Characterization

TM74HC245 is a 3-state Output Octal Bus Transceiver, mainly used in large-screen display, as well as in other consumer electronics products to enhance drive. This product is excellent in performance and reliable in quality.

Features

- CMOS Technology
- Wide voltage range: 3.0V-5.5V
- Noninverting 3-state gate output
- 8-bit bidirectional transceiver
- Package type: SOP20, SSOP20, TSSOP20

Block diagram of internal structure

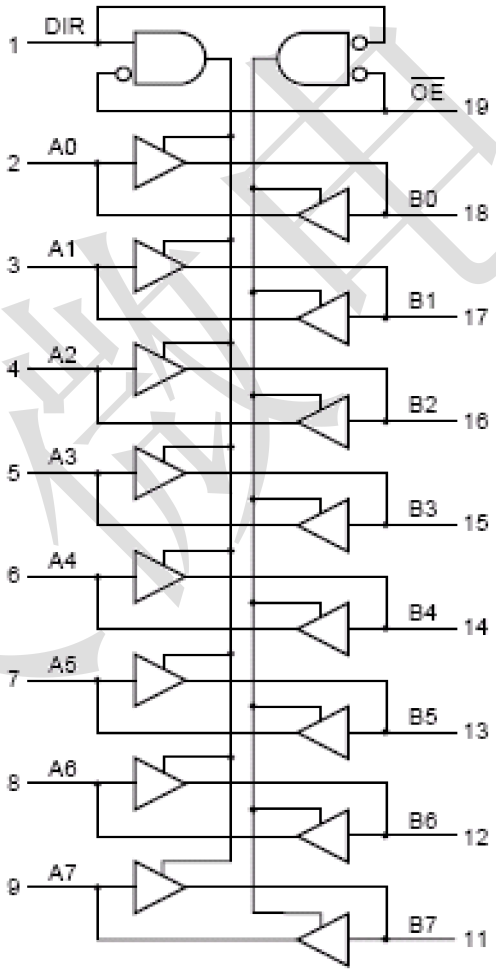


Fig. 1

Pin arrangement

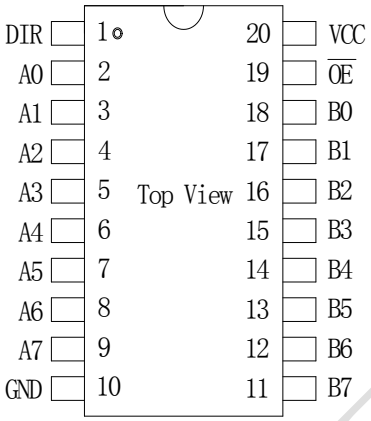


Fig. 2

Pin Function

Pin Name	Pin No.	I/O	Function Description
A0—A7	2—9	—	Data input and output
B0—B7	18—11	—	Data input and output
OE	19	I	Output Enable
DIR	1	O	Direction control DIR=1:A →B DIR=0:B →A
GND	20		Logic GND
VDD	10		Logic Power

Here are the ESD logo and descriptions provided as a reminder for electrostatic protection: An integrated circuit is a static sensitive device. Since a considerable amount of static electricity is likely to be generated in a dry season or a dry environment and electrostatic discharge will damage integrated circuits, it is the advice of Titan that preventive measures should be taken for all appropriate ICs are. Improper operation and welding may cause ESD damage or performance degradation, and put the chip out of service.

Truth table

Output Enable	Output Control	Operating state
OE	DIR	
L	L	B_n input, A_n output
L	H	A_n input, B_n output
H	H	High-impedance state

Limit parameter

Tested at 25℃, unless otherwise stated		TM74HC245	Unit
Parameter Name	Parameter Symbol	Limit	
Logic Supply Voltage	VDD	-0.5~+7.0	V
Logic input voltage	VI1	-0.5~VDD+0.5	V
Output drive current	IOH	-95	mA
Output Sink Current	IOL	105	mA
Power loss	PD	<400	mW
Operating temperature	Topt	-40~+80	℃
Storage temperature	Tstg	-65~+150	℃

