

TDSEMIC

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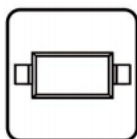
WEB WWW.TDSEMIC.COM 



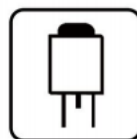
電源管理



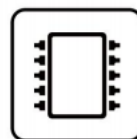
顯示驅動



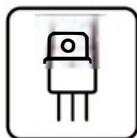
二三極管



LDO穩壓器



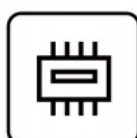
觸摸芯片



MOS管



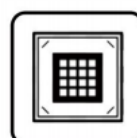
運算放大器



存儲芯片



MCU



串口通信

74HC573D-TD

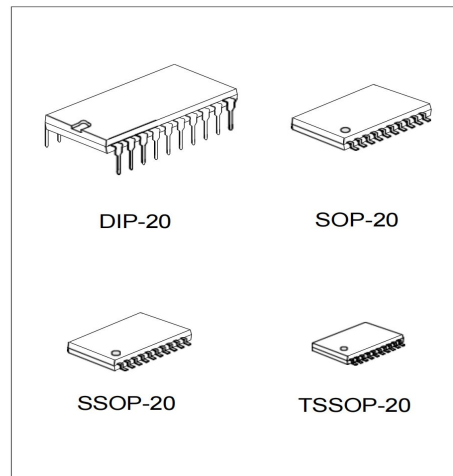
產品規格說明書-

1. DESCRIPTION

The **74HC573** is a octal transparent D-type latch with 3-state outputs, and it has 8 channels.

2. FEATURES

- Operate from 2V to 6V
- Max t_{PD} of 57ns at 4.5 V
- Typical V_{OL}<0.17V at V_{CC}=4.5V, T_A=25°C
- Typical V_{OH}>4.3V at V_{CC}=4.5V, T_A=25°C
- Latch-up performance ≤ 250 mA
- ESD protection:
 - HBM: ANSI/ESDA/JEDEC JS-001 2023 exceeds 2500 V
 - CDM: ANSI/ESDA/JEDEC JS-002 2022 exceeds 1500 V



3. ORDERING INFORMATION

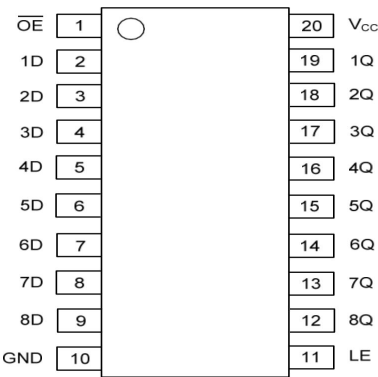
● Tube

Part Number	Marking code	Package	Packing	Pcs/Tube	Pcs/Box
74HC573	74HC573	DIP-20	Tube	18	5,400
74HC573	74HC573	SOP-20	Tube	36	11,520
74HC573	74HC573	SSOP-20	Tube	50	20,000
74HC573	74HC573	TSSOP-20	Tube	70	28,000

● Tape Reel

Part Number	Marking code	Package	Packing	Pcs/Reel	Pcs/ Box
74HC573	74HC573	SOP-20	Tape Reel	2000	12,000
74HC573	74HC573	SSOP-20	Tape Reel	4,000	64,000
74HC573	74HC573	TSSOP-20	Tape Reel	4,000	64,000

4. PIN CONFIGURATION

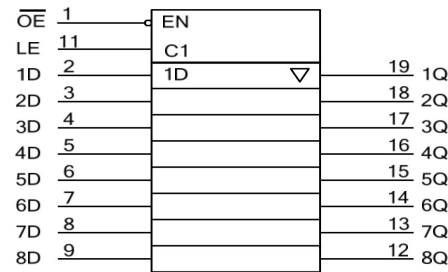


5. FUNCTION TABLE

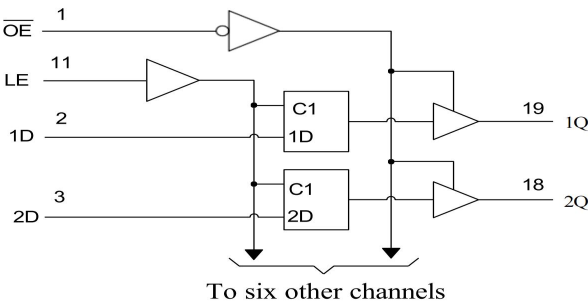
INPUTS($\overline{OE}$)	INPUTS(LE)	INPUTS(D)	OUTPUT(Q)
L	H	H	H
L	H	L	L
L	L	X	Q0
H	X	X	Z

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

6. LOGIC SYMBOL



7. LOGIC DIAGRAM



8. ABSOLUTE MAXIMUM RATING($T_A=25^{\circ}\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V_{CC}	-0.5 ~ 7	V
V_{CC} or GND Current	I_{CC}	± 70	mA
Output Current	I_{OUT}	± 35	mA
Input Clamp Current	I_{IK}	± 20	mA
Output Clamp Current	I_{OK}	± 20	mA
Storage Temperature	T_{STG}	-65 ~ + 150	$^{\circ}\text{C}$

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.

9. THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	DIP-20	52	$^{\circ}\text{C/W}$
	SOP-20	80	$^{\circ}\text{C/W}$
	SSOP-20	96	$^{\circ}\text{C/W}$
	TSSOP-20	103	$^{\circ}\text{C/W}$
	TSSOP-20U		

10. RECOMMENDED OPERATING CONDITIONS

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage	V_{CC}		2	5	6	V
High-level Input Voltage	V_{IH}	$V_{CC}=2.0\text{V}$	1.5			V
		$V_{CC}=4.5\text{V}$	3.15			V
		$V_{CC}=6.0\text{V}$	4.2			V
Low-level Input Voltage	V_{IL}	$V_{CC}=2.0\text{V}$	0		0.5	V
		$V_{CC}=4.5\text{V}$	0		1.35	V
		$V_{CC}=6.0\text{V}$	0		1.8	V
Input Voltage	V_{IN}		0		V_{CC}	V
Output Voltage	V_{OUT}	High or low state	0		V_{CC}	V
Input Rise or Fall Times	t_R, t_F	$V_{CC}=2.0\text{V}$	0		1	μs
		$V_{CC}=4.5\text{V}$	0		0.5	μs
		$V_{CC}=6.0\text{V}$	0		0.4	μs
Operating Temperature	T_A		-40		+125	$^{\circ}\text{C}$

11. ELECTRICAL CHARACTERISTICS (T_A=25°C, Unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	T _A =25°C			T _A =-40~+125°C			UNIT
			MIN	TYP	MAX	MIN	TYP	MAX	
High-level Input Voltage	V _{IH}	V _{CC} =2.0V	1.5			1.5			V
		V _{CC} =4.5V	3.15			3.15			V
		V _{CC} =6.0V	4.2			4.2			V
Low-level Input Voltage	V _{IL}	V _{CC} =2.0V	0		0.5			0.5	V
		V _{CC} =4.5V	0		1.35			135	V
		V _{CC} =6.0V	0		1.8			1.8	V
Output Voltage High-Level	V _{OH}	V _{CC} =2.0V, I _{OH} =-20μA	1.9	1.995		1.9			V
		V _{CC} =4.5V, I _{OH} =-20μA	4.4	4.490		4.4			V
		V _{CC} =6.0V, I _{OH} =-20μA	5.9	5.980		5.9			V
		V _{CC} =4.5V, I _{OH} =-6mA	3.98	4.3		3.7			V
		V _{CC} =6.0V, I _{OH} =-7.8mA	5.48	5.8		5.2			V
Output Voltage Low-Level	V _{OL}	V _{CC} =2.0V, I _{OL} =20μA		2	100			100	mV
		V _{CC} =4.5V, I _{OL} =20μA		20	100			100	mV
		V _{CC} =6.0V, I _{OL} =20μA		30	100			100	mV
		V _{CC} =4.5V, I _{OL} =6mA		150	260			400	mV
		V _{CC} =6.0V, I _{OL} =7.8mA		160	260			400	mV
Input Leakage Current	I _{I(LEAK)}	V _{CC} =6.0V, V _{IN} =V _{CC} or GND		±0.1	±100			±1000	nA
Disable Output Leakage Current	I _{OZ}	V _{CC} =6.0V, V _{OUT} =V _{CC} or GND		±0.01	±0.5			±10	μA
Quiescent Supply Current	I _Q	V _{CC} =6.0V, V _{IN} =V _{CC} or GND, I _{OUT} =0			8			160	μA

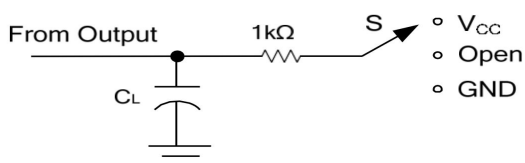
12. SWITCHING CHARACTERISTICS (See TEST CIRCUIT AND WAVEFORMS)

PARAMETER	SYMBOL	TEST CONDITIONS	T _A =25°C			T _A =-40~+125°C			UNIT
			MIN	TYP	MAX	MIN	TYP	MAX	
Propagation delay from input (D) to output (Q)	t _{PLH} /t _{PHL}	V _{CC} =2.0V, C _L =50pF		47	175			225	ns
		V _{CC} =4.5V, C _L =50pF		20	35			45	ns
		V _{CC} =6.0V, C _L =50pF		17	30			38	ns
		V _{CC} =2.0V, C _L =150pF		95	200			255	ns
		V _{CC} =4.5V, C _L =150pF		33	40			51	ns
V _{CC} =6.0V, C _L =150pF			21	34			43	ns	
Propagation delay from input (LE) to output (Q)		V _{CC} =2.0V, C _L =50pF		50	175			220	ns
		V _{CC} =4.5V, C _L =50pF		18	35			45	ns
		V _{CC} =6.0V, C _L =50pF		14	30			38	ns
		V _{CC} =2.0V, C _L =150pF		103	225			285	ns
	V _{CC} =4.5V, C _L =150pF		33	45			58	ns	
Output enable time from input ($\overline{OE}$) to output (Q)	t _{PZL} /t _{PZH}	V _{CC} =6.0V, C _L =150pF		29	38			48	ns
		V _{CC} =2.0V, C _L =50pF		55	150			210	ns
		V _{CC} =4.5V, C _L =50pF		20	30			42	ns
		V _{CC} =6.0V, C _L =50pF		16	26			36	ns
		V _{CC} =2.0V, C _L =150pF		85	200			270	ns
Output disable time from input ($\overline{OE}$) to output (Q)	t _{PLZ} /t _{PHZ}	V _{CC} =4.5V, C _L =150pF		29	40			54	ns
		V _{CC} =6.0V, C _L =150pF		26	34			47	ns
		V _{CC} =2.0V, C _L =50pF		30	150			225	ns
		V _{CC} =4.5V, C _L =50pF		12	30			45	ns
		V _{CC} =6.0V, C _L =50pF		10	26			38	ns
Pulse Width	t _W	V _{CC} =2.0V	80			120			ns
		V _{CC} =4.5V	16			24			ns
		V _{CC} =6.0V	14			20			ns
Setup Time	t _{SU}	V _{CC} =2.0V	50			75			ns
		V _{CC} =4.5V	10			15			ns
		V _{CC} =6.0V	9			13			ns
Hold Time	t _H	V _{CC} =2.0V	20			24			ns
		V _{CC} =4.5V	5			5			ns
		V _{CC} =6.0V	5			5			ns

13. OPERATING CHARACTERISTICS

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Capacitance	C _{IN}	V _{CC} =2.0V~6.0V		3	10	pF
Power Dissipation Capacitance	C _{PD}	No load		50		pF

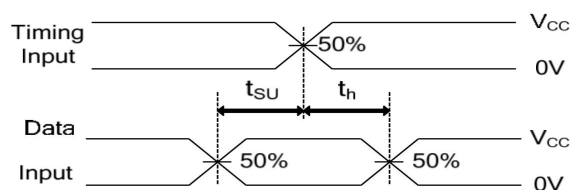
14. TEST CIRCUIT AND WAVEFORMS



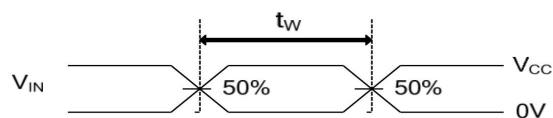
TEST	S
t _{PLH} /t _{PHL}	Open
t _{PHZ} /t _{PZH}	GND
t _{PLZ} /t _{PZL}	V _{CC}

TEST CIRCUIT

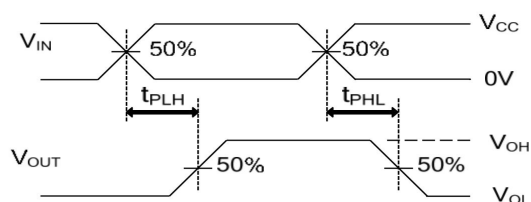
Note: C_L includes probe and jig capacitance. PRR≤1MHz, Z_o=50Ω, t_r≤6ns, t_f≤6ns



