _L =500Ω	1.5	--	4.3	nS

TEST CIRCUIT AND WAVEFORMS

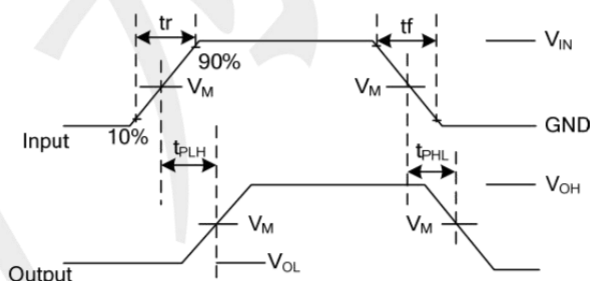


V _{CC}	V _{IN}	t _r , t _f	V _M	C _L	R _L
1.65V~1.95V	V _{CC}	≤2ns	V _{CC} /2	30pF	1kΩ
2.3V~2.7V	V _{CC}	≤2ns	V _{CC} /2	30pF	500Ω
3.0V~3.6V	3V	≤2.5ns	1.5V	50pF	500Ω
4.5V~5.5V	V _{CC}	≤2.5ns	V _{CC} /2	50pF	500Ω

Definitions for test circuit:

R_L = Load resistance.

C_L = Load capacitance including jig and probe capacitance.

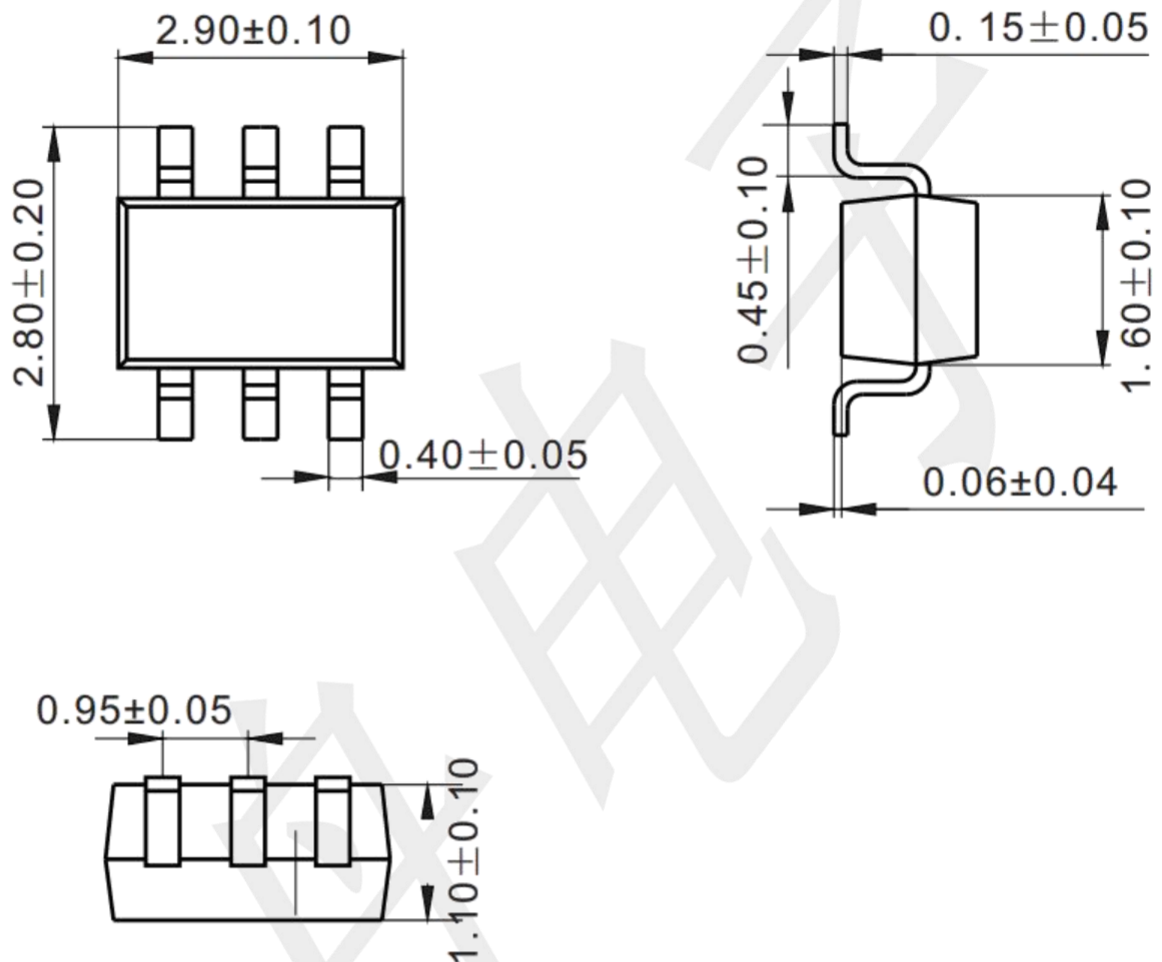


Notes: 1. V_{OL} and V_{OH} are typical output drop that occur with the output load.

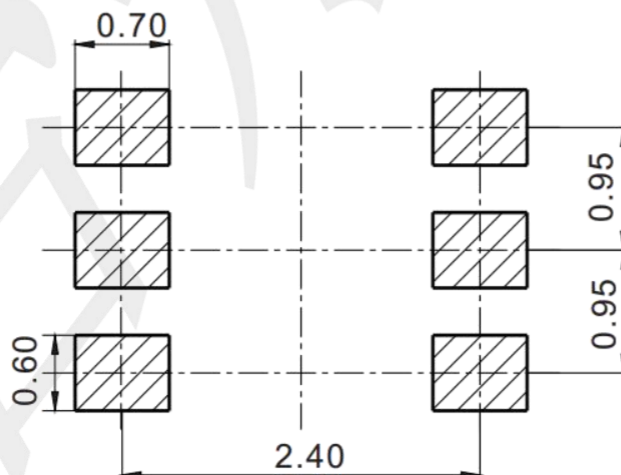
2. t_{PLH} and t_{PHL} are the same as t_{PD}.

Package information

SOT23-6 (Unit: mm)

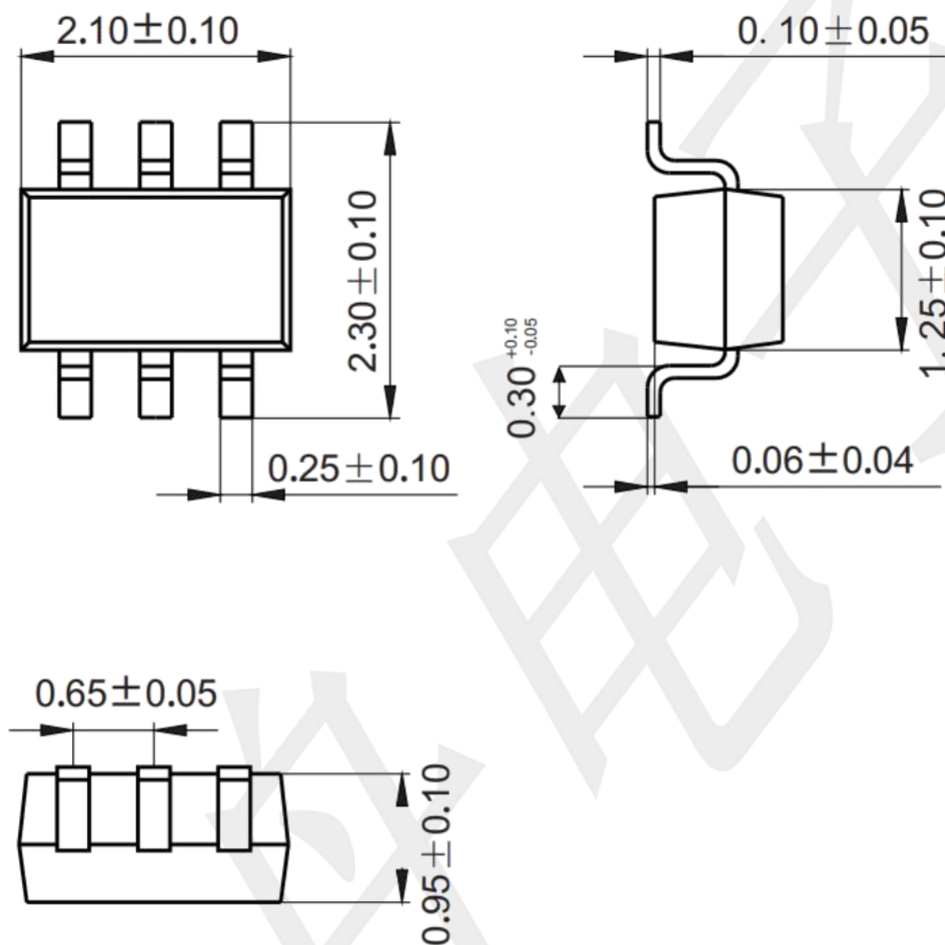


Mounting Pad Layout (unit: mm)



Package information

SOT363 (Unit: mm)



Mounting Pad Layout (unit: mm)

