



SN74HC/HCT153(LX) Dual 4-input Multiplexer

Product Specification

Specification Revision History:

Version	Date	Description
2022-06-A1	2022-06	New
2023-04-B1	2023-04	Update the template



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1、General Description

The SN74HC/HCT153 is a dual 4-input multiplexer. The device features independent enable inputs ($\overline{nE}$) and common data select inputs (S0 and S1). For each multiplexer, the select inputs select one of the four binary inputs and routes it to the multiplexer output (nY). A HIGH on $\overline{E}$ forces the corresponding multiplexer outputs LOW. Inputs include clamp diodes. This enables the use of current limiting resistors to interface inputs to voltages in excess of V_{CC} .

Features:

- Input levels:
 - For SN74HC153: CMOS level
 - For SN74HCT153: TTL level
- Non-inverting outputs
- Separate enable input for each output
- Common select inputs
- Permits multiplexing from n lines to 1 line
- Enable line provided for cascading (n lines to 1 line)
- Specified from -40°C to +125°C
- Packaging information: DIP16/SOP16/TSSOP16



Ordering Information:

Tube packing specifications:

Part number	Packaging form	Marking code	Tube quantity	Boxed tube quantity	Boxed quantity	Notes
SN74HC153N(LX)	DIP16	SN74HC153N	25 PCS/tube	40 tube/box	1000 PCS/box	Dimensions of plastic enclosure: 19.0mm×6.4mm Pin spacing: 2.54mm
SN74HCT153N(LX)	DIP16	SN74HCT153N	25 PCS/tube	40 tube/box	1000 PCS/box	Dimensions of plastic enclosure: 19.0mm×6.4mm Pin spacing: 2.54mm



Reel packing specifications:

Part number	Packaging form	Marking code	Reel quantity	Boxed reel quantity	Notes
SN74HC153DR(LX)	SOP16	SN74HC153	4000 PCS/reel	8000 PCS/box	Dimensions of plastic enclosure: 10.0mm×3.9mm Pin spacing:1.27mm
SN74HCT153DR(LX)	SOP16	SN74HCT153	4000 PCS/reel	8000 PCS/box	Dimensions of plastic enclosure: 10.0mm×3.9mm Pin spacing:1.27mm
SN74HC153PW(LX)	TSSOP16	SN74HC153	5000 PCS/reel	10000 PCS/box	Dimensions of plastic enclosure: 5.0mm×4.4mm Pin spacing:0.65mm
SN74HCT153PW(LX)	TSSOP16	SN74HCT153	5000 PCS/reel	10000 PCS/box	Dimensions of plastic enclosure: 5.0mm×4.4mm Pin spacing:0.65mm

Note: If the physical information is inconsistent with the ordering information, please refer to the actual product.

2、Block Diagram And Pin Description

2.1、Block Diagram

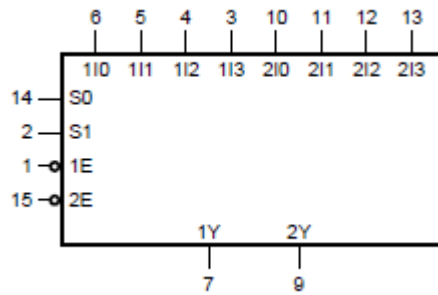


Figure 1. Logic symbol

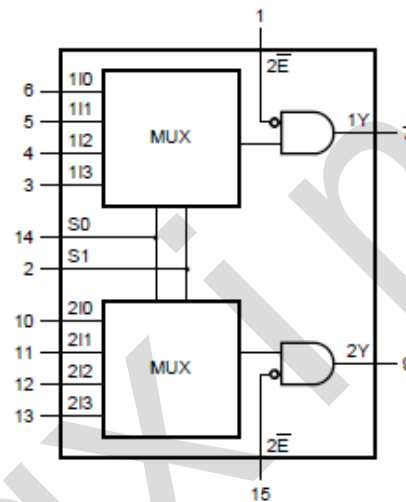


Figure 2. Functional diagram

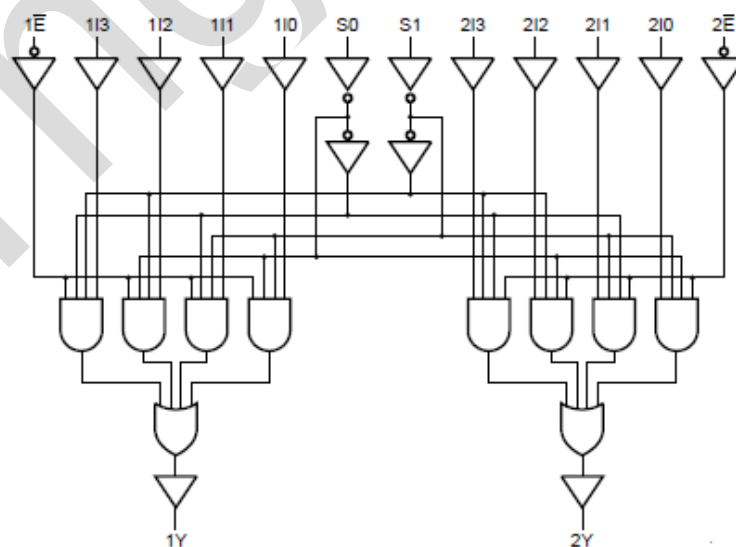
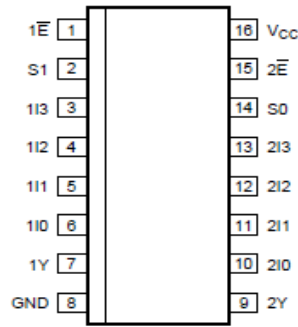


Figure 3. Logic diagram



2.2、Pin Configurations



2.3、Pin Description

Pin No.	Pin Name	Description
1	1E	output enable input (active LOW)
2	S1	data select input
3	1I3	data input source 1
4	1I2	data input source 1
5	1I1	data input source 1
6	1I0	data input source 1
7	1Y	multiplexer output source 1
8	GND	ground (0V)
9	2Y	multiplexer output source 2
10	2I0	data input source 2
11	2I1	data input source 2
12	2I2	data input source 2
13	2I3	data input source 2
14	S0	data select input
15	2E	output enable input (active LOW)
16	V _{CC}	supply voltage

2.4、Function Table

Select Input		Input				Output Enable	Output
S0	S1	nI0	nI1	nI2	nI3	nE	nY
X	X	X	X	X	X	H	L
L	L	L	X	X	X	L	L
L	L	H	X	X	X	L	H
H	L	X	L	X	X	L	L
H	L	X	H	X	X	L	H
L	H	X	X	L	X	L	L
L	H	X	X	H	X	L	H
H	H	X	X	X	L	L	L
H	H	X	X	X	H	L	H

Note: H=HIGH voltage level; L=LOW voltage level; X=don't care.



3、Electrical Parameter

3.1、Absolute Maximum Ratings

(Voltages are referenced to GND(ground=0V), unless otherwise specified.)

Parameter	Symbol	Conditions	Min.	Max.	Unit
supply voltage	V _{CC}	-	-0.5	+7.0	V
input clamping current	I _{IK}	V _I < -0.5V or V _I > V _{CC} +0.5V	-	±20	mA
output clamping current	I _{OK}	V _O < -0.5V or V _O > V _{CC} +0.5V	-	±20	mA
output current	I _O	-0.5V < V _O < V _{CC} +0.5V	-	±25	mA
supply current	I _{CC}	-	-	50	mA
ground current	I _{GND}	-	-50	-	mA
storage temperature	T _{stg}	-	-65	+150	°C
total power dissipation	P _{tot}	-	-	500	mW
soldering temperature	T _L	10s	DIP	245	°C
			SOP/TSSOP	260	

3.2、Recommended Operating Conditions

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
SN74HC153						
supply voltage	V_{CC}	-	2.0	5.0	6.0	V
input voltage	V_I	-	0	-	V_{CC}	V
output voltage	V_O	-	0	-	V_{CC}	V
input transition rise and fall rate	$\Delta t/\Delta V$	$V_{CC}=2.0V$	-	-	625	ns/V
		$V_{CC}=4.5V$	-	1.67	139	ns/V
		$V_{CC}=6.0V$	-	-	83	ns/V
ambient temperature	T_{amb}	-	-40	-	+125	°C
SN74HCT153						
supply voltage	V_{CC}	-	4.5	5.0	5.5	V
input voltage	V_I	-	0	-	V_{CC}	V
output voltage	V_O	-	0	-	V_{CC}	V
input transition rise and fall rate	$\Delta t/\Delta V$	$V_{CC}=4.5V$	-	1.67	139	ns/V
ambient temperature	T_{amb}	-	-40	-	+125	°C



3.3、Electrical Characteristics

3.3.1、DC Characteristics 1

($T_{amb}=25^{\circ}\text{C}$, voltages are referenced to GND (ground=0V), unless otherwise specified.)