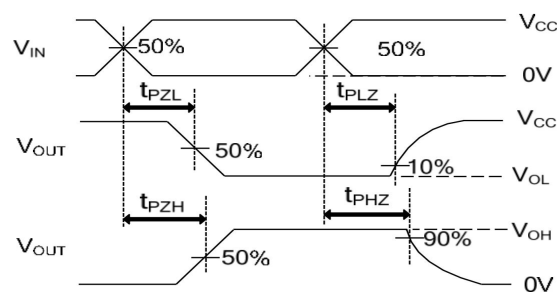
SETUP TIME AND HOLD TIME



PULSE WIDTH



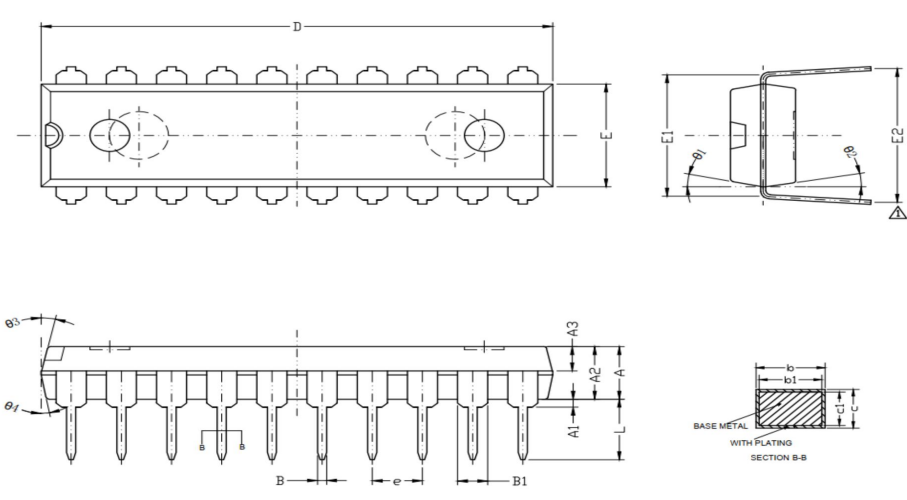
PROPAGATION DELAY TIMES



ENABLE AND DISABLE TIMES

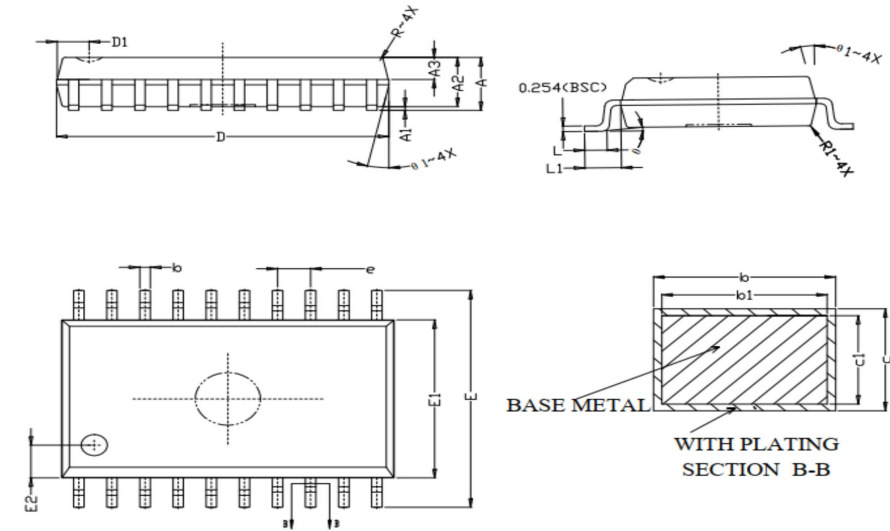
15. PACKAGE INFORMATION

DIP 20 package information



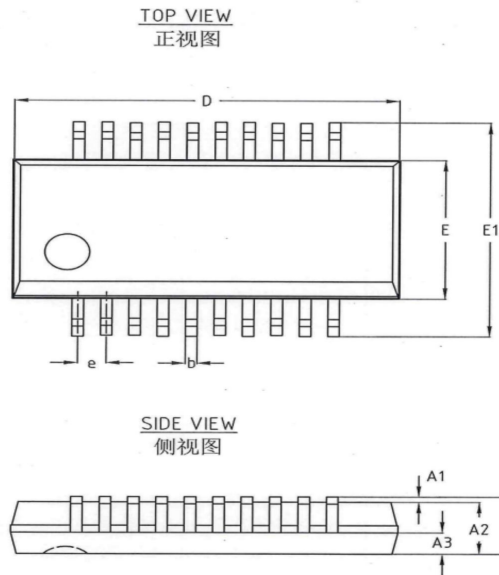
SYMBOL	MILLIMETER		
	MIN	MIN	MAX
A	3.60	3.80	4.00
A1	0.51	--	--
A2	3.20	3.30	3.40
A3	1.47	1.52	1.57
B	0.44	--	0.53
B1	1.52(BSC)		
b	0.44	--	0.53
b1	0.43	0.46	0.48
c	0.25	--	0.31
c1	0.24	0.25	0.26
D	25.7	25.9	26.1
E	6.35	6.55	6.75
E1	7.62(BSC)		
E2	8.00	8.40	8.80
e	2.54(BSC)		
L	3.00	--	3.60
θ_1	8°	--	14°
θ_2	6°	--	12°
θ_3	8°	--	14°
θ_4	6°	--	12°

SOP 20 package information



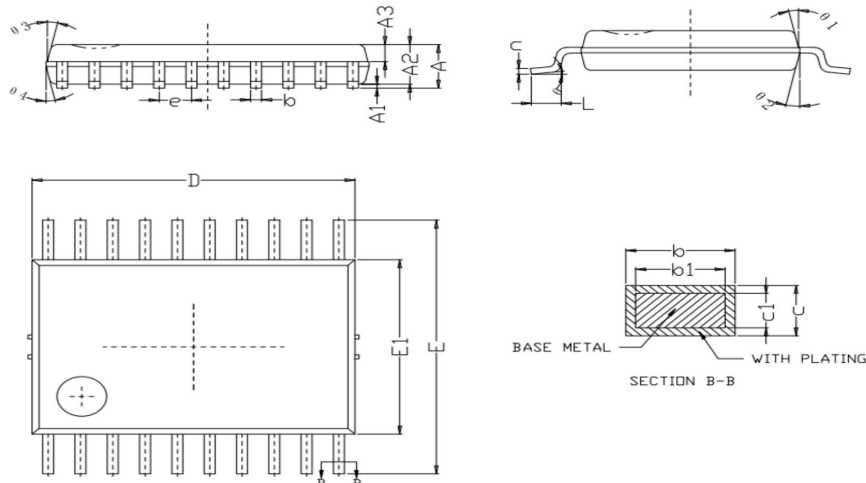
SYMBOL	MILLIMETER		
	MIN	MIN	MAX
A	--	--	2.615
A1	0.10	--	0.30
A2	2.29	2.34	2.39
A3	0.99	1.043	1.07
b	0.39	--	0.47