Recommended Operating Conditions

Tested at 25℃, unless otherwise stated			TM74HC245			Unit
Parameter Name	Parameter Symbol	Test Conditions	Minimum	Typical	Maximum	
Logic Supply Voltage	VDD		3.0	5	5.5	V
High-level input voltage	VIH	VDD=5.0V	3.3			V
Low-level input voltage	VIL	VDD=5.0V	0	-	1.5	V

Electrical Characteristics

Tested at 25℃, unless otherwise stated			TM74HC245			Unit
Parameter Name	Parameter Symbol	Test Conditions	Minimum	Typical	Maximum	
High-level output voltage	VOH	VDD=5V	4.9			V
Low-level input voltage	VOL	VDD=5V			0.1	V
Quiescent current loss	IDD	VDD=5V			1	uA
Output drive current	IOH	VDD=5V	90	95	100	mA
Output Sink Current	IOL	VDD=5V	95	105	115	mA

Timing Characteristics

Tested at 25℃, unless otherwise stated			TM74HC245			Unit
Parameter Name	**Parameter Symbol**	**Test Conditions**	**Minimum**	**Typical**	**Maximum**	
Maximum Transmission Frequency	Fmax	VDD=5V F=25MHz			80	MHZ
A<->B output rise delay	TPLH		6.5	7.0	7.5	ns
A<->B output fall delay	TPHL		6.5	7.0	7.5	ns
Output rising edge	Tr			5.0		ns
Output falling edge	Tf			4.5		ns