Parameter	Symbol	Conditions		Min.	Typ.	Max.	Unit
SN74HC153							
HIGH-level input voltage	V _{IH}	V _{CC} =2.0V		1.5	1.2	-	V
		V _{CC} =4.5V		3.15	2.4	-	V
		V _{CC} =6.0V		4.2	3.2	-	V
LOW-level input voltage	V _{IL}	V _{CC} =2.0V		-	0.8	0.5	V
		V _{CC} =4.5V		-	2.1	1.35	V
		V _{CC} =6.0V		-	2.8	1.8	V
HIGH-level output voltage	V _{OH}	V _I =V _{IH} or V _{IL}	I _O =-20uA; V _{CC} =2.0V	1.9	2.0	-	V
			I _O =-20uA; V _{CC} =4.5V	4.4	4.5	-	V
			I _O =-20uA; V _{CC} =6.0V	5.9	6.0	-	V
			I _O =-4.0mA; V _{CC} =4.5V	3.98	4.32	-	V
			I _O =-5.2mA; V _{CC} =6.0V	5.48	5.81	-	V
LOW-level output voltage	V _{OL}	V _I =V _{IH} or V _{IL}	I _O =20uA; V _{CC} =2.0V	-	0	0.1	V
			I _O =20uA; V _{CC} =4.5V	-	0	0.1	V
			I _O =20uA; V _{CC} =6.0V	-	0	0.1	V
			I _O =4.0mA; V _{CC} =4.5V	-	0.15	0.26	V
			I _O =5.2mA; V _{CC} =6.0V	-	0.16	0.26	V
input leakage current	I _I	V _I =V _{CC} or GND; V _{CC} =6.0V		-	-	±1.0	uA
supply current	I _{CC}	V _I =V _{CC} or GND; I _O =0A; V _{CC} =6.0V		-	-	8.0	uA
input capacitance	C _I	-		-	3.5	-	pF
SN74HCT153							
HIGH-level input voltage	V _{IH}	V _{CC} =4.5V to 5.5V		2.0	1.6	-	V
LOW-level input voltage	V _{IL}	V _{CC} =4.5V to 5.5V		-	1.2	0.8	V
HIGH-level output voltage	V _{OH}	V _I =V _{IH} or V _{IL} ; V _{CC} =4.5V	I _O =-20uA	4.4	4.5	-	V
			I _O =-4.0mA	3.98	4.32	-	V
LOW-level output voltage	V _{OL}	V _I =V _{IH} or V _{IL}	I _O =20uA; V _{CC} =4.5V	-	0	0.1	V
			I _O =5.2mA; V _{CC} =6.0V	-	0.15	0.26	V
input leakage current	I _I	V _I =V _{CC} or GND; V _{CC} =5.5V		-	-	±1.0	uA
supply current	I _{CC}	V _I =V _{CC} or GND; I _O =0A; V _{CC} =5.5V		-	-	8.0	uA
additional supply current	ΔI _{CC}	V _I =V _{CC} -2.1V; other inputs at V _{CC} or GND; I _O =0A; V _{CC} =4.5V to 5.5V	1In, 2In	-	-	162	uA
			nE	-	-	216	uA
			Sn	-	-	486	uA
input capacitance	C _I	-		-	3.5	-	pF



3.3.2、DC Characteristics 2

($T_{amb} = -40^{\circ}\text{C}$ to $+85^{\circ}\text{C}$, voltages are referenced to GND (ground=0V), unless otherwise specified.)

Parameter	Symbol	Conditions		Min.	Typ.	Max.	Unit
SN74HC153							
HIGH-level input voltage	V _{IH}	V _{CC} =2.0V		1.5	-	-	V
		V _{CC} =4.5V		3.15	-	-	V
		V _{CC} =6.0V		4.2	-	-	V
LOW-level input voltage	V _{IL}	V _{CC} =2.0V		-	-	0.5	V
		V _{CC} =4.5V		-	-	1.35	V
		V _{CC} =6.0V		-	-	1.8	V
HIGH-level output voltage	V _{OH}	V _I =V _{IH} or V _{IL}	I _O =-20uA; V _{CC} =2.0V	1.9	-	-	V
			I _O =-20uA; V _{CC} =4.5V	4.4	-	-	V
			I _O =-20uA; V _{CC} =6.0V	5.9	-	-	V
			I _O =-4.0mA; V _{CC} =4.5V	3.84	-	-	V
			I _O =-5.2mA; V _{CC} =6.0V	5.34	-	-	V
LOW-level output voltage	V _{OL}	V _I =V _{IH} or V _{IL}	I _O =20uA; V _{CC} =2.0V	-	-	0.1	V
			I _O =20uA; V _{CC} =4.5V	-	-	0.1	V
			I _O =20uA; V _{CC} =6.0V	-	-	0.1	V
			I _O =4.0mA; V _{CC} =4.5V	-	-	0.33	V
			I _O =5.2mA; V _{CC} =6.0V	-	-	0.33	V
input leakage current	I _I	V _I =V _{CC} or GND; V _{CC} =6.0V		-	-	±1.0	uA
supply current	I _{CC}	V _I =V _{CC} or GND; I _O =0A; V _{CC} =6.0V		-	-	80	uA
SN74HCT153							
HIGH-level input voltage	V _{IH}	V _{CC} =4.5V to 5.5V		2.0	-	-	V
LOW-level input voltage	V _{IL}	V _{CC} =4.5V to 5.5V		-	-	0.8	V
HIGH-level output voltage	V _{OH}	V _I =V _{IH} or V _{IL} ; V _{CC} =4.5V	I _O =-20uA	4.4	-	-	V
			I _O =-4.0mA	3.84	-	-	V
LOW-level output voltage	V _{OL}	V _I =V _{IH} or V _{IL}	I _O =20uA; V _{CC} =4.5V	-	-	0.1	V
			I _O =5.2mA; V _{CC} =6.0V	-	-	0.33	V
input leakage current	I _I	V _I =V _{CC} or GND; V _{CC} =5.5V		-	-	±1.0	uA
supply current	I _{CC}	V _I =V _{CC} or GND; I _O =0A; V _{CC} =5.5V		-	-	80	uA
additional supply current	ΔI _{CC}	V _I =V _{CC} -2.1V; other inputs at V _{CC} or GND; I _O =0A; V _{CC} =4.5V to 5.5V	1In, 2In	-	-	203	uA
			nE	-	-	270	uA
			Sn	-	-	608	uA



3.3.3、DC Characteristics 3

($T_{amb} = -40^{\circ}\text{C}$ to $+125^{\circ}\text{C}$, voltages are referenced to GND (ground=0V), unless otherwise specified.)

Parameter	Symbol	Conditions		Min.	Typ.	Max.	Unit
SN74HC153							
HIGH-level input voltage	V _{IH}	V _{CC} =2.0V		1.5	-	-	V
		V _{CC} =4.5V		3.15	-	-	V
		V _{CC} =6.0V		4.2	-	-	V
LOW-level input voltage	V _{IL}	V _{CC} =2.0V		-	-	0.5	V
		V _{CC} =4.5V		-	-	1.35	V
		V _{CC} =6.0V		-	-	1.8	V
HIGH-level output voltage	V _{OH}	V _I =V _{IH} or V _{IL}	I _O =-20uA; V _{CC} =2.0V	1.9	-	-	V
			I _O =-20uA; V _{CC} =4.5V	4.4	-	-	V
			I _O =-20uA; V _{CC} =6.0V	5.9	-	-	V
			I _O =-4.0mA; V _{CC} =4.5V	3.7	-	-	V
			I _O =-5.2mA; V _{CC} =6.0V	5.2	-	-	V
LOW-level output voltage	V _{OL}	V _I =V _{IH} or V _{IL}	I _O =20uA; V _{CC} =2.0V	-	-	0.1	V
			I _O =20uA; V _{CC} =4.5V	-	-	0.1	V
			I _O =20uA; V _{CC} =6.0V	-	-	0.1	V
			I _O =4.0mA; V _{CC} =4.5V	-	-	0.4	V
			I _O =5.2mA; V _{CC} =6.0V	-	-	0.4	V
input leakage current	I _I	V _I =V _{CC} or GND; V _{CC} =6.0V		-	-	±1.0	uA
supply current	I _{CC}	V _I =V _{CC} or GND; I _O =0A; V _{CC} =6.0V		-	-	160	uA
SN74HCT153							
HIGH-level input voltage	V _{IH}	V _{CC} =4.5V to 5.5V		2.0	-	-	V
LOW-level input voltage	V _{IL}	V _{CC} =4.5V to 5.5V		-	-	0.8	V
HIGH-level output voltage	V _{OH}	V _I =V _{IH} or V _{IL} ; V _{CC} =4.5V	I _O =-20uA	4.4	-	-	V
			I _O =-4.0mA	3.7	-	-	V
LOW-level output voltage	V _{OL}	V _I =V _{IH} or V _{IL}	I _O =20uA; V _{CC} =4.5V	-	-	0.1	V
			I _O =5.2mA; V _{CC} =6.0V	-	-	0.4	V
input leakage current	I _I	V _I =V _{CC} or GND; V _{CC} =5.5V		-	-	±1.0	uA
supply current	I _{CC}	V _I =V _{CC} or GND; I _O =0A; V _{CC} =5.5V		-	-	160	uA
additional supply current	ΔI _{CC}	V _I =V _{CC} -2.1V; other inputs at V _{CC} or GND; I _O =0A; V _{CC} =4.5V to 5.5V	1In, 2In	-	-	221	uA
			nE	-	-	294	uA
			Sn	-	-	662	uA



3.3.4、AC Characteristics 1

($T_{amb}=25^{\circ}\text{C}$, $\text{GND}=0\text{V}$, $t_r=t_f=6\text{ns}$; $C_L=50\text{pF}$, unless otherwise specified.)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
SN74HC153						
propagation delay	t_{pd}	1In to nY, 2In to nY; see Figure 5 ^[1]	$V_{CC}=2.0\text{V}$	-	47	145 ns
			$V_{CC}=4.5\text{V}$	-	17	29 ns
			$V_{CC}=5.0\text{V}$; $C_L=15\text{pF}$	-	14	- ns
			$V_{CC}=6.0\text{V}$	-	14	25 ns
		Sn to nY; see Figure 6	$V_{CC}=2.0\text{V}$	-	50	150 ns
			$V_{CC}=4.5\text{V}$	-	18	30 ns
			$V_{CC}=5.0\text{V}$; $C_L=15\text{pF}$	-	15	- ns
			$V_{CC}=6.0\text{V}$	-	14	26 ns
		$\bar{nE}$ to nY; see Figure 6	$V_{CC}=2.0\text{V}$	-	33	100 ns
			$V_{CC}=4.5\text{V}$	-	12	20 ns
			$V_{CC}=5.0\text{V}$; $C_L=15\text{pF}$	-	10	- ns
			$V_{CC}=6.0\text{V}$	-	10	17 ns
transition time	t_t	see Figure 5 ^[2]	$V_{CC}=2.0\text{V}$	-	19	75 ns
			$V_{CC}=4.5\text{V}$	-	7	15 ns
			$V_{CC}=6.0\text{V}$	-	6	13 ns
power dissipation capacitance	C_{PD}	per package; $V_I=\text{GND}$ to V_{CC} ^[3]	-	30	-	pF
SN74HCT153						
HIGH to LOW propagation delay	t_{PHL}	1In to nY, 2In to nY; see Figure 5 ^[1]	$V_{CC}=4.5\text{V}$	-	19	34 ns
			$V_{CC}=5.0\text{V}$; $C_L=15\text{pF}$	-	16	- ns
LOW to HIGH propagation delay	t_{PLH}	1In to nY, 2In to nY; see Figure 5	$V_{CC}=4.5\text{V}$	-	13	24 ns
			$V_{CC}=5.0\text{V}$; $C_L=15\text{pF}$	-	16	- ns
propagation delay	t_{pd}	Sn to nY; see Figure 6	$V_{CC}=4.5\text{V}$	-	20	34 ns
			$V_{CC}=5.0\text{V}$; $C_L=15\text{pF}$	-	17	- ns
		$\bar{nE}$ to nY; see Figure 6	$V_{CC}=4.5\text{V}$	-	14	27 ns
			$V_{CC}=5.0\text{V}$; $C_L=15\text{pF}$	-	11	- ns
transition time	t_t	$V_{CC}=4.5\text{V}$; see Figure 5 ^[2]		-	7	15 ns
power dissipation capacitance	C_{PD}	per package; $V_I=\text{GND}$ to $V_{CC}-1.5\text{V}$ ^[3]	-	30	-	pF

Note:

[1] t_{pd} is the same as t_{PLH} and t_{PHL} .

[2] t_t is the same as t_{THL} and t_{TLH} .

[3] 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 V;

N =number of inputs switching;

$\sum (C_L \times V_{CC}^2 \times f_o)$ =sum of outputs.



3.3.5、AC Characteristics 2

($T_{amb} = -40^{\circ}\text{C}$ to $+85^{\circ}\text{C}$, $GND = 0V$, $t_r = t_f = 6\text{ns}$; $C_L = 50\text{pF}$, unless otherwise specified.)

Parameter	Symbol	Conditions		Min.	Typ.	Max.	Unit
SN74HC153							
propagation delay	t _{pd}	1In to nY, 2In to nY; see Figure 5 ^[1]	V _{CC} =2.0V	-	-	180	ns
			V _{CC} =4.5V	-	-	36	ns
			V _{CC} =6.0V	-	-	31	ns
		Sn to nY; see Figure 6	V _{CC} =2.0V	-	-	190	ns
			V _{CC} =4.5V	-	-	38	ns
			V _{CC} =6.0V	-	-	33	ns
		nE to nY; see Figure 6	V _{CC} =2.0V	-	-	125	ns
			V _{CC} =4.5V	-	-	25	ns
			V _{CC} =6.0V	-	-	21	ns
transition time	t _t	see Figure 5 ^[2]	V _{CC} =2.0V	-	-	95	ns
			V _{CC} =4.5V	-	-	19	ns
			V _{CC} =6.0V	-	-	16	ns
SN74HCT153							
HIGH to LOW propagation delay	t _{PHL}	1In to nY, 2In to nY; see Figure 5 ^[1]	V _{CC} =4.5V	-	-	43	ns
LOW to HIGH propagation delay	t _{PLH}	1In to nY, 2In to nY; see Figure 5	V _{CC} =4.5V	-	-	30	ns
propagation delay	t _{pd}	Sn to nY; see Figure 6	V _{CC} =4.5V	-	-	43	ns
		nE to nY; see Figure 6	V _{CC} =4.5V	-	-	34	ns
transition time	t _t	V _{CC} =4.5V; see Figure 5 ^[2]		-	-	19	ns

Note:

[1] t_{pd} is the same as t_{PLH} and t_{PHL} .

[2] t_t is the same as t_{THL} and t_{TLH} .



3.3.6、AC Characteristics 3

($T_{amb} = -40^{\circ}\text{C}$ to $+125^{\circ}\text{C}$, $GND = 0V$, $t_r = t_f = 6\text{ns}$; $C_L = 50\text{pF}$, unless otherwise specified.)

Parameter	Symbol	Conditions		Min.	Typ.	Max.	Unit
SN74HC153							
propagation delay	t _{pd}	1In to nY, 2In to nY; see Figure 5 ^[1]	V _{CC} =2.0V	-	-	220	ns
			V _{CC} =4.5V	-	-	44	ns
			V _{CC} =6.0V	-	-	38	ns
		Sn to nY; see Figure 6	V _{CC} =2.0V	-	-	225	ns
			V _{CC} =4.5V	-	-	45	ns
			V _{CC} =6.0V	-	-	38	ns
		nE to nY; see Figure 6	V _{CC} =2.0V	-	-	150	ns
			V _{CC} =4.5V	-	-	30	ns
			V _{CC} =6.0V	-	-	26	ns
transition time	t _t	see Figure 5 ^[2]	V _{CC} =2.0V	-	-	110	ns
			V _{CC} =4.5V	-	-	22	ns
			V _{CC} =6.0V	-	-	19	ns
SN74HCT153							
HIGH to LOW propagation delay	t _{PHL}	1In to nY, 2In to nY; see Figure 5 ^[1]	V _{CC} =4.5V	-	-	51	ns
LOW to HIGH propagation delay	t _{PLH}	1In to nY, 2In to nY; see Figure 5	V _{CC} =4.5V	-	-	36	ns
propagation delay	t _{pd}	Sn to nY; see Figure 6	V _{CC} =4.5V	-	-	51	ns
		nE to nY; see Figure 6	V _{CC} =4.5V	-	-	41	ns
transition time	t _t	V _{CC} =4.5V; see Figure 5 ^[2]		-	-	22	ns

Note:

[1] t_{pd} is the same as t_{PLH} and t_{PHL} .

[2] t_t is the same as t_{THL} and t_{TLH} .

4、Testing Circuit

4.1、AC Testing Circuit

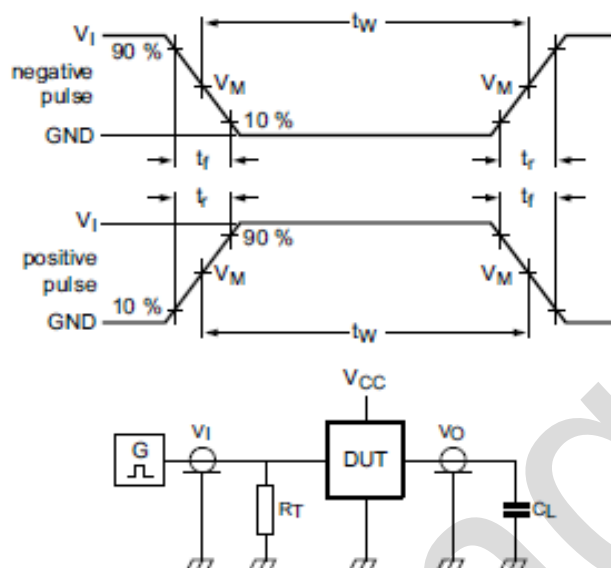


Figure 4. Test circuit for measuring switching times

Definitions for test circuit:

C_L =Load capacitance including jig and probe capacitance.

R_T =Termination resistance should be equal to the output impedance Z_o of the pulse generator.

4.2、AC Testing Waveforms

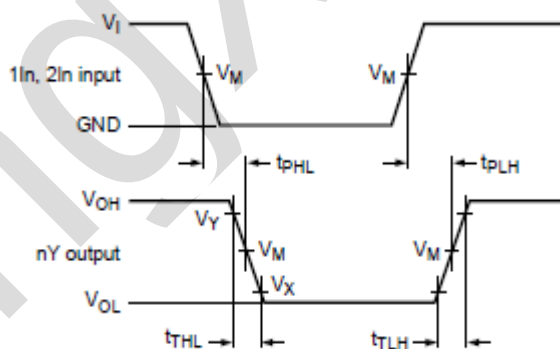


Figure 5. Waveforms showing the input (1In, 2In) to output (1Y, 2Y) propagation delays and output transition times

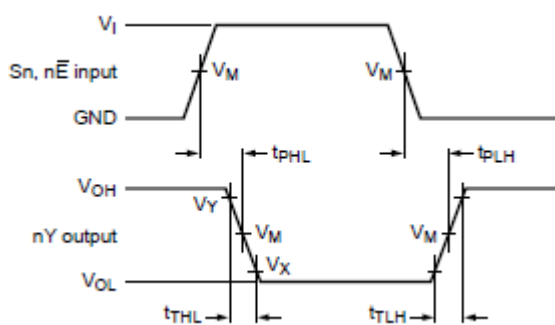


Figure 6. Waveforms showing the input (Sn, nE) to output (nY) propagation delays

4.3、Measurement Points

Type	Input	Output		
	V_M	V_M	V_X	V_Y
SN74HC153	$0.5 \times V_{CC}$	$0.5 \times V_{CC}$	$0.1 \times V_{CC}$	$0.9 \times V_{CC}$
SN74HCT153	1.3V	1.3V	$0.1 \times V_{CC}$	$0.9 \times V_{CC}$

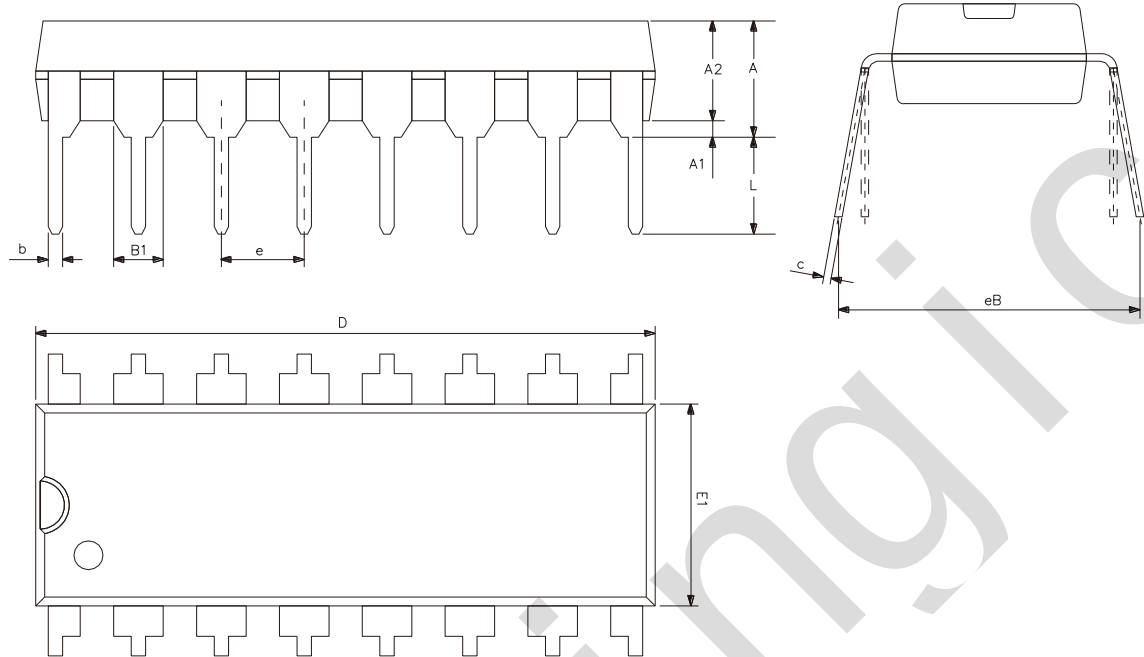
4.4、Test Data

Type	Input		Load	Test
	V_I	t_r, t_f	C_L	
SN74HC153	V_{CC}	6ns	15pF, 50pF	t_{PHL}, t_{PLH}
SN74HCT153	3V	6ns	15pF, 50pF	t_{PHL}, t_{PLH}