b1	0.38	0.41	0.44
c	0.25	--	0.29
c1	0.24	0.25	0.26
D	12.65	12.75	12.85
D1	1.225(BSC)		
E	10.10	10.30	10.50
E1	7.40	7.50	7.60
E2	1.55(BSC)		
e	1.27(BSC)		
L	0.854	0.864	0.874
L1	1.403(REF)		
θ	0°	--	8°
θ_1	6°	--	15°
R/R1	R1.27(BSC)		

SSOP 20 package information



SYMBOL	MILLIMETER		
	MIN	MIN	MAX
A	--	--	1.75
A1	0.10	--	0.25
A2	1.35	1.45	1.55
A3	0.60	0.65	0.70
b	0.23	--	0.31
c	0.19	--	0.25
D	8.50	8.60	8.70
E	3.80	3.90	4.00
E1	5.80	6.00	6.20
e	0.635(BSC)		
h	0.30	--	0.50
L	0.40	~	0.80
θ	0°	~	8°

TSSOP 20 package information



SYMBOL	MILLIMETER		
	MIN	MIN	MAX
A	--	--	1.20
A1	0.05	0.10	0.15
A2	0.80	0.93	1.05
A3	0.38	0.43	0.48
b	0.17	--	0.27
b1	0.16	0.22	0.26
c	0.13	--	0.15
c1	0.12	0.13	0.14
D	6.40	6.50	6.60
E	6.25	6.40	6.55
E1	4.30	4.40	4.50
e	0.65(BSC)		
L	0.45	0.60	0.75
θ	0°	~	8°
θ1	10°	~	14°
θ2	10°	~	14°
θ3	10°	~	14°
θ4	10°	~	14°