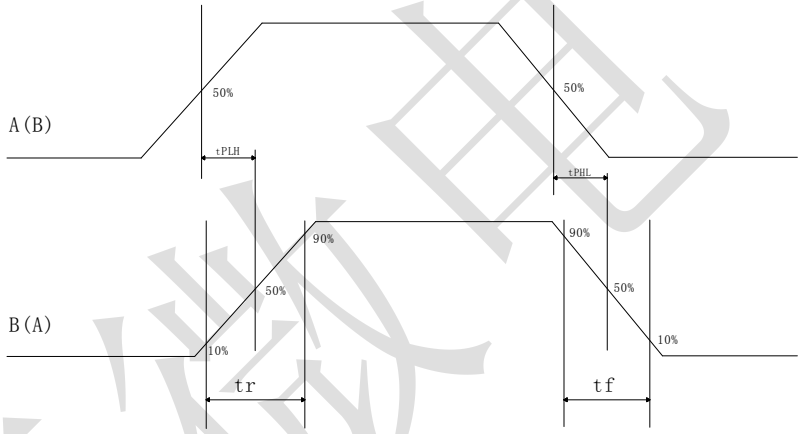


Fig. 3

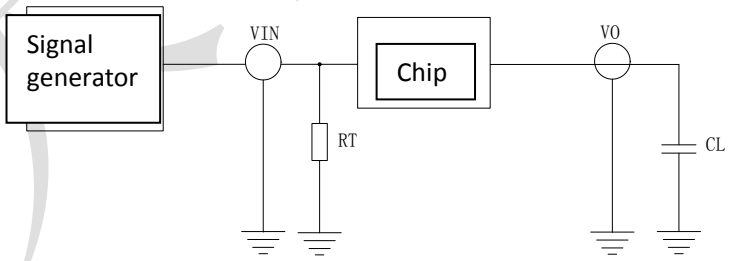
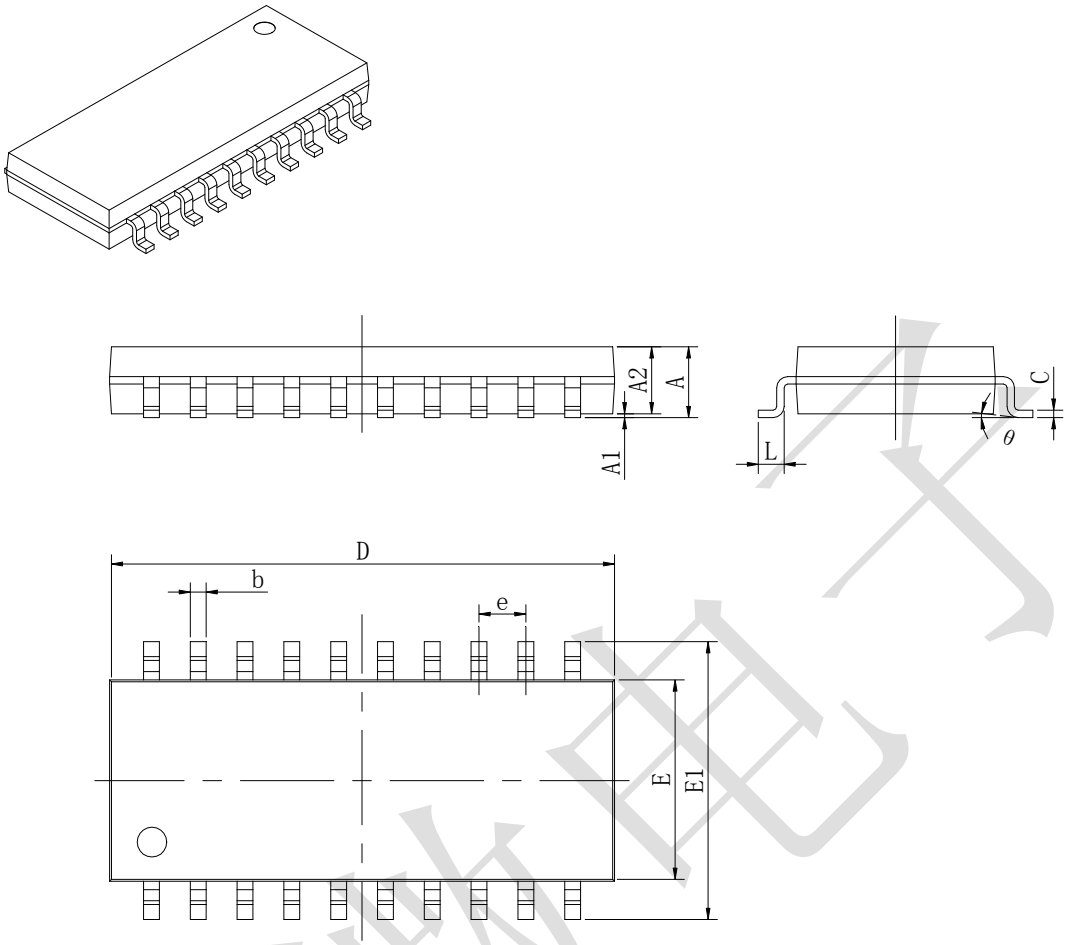


Fig. 4

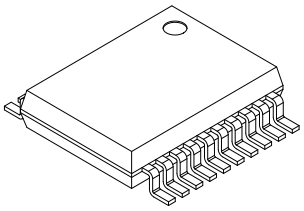
Note: RT is the matched resistor of the signal generator.

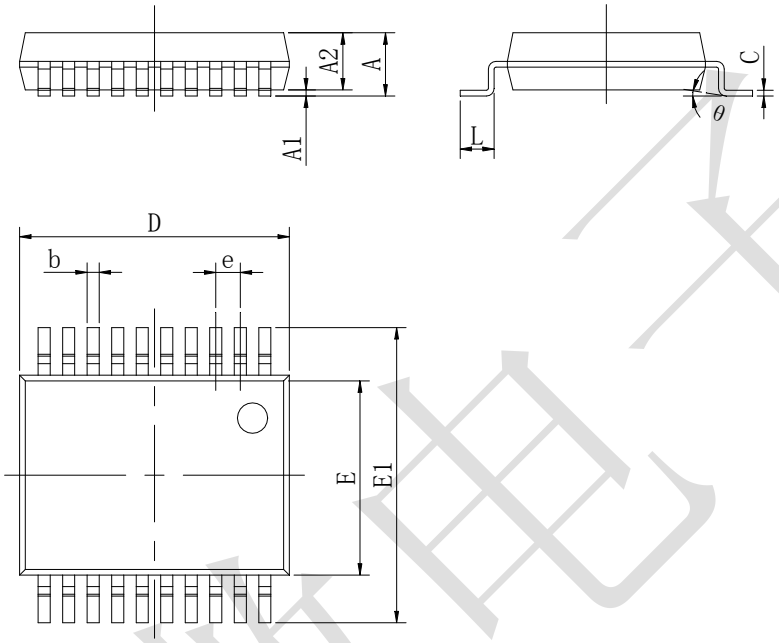
Schematic diagram of packaging (SOP20)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	2.350	2.650	0.093	0.104
A1	0.100	0.300	0.004	0.012
A2	2.100	2.500	0.083	0.098
b	0.330	0.510	0.013	0.020
c	0.204	0.330	0.008	0.013
D	12.520	13.000	0.493	0.512
E	7.400	7.600	0.291	0.299
E1	10.210	10.610	0.402	0.418
e	1.270(BSC)		0.050(BSC)	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°

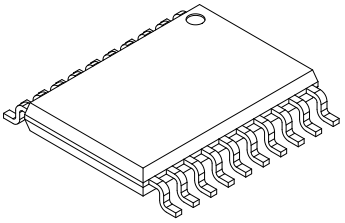
Schematic diagram of packaging(SSOP20)

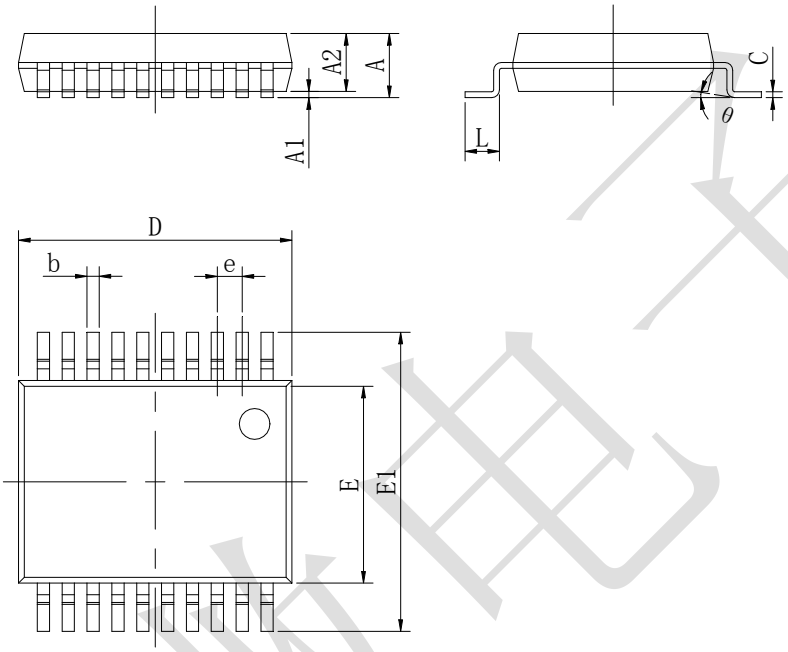




Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A		1.730		0.068
A1	0.050	0.230	0.002	0.009
A2	1.400	1.600	0.055	0.063
b	0.220	0.380	0.009	0.015
c	0.090	0.250	0.004	0.010
D	7.000	7.400	0.276	0.291
E	5.100	5.500	0.201	0.217
E1	7.600	8.000	0.299	0.315
e	0.65(BSC)		0.026(BSC)	
L	0.550	0.950	0.022	0.037
θ	0°	8°	0°	8°

Schematic diagram of packaging(TSSOP20)





Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A		1.15		0.045
A1	0.05	0.15	0.002	0.006
A2	0.9	1.05	0.035	0.041
b	0.22	0.38	0.009	0.015
c	0.090	0.25	0.004	0.010
D	6.4	6.6	0.252	0.60
E	4.3	4.5	0.169	0.177
E1	6.3	6.5	0.248	0.256
e	0.65(BSC)		0.026(BSC)	
L	0.500	0.750	0.02	0.029
θ	0°	8°	0°	8°

All specs and applications shown above are subject to change without prior notice.