5、Package Information

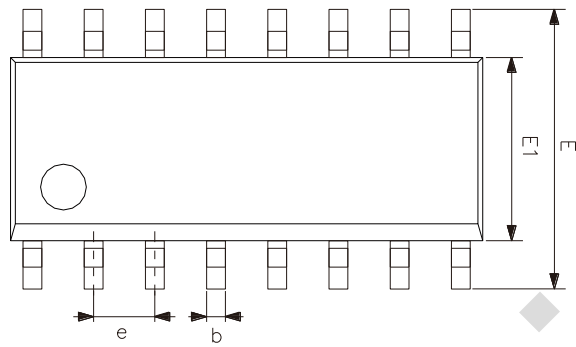
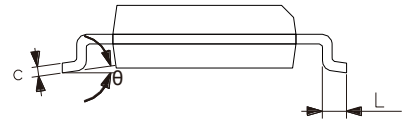
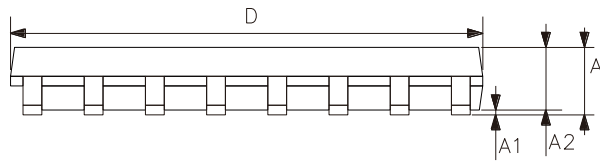
5.1、DIP16



Symbol	Dimensions (mm)	
	Min.	Max.
A2	3.20	3.60
A1	0.51	-
A	3.60	5.33
L	3.00	3.60
b	0.36	0.56
B1	1.52	
D	18.80	19.94
E1	6.20	6.60
e	2.54	
c	0.20	0.36
eB	7.62	9.30



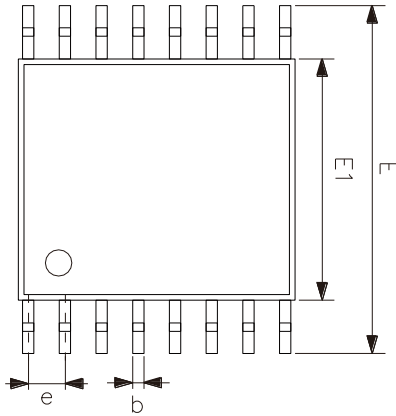
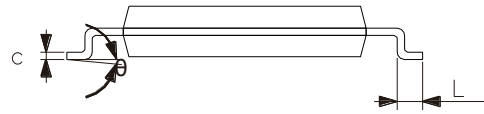
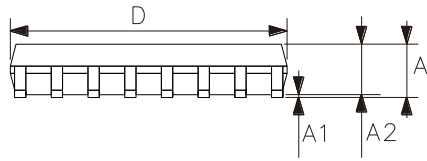
5.2、SOP16



Symbol	Dimensions (mm)	
	Min.	Max.
A	1.35	1.80
A1	0.10	0.25
A2	1.25	1.55
b	0.33	0.51
c	0.19	0.25
D	9.50	10.10
E	5.80	6.30
E1	3.70	4.10
e	1.27	
L	0.35	0.89
θ	0°	8°



5.3、TSSOP16



Symbol	Dimensions (mm)	
	Min.	Max.
A	-	1.20
A1	0.05	0.15
A2	0.80	1.05
b	0.19	0.30
c	0.09	0.20
D	4.90	5.10
E1	4.30	4.50
E	6.20	6.60
e	0.65	
L	0.45	0.75
θ	0°	8°



6、Statements And Notes

6.1、The name and content of Hazardous substances or Elements in the product

Part name	Hazardous substances or Elements									
	Lead and lead compounds	Mercury and mercury compounds	Cadmium and cadmium compounds	Hexavalent chromium compounds	Polybrominated biphenyls	Polybrominated biphenyl ethers	Dibutyl phthalate	Butylbenzyl phthalate	Di-2-ethylhexyl phthalate	Diisobutyl phthalate
Lead frame	○	○	○	○	○	○	○	○	○	○
Plastic resin	○	○	○	○	○	○	○	○	○	○
Chip	○	○	○	○	○	○	○	○	○	○
The lead	○	○	○	○	○	○	○	○	○	○
Plastic sheet installed	○	○	○	○	○	○	○	○	○	○
explanation	○: Indicates that the content of hazardous substances or elements in the detection limit of the following the SJ/T11363-2006 standard. ×: Indicates that the content of hazardous substances or elements exceeding the SJ/T11363-2006 Standard limit requirements.									

6.2、Notes

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