

HD74HCT244

Octal Buffers/Line Drivers/Line Receivers (with inverted 3-state outputs)

REJ03D0664-0200
 (Previous ADE-205-553)
 Rev.2.00
 Mar 30, 2006

Description

The HD74HCT244 is a non-inverting buffer and has two active low enable ($\overline{1G}$ and $\overline{2G}$). Each enable independently controls 4 buffers.

This device does not have schmitt trigger inputs.

Features

- LSTTL Output Logic Level Compatibility as well as CMOS Output Compatibility
- High Speed Operation: t_{pd} (A to Y) = 10 ns typ ($C_L = 50$ pF)
- High Output Current: Fanout of 15 LSTTL Loads
- Wide Operating Voltage: $V_{CC} = 4.5$ to 5.5 V
- Low Input Current: $1 \mu\text{A}$ max
- Low Quiescent Supply Current: I_{CC} (static) = $4 \mu\text{A}$ max ($T_a = 25^\circ\text{C}$)
- Ordering Information

Part Name	Package Type	Package Code (Previous Code)	Package Abbreviation	Taping Abbreviation (Quantity)
HD74HCT244P	DILP-20 pin	PRDP0020AC-B (DP-20NEV)	P	—
HD74HCT244FPEL	SOP-20 pin (JEITA)	PRSP0020DD-B (FP-20DAV)	FP	EL (2,000 pcs/reel)
HD74HCT244RPEL	SOP-20 pin (JEDEC)	PRSP0020DC-A (FP-20DBV)	RP	EL (1,000 pcs/reel)
HD74HCT244TELL	TSSOP-20 pin	PTSP0020JB-A (TTP-20DAV)	T	ELL (2,000 pcs/reel)

Note: Please consult the sales office for the above package availability.

Function Table

Inputs		Output
\overline{G}	A	Y
H	X	Z
L	H	H
L	L	L

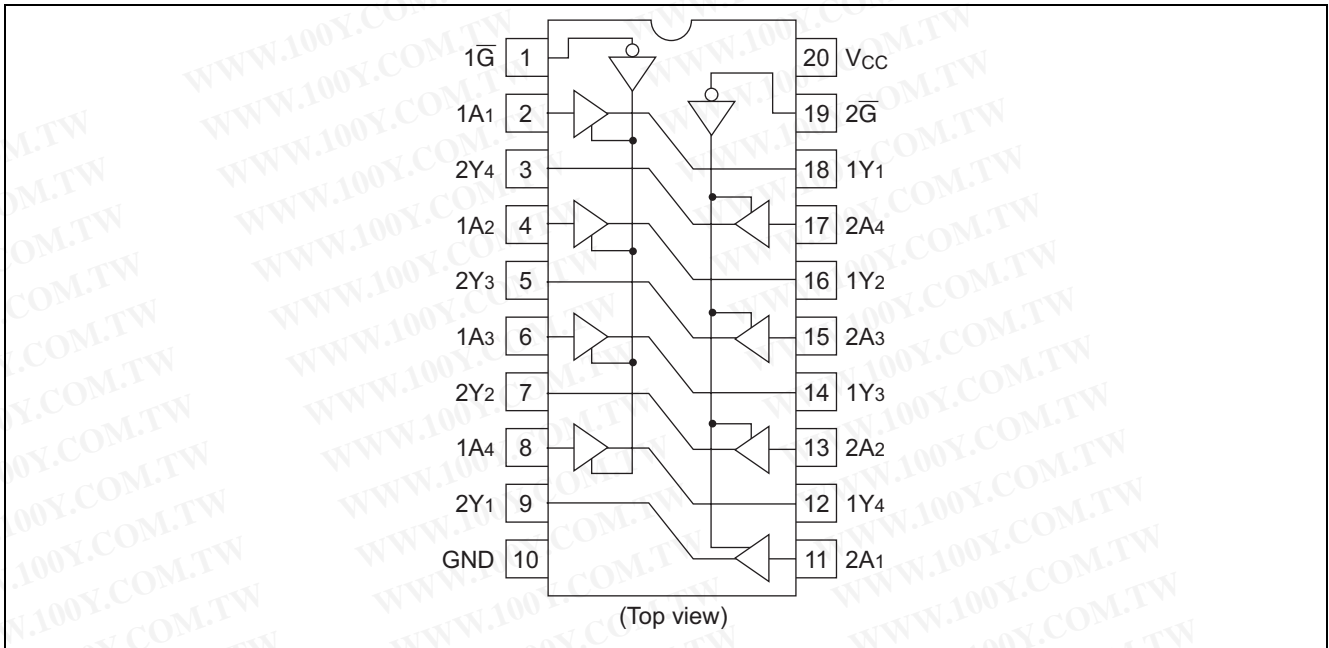
H : high level

L : low level

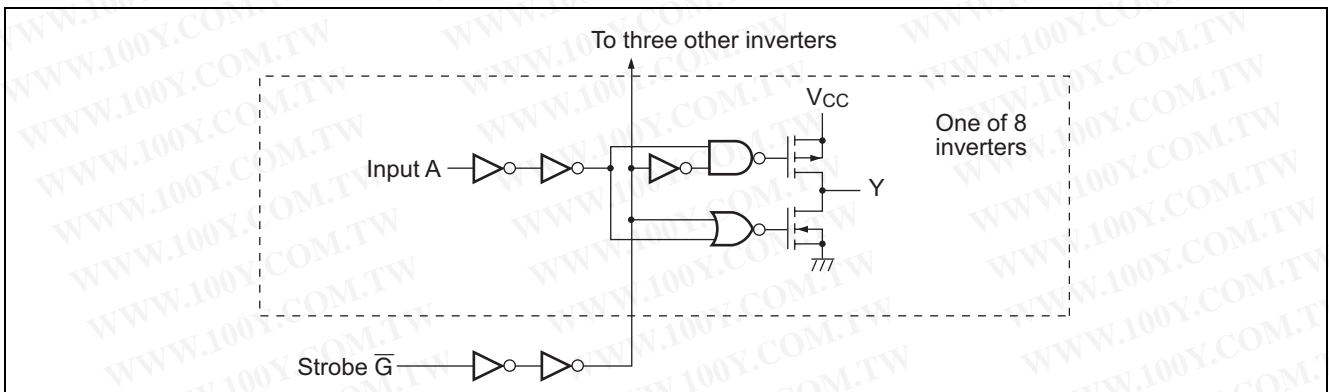
X : irrelevant

Z : off (high-impedance) state of a 3-state output

Pin Arrangement



Logic Diagram



Absolute Maximum Ratings

Item	Symbol	Ratings	Unit
Supply voltage range	V_{CC}	-0.5 to 7.0	V
Input / Output voltage	V_{IN}, V_{OUT}	-0.5 to $V_{CC} + 0.5$	V
Input / Output diode current	I_{IK}, I_{OK}	± 20	mA
Output current	I_O	± 35	mA
V_{CC}, GND current	I_{CC} or I_{GND}	± 75	mA
Power dissipation	P_T	500	mW
Storage temperature	T_{stg}	-65 to +150	$^{\circ}C$

Note: The absolute maximum ratings are values, which must not individually be exceeded, and furthermore, no two of which may be realized at the same time.

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Recommended Operating Conditions

Item	Symbol	Ratings	Unit	Conditions
Supply voltage	V _{CC}	4.5 to 5.5	V	
Input / Output voltage	V _{IN} , V _{OUT}	0 to V _{CC}	V	
Operating temperature	T _a	-40 to 85	°C	
Input rise / fall time ^{*1}	t _r , t _f	0 to 500	ns	V _{CC} = 4.5 V

Notes: 1. This item guarantees maximum limit when one input switches.
Waveform: Refer to test circuit of switching characteristics.

Electrical Characteristics

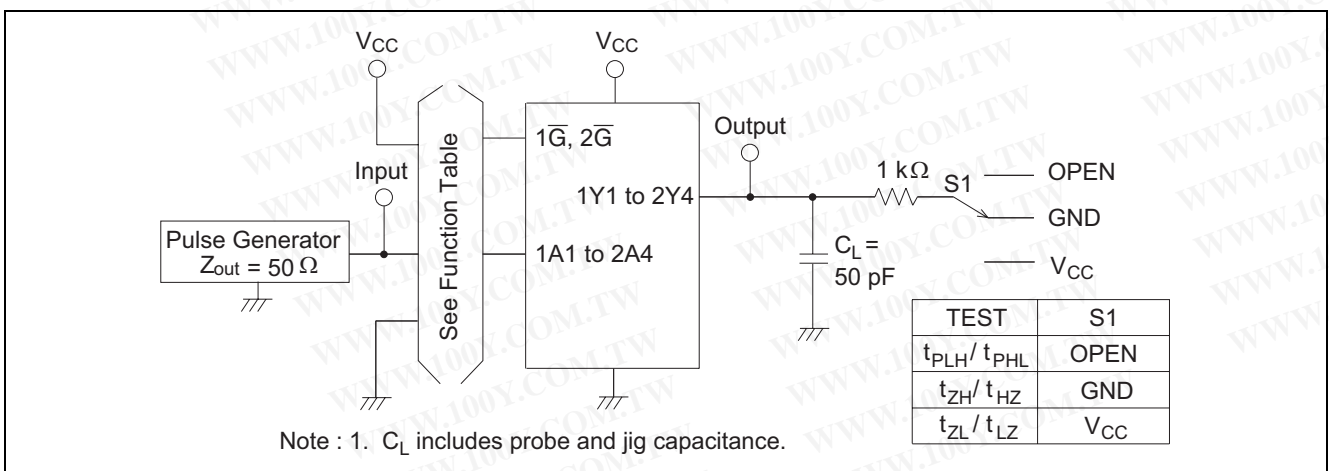
Item	Symbol	V _{CC} (V)	Ta = 25°C			Ta = -40 to+85°C		Unit	Test Conditions	
			Min	Typ	Max	Min	Max			
Input voltage	V _{IH}	4.5 to 5.5	2.0	—	—	2.0	—	V		
	V _{IL}	4.5 to 5.5	—	—	0.8	—	0.8			
Output voltage	V _{OH}	4.5	4.4	—	—	4.4	—	V	V _{in} = V _{IH} or V _{IL}	I _{OH} = -20 μA
		4.5	4.18	—	—	4.13	—			
	V _{OL}	4.5	—	—	0.1	—	0.1	V		I _{OL} = 20 μA
		4.5	—	—	0.26	—	0.33			
Off-state output current	I _{OZ}	5.5	—	—	±0.5	—	±5.0	μA	V _{in} = V _{IH} or V _{IL} V _{out} = V _{CC} or GND	
Input current	I _{in}	5.5	—	—	±0.1	—	±1.0	μA	V _{in} = V _{CC} or GND	
Quiescent current	I _{CC}	5.5	—	—	4.0	—	40	μA	V _{in} = V _{CC} or GND, I _{out} = 0 μA	

Switching Characteristics

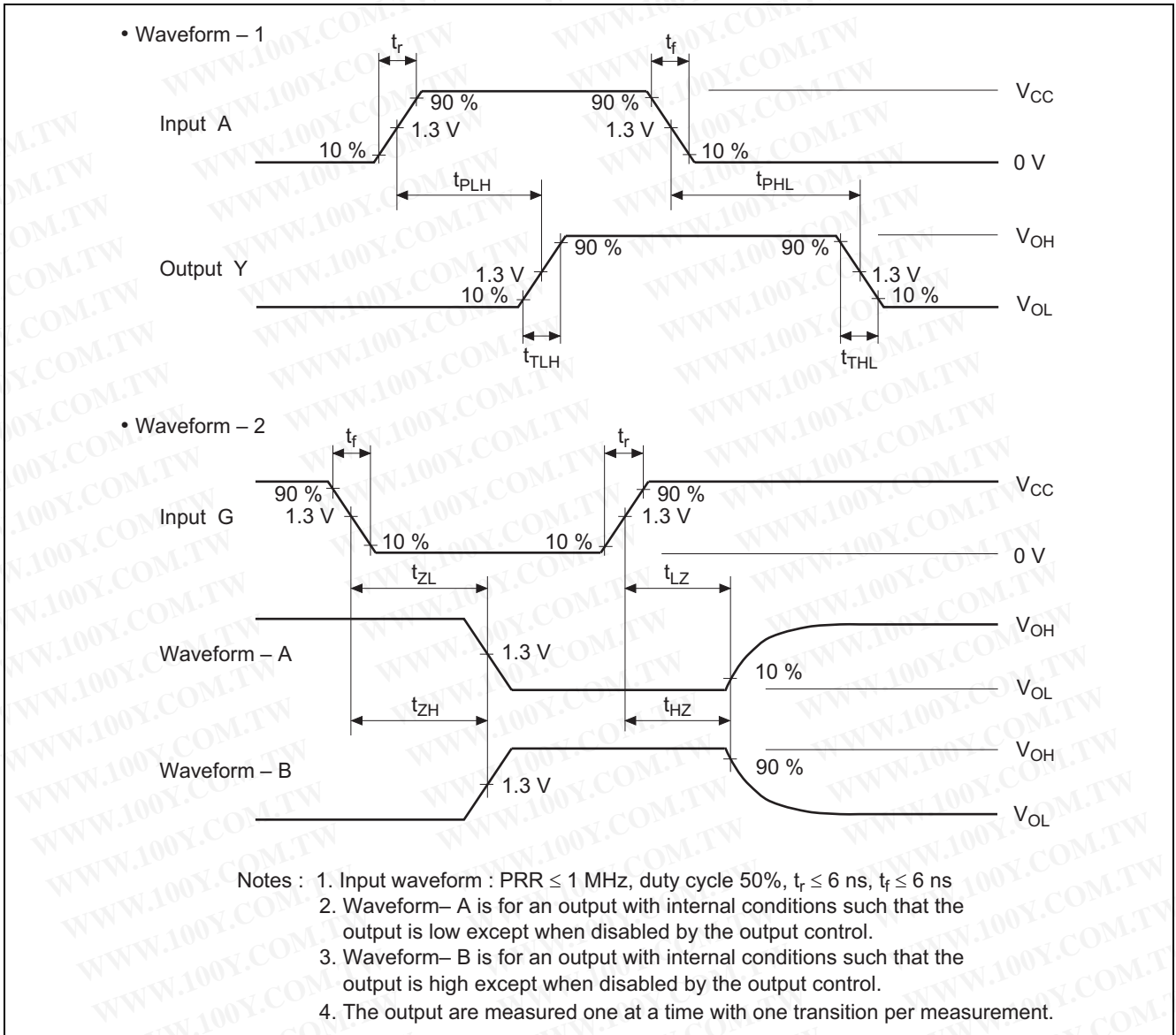
(C_L = 50 pF, Input t_r = t_f = 6 ns)

Item	Symbol	V _{CC} (V)	Ta = 25°C			Ta = -40 to +85°C		Unit	Test Conditions	
			Min	Typ	Max	Min	Max			
Propagation delay time	t _{PHL}	4.5	—	11	20	—	25	ns		
	t _{PLH}	4.5	—	9	20	—	25			
Output enable time	t _{ZL}	4.5	—	13	30	—	38	ns		
	t _{ZH}	4.5	—	12	30	—	38			
Output disable time	t _{LZ}	4.5	—	14	30	—	38	ns		
	t _{HZ}	4.5	—	17	30	—	38			
Output rise/fall time	t _{TLH} / t _{THL}	4.5	—	4	12	—	15	ns		
Input capacitance	C _{in}	—	—	5	10	—	10	pF		

Test Circuit



Waveforms

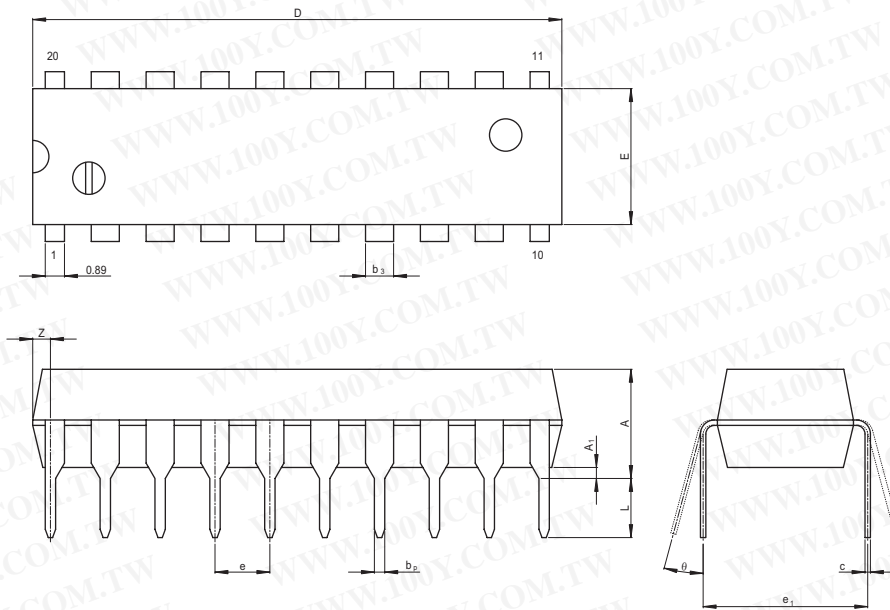


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Package Dimensions

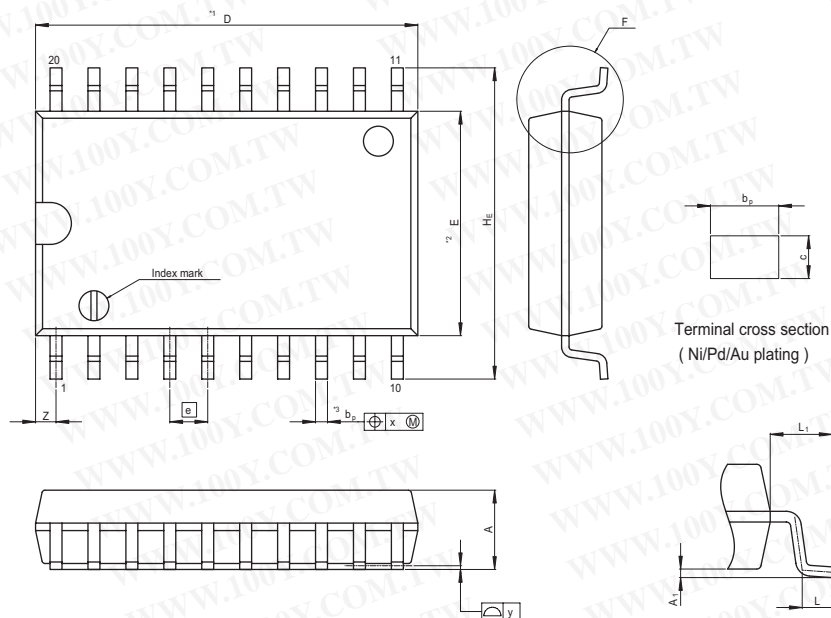
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JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]
P-DIP20-6.3x24.5-2.54	PRDP0020AC-B	DP-20NEV	1.26g



Reference Symbol	Dimension in Millimeters		
	Min	Nom	Max
e ₁	—	7.62	—
D	—	24.50	25.40
E	—	6.30	7.00
A	—	—	5.08
A ₁	0.51	—	—
b _p	0.40	0.48	0.56
b ₃	—	1.30	—
c	0.19	0.25	0.31
θ	0°	—	15°
e	2.29	2.54	2.79
Z	—	—	1.27
L	2.54	—	—

JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]
P-SOP20-7.5x12.8-1.27	PRSP0020DC-A	FP-20DBV	0.52g

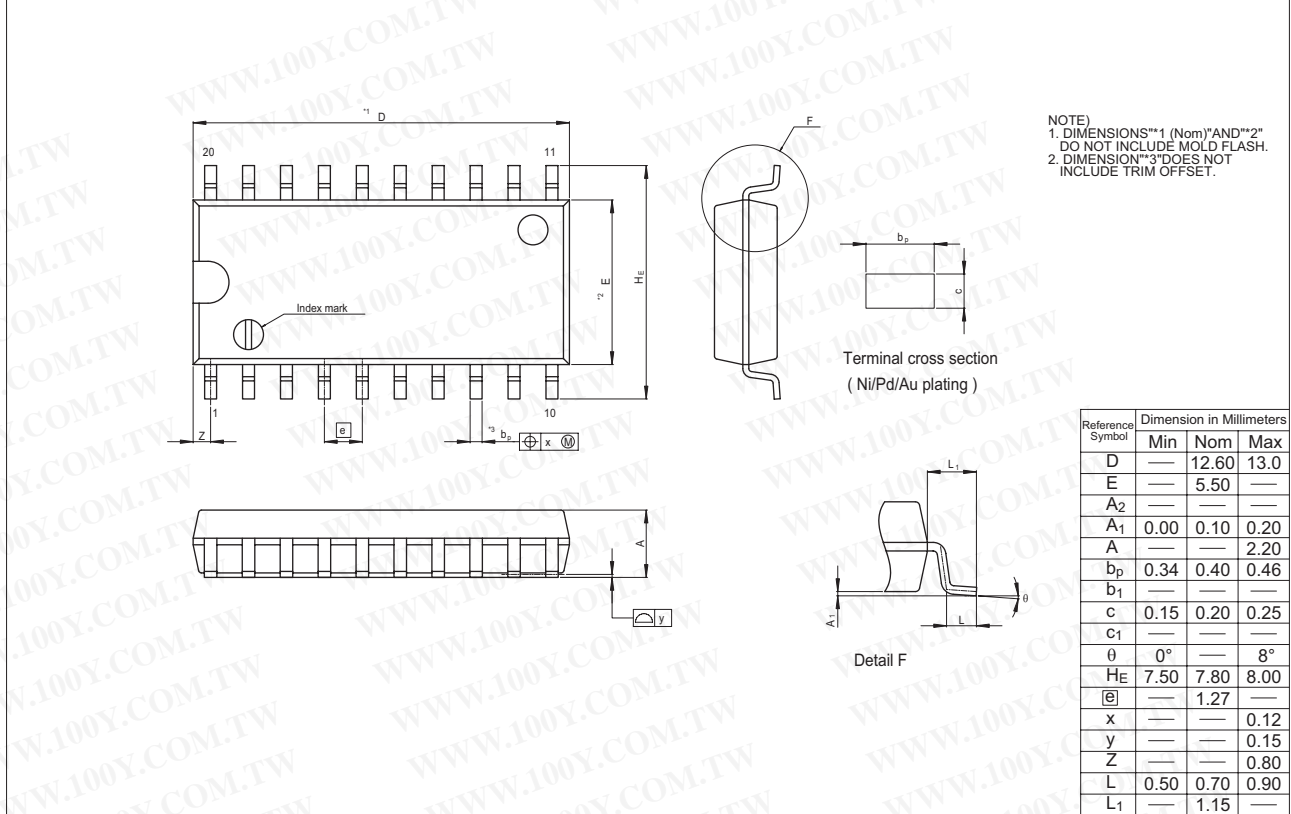


NOTE)
 1. DIMENSIONS**1 (Nom)*AND**2*
 @ DO NOT INCLUDE MOLD FLASH.
 2. DIMENSION**3*DOES NOT
 @ INCLUDE TRIM OFFSET.

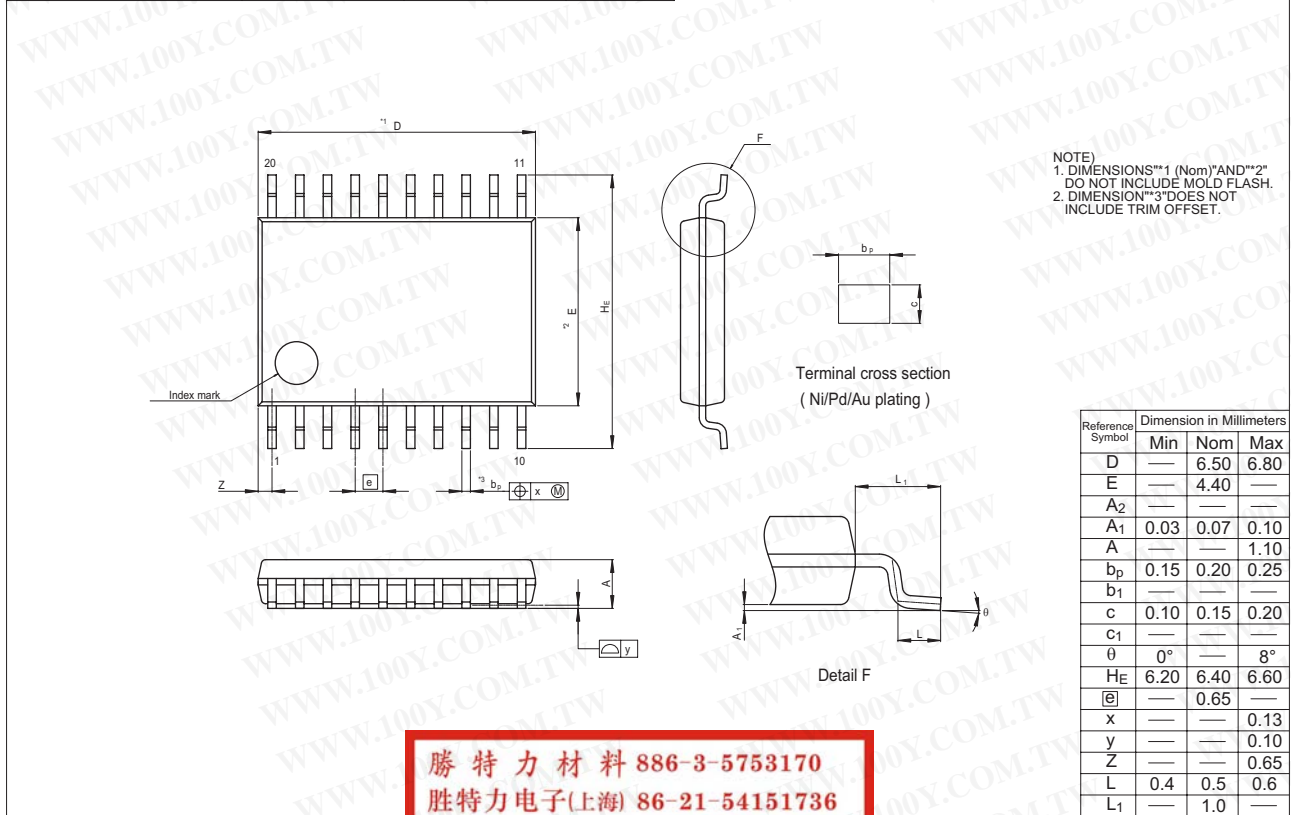
Reference Symbol	Dimension in Millimeters		
	Min	Nom	Max
D	—	12.80	13.2
E	—	7.50	—
A ₂	—	—	—
A ₁	0.10	0.20	0.30
A	—	—	2.65
b _p	0.34	0.40	0.46
b ₁	—	—	—
c	0.20	0.25	0.30
c ₁	—	—	—
θ	0°	—	8°
HE	10.00	10.40	10.65
@	—	1.27	—
x	—	—	0.12
y	—	—	0.15
Z	—	—	0.935
L	0.40	0.70	1.27
L ₁	—	1.45	—

HD74HCT244

JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]
P-SOP20-5.5x12.6-1.27	PRSP0020DD-B	FP-20DAV	0.31g



JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]
P-TSSOP20-4.4x6.5-0.65	PTSP0020JB-A	TTP-20DAV	0.07g



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