SM245

Description

The SM245 is a high-speed CMOS component, the pins of which are compatible with low power consumption schottky TTL (LSTTL) series.

The SM245 is a bidirectional, three-state output, octal-bus signal transceiver, which integrates two controlling ports （OE 、DIR）; DIR is the controlling port of the data flow direction, when DIR is at high level, the data flow direction is A to B; when DIR is at low level, the data flow direction is B to A; OE is the controlling port of the output state, when OE is at high level, the output is at high-impedance; when OE is at low level, the data is at regular transmission.

The SM245 is mainly applied in large screen display and driver-increase of other consumer electronics.

Features

- CMOS technology
- Bidirectional three-state output
- Octal bidirectional transceiver
- ESD HBM: >4KV
- Package:SOP20,SOP20-2,TSSOP20, DIP20

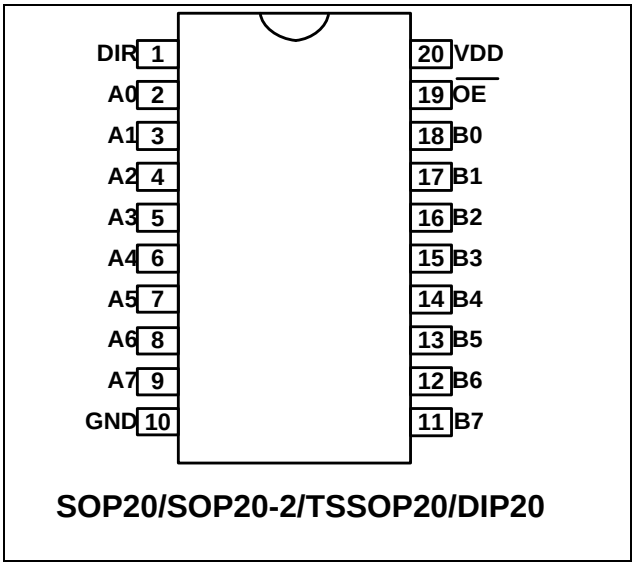
Application

- LED full-color display screen and driver for other digital circuit

Package Information

Name	Package	Package body size (mm)	Pitch (mm)
SM74HC245D	SOP20	12.75*7.5*2.35	1.27
SM245	SOP20-2	12.45*5.3*1.9	1.27
SM245TS	TSSOP20	6.5*4.4*1.0	0.65
SM74HC245P	DIP20	24.6*6.4*3.4	2.54

Pin Setting



SOP20/SOP20-2/TSSOP20/DIP20

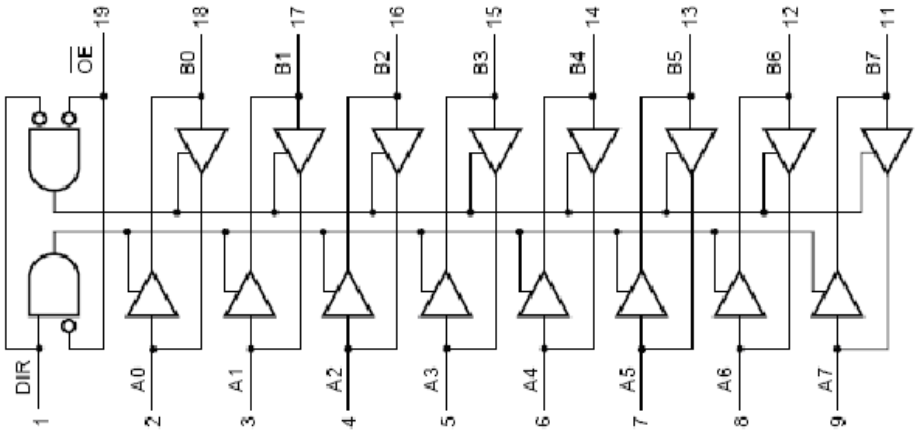
Pin Definition

Symbol	Pin Name	PIN No.	Definition
A0——A7	Data input/ output	2—9	-
B0——B7	Data input/ output	18—11	-
$\overline{OE}$	Output enable	19	-
DIR	Direction control	1	DIR=1,A——>B；DIR=0,B——>A
GND	Logic ground	20	Logic ground
VDD	Logic power	10	Power supply

Truth Table

Output enable	Output control	Operate state
$\overline{OE}$	DIR	
L	L	Bn input and An output
L	H	An input and Bn output
H	X	High resistance state

Logic Diagram



DC Electrical Parameter

Absolute Maximum Parameter（Ta = 25℃）

Parameter	Symbol	Range	Unit
Logic power supply	VDD	-0.5 ～ +7.0	V
Logic input voltage	VI1	-0.5 ～ VDD + 0.5	V
Power dissipation	PD	<400	mW
Operate temperature	Topt	-40 ～ +80	℃
Storage temperature	Tstg	-50 ～ +150	℃

Regular Operating Range

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Logic power supply	VDD	3.0	5.0	5.5	V	-
High level input voltage	VIH	3.3	-	-	V	VDD=5.0V
Low level input voltage	VIL	-	-	1.5	V	VDD=5.0V

DC Characteristic

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
High level output voltage	VOH	4.9	-	-	V	VDD=5.0V
Low level output voltage	VOL	-	-	0.1	V	VDD=5.0V
Static current consumption	IDD	-	-	1	uA	VDD=6.0V
Driving current of output port	IOH	-54	-	-64	mA	VDD=5.0V
	IOL	73	-	83	mA	VDD=5.0V

AC Characteristic

Parameter	Symbol	Min	Typ.	Max.	Unit	Condition
Maximum transmission frequency	fmax	-	-	80	MHz	VDD=5.0V f=250KHz CL=30P Image 1:Sequence Diagram Image 2:Test Circuit
A<—>B output rise time delay	tPLH	-	12	-	ns	
A<—>B output fall time delay	tPHL	-	12	-	ns	
Output rising edge	tr	-	8	-	ns	
Output falling edge	tf	-	6	-	ns	

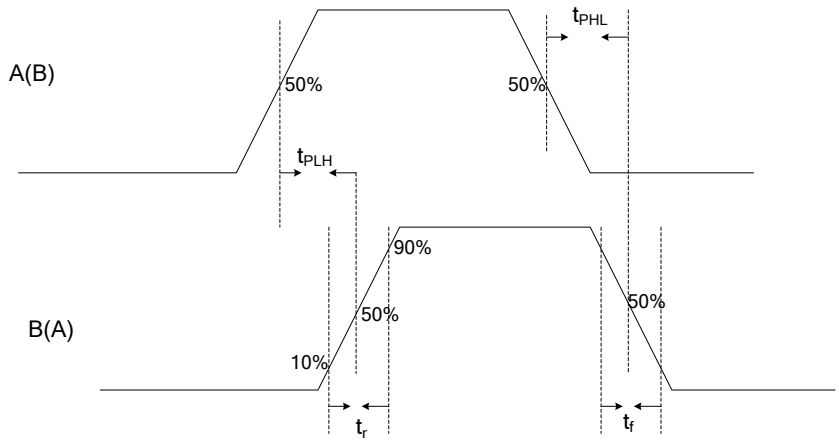


Image 1

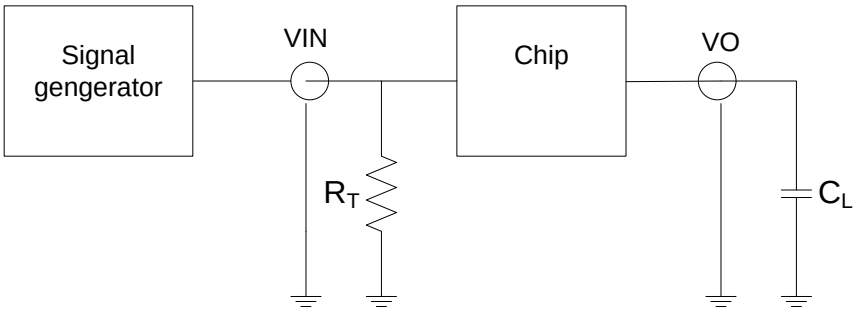
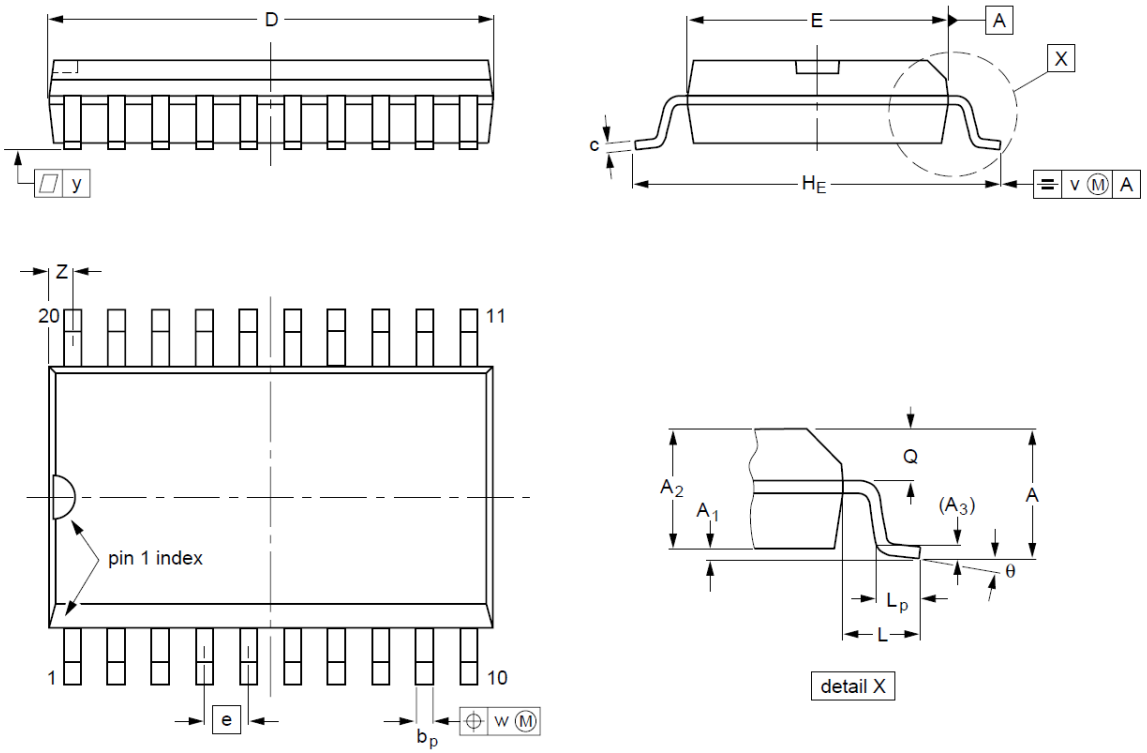


Image 2

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

Package

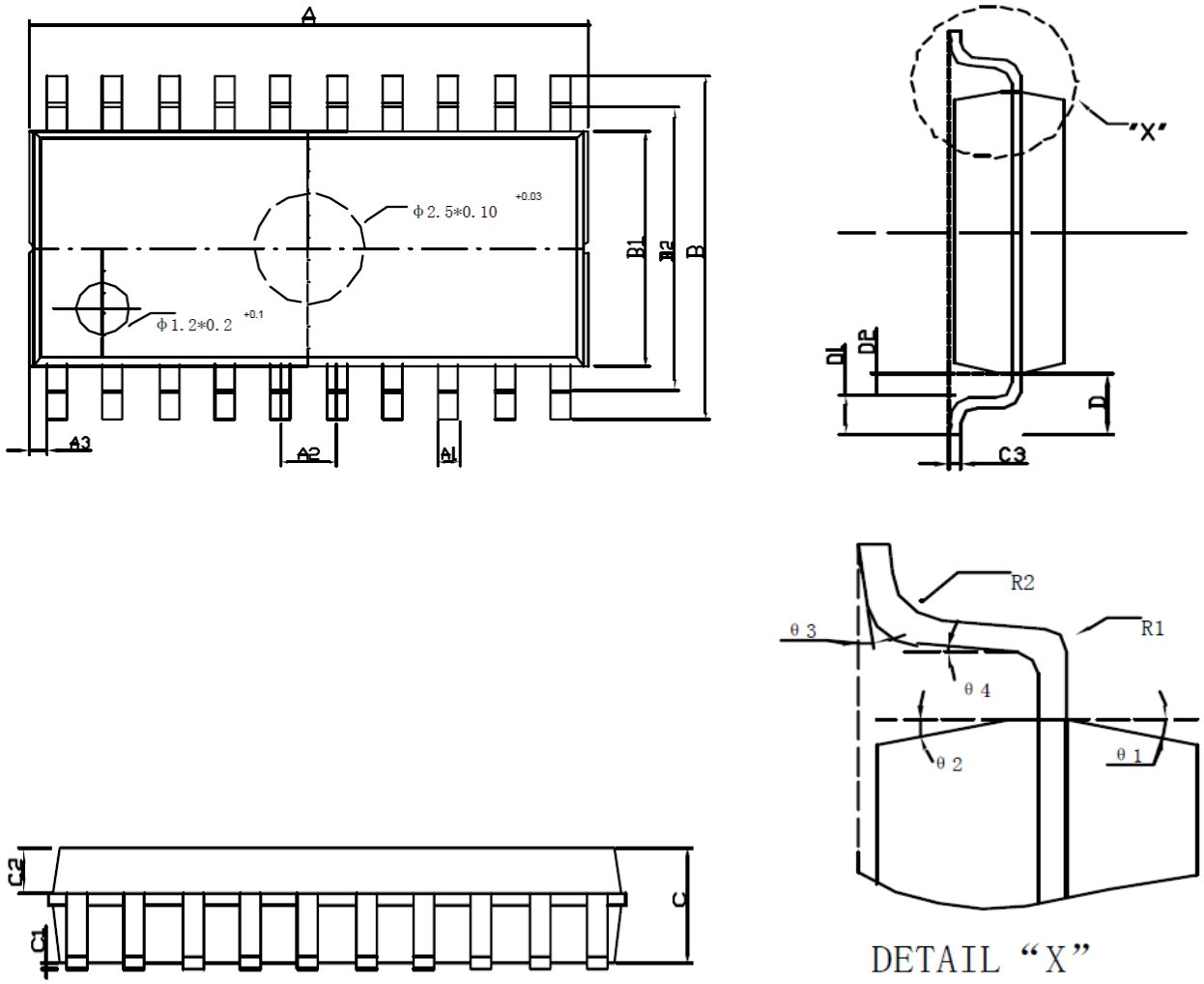
SOP20:



DIMENSIONS (inch dimensions are derived from the original mm dimensions)

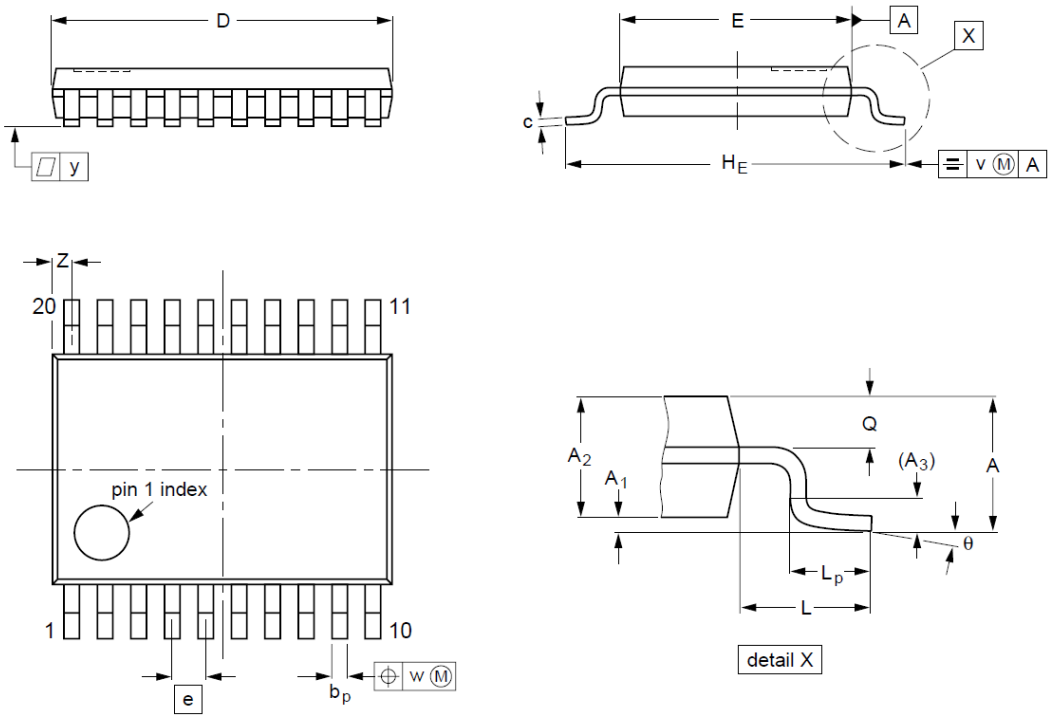
UNIT	A max.	A_1	A_2	A_3	b_p	c	$D^{(1)}$	$E^{(1)}$	e	H_E	L	L_p	Q	v	w	y	$Z^{(1)}$	θ
mm	2.65	0.3 0.1	2.45 2.25	0.25	0.49 0.36	0.32 0.23	13.0 12.6	7.6 7.4	1.27	10.65 10.00	1.4	1.1 0.4	1.1 1.0	0.25	0.25	0.1	0.9 0.4	8^o 0^o
inches	0.1	0.012 0.004	0.096 0.089	0.01	0.019 0.014	0.013 0.009	0.51 0.49	0.30 0.29	0.05	0.419 0.394	0.055	0.043 0.016	0.043 0.039	0.01	0.01	0.004	0.035 0.016	

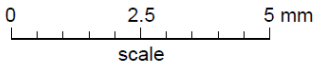
SOP20-2:



size / Symbol	Min(mm)	Max(mm)	size / Symbol	Min(mm)	Max(mm)
A	12.35	12.55	C3	0.2TYP	
A1	0.40	0.48	D	1.3TYP	
A2	1.27TYP		D1	0.30	0.70
A3	0.29TYP		D2	0.65TYP	
B	7.60	8.20	R1	0.3TYP	
B1	5.20	5.40	R2	0.3TYP	
B2	6.6TYP		θ1	15°TYP	
C	1.80	2.00	θ2	8°TYP	
C1	0.05	0.20	θ3	4°TYP	
C2	0.75	0.85	θ4	5°TYP	

TSSOP20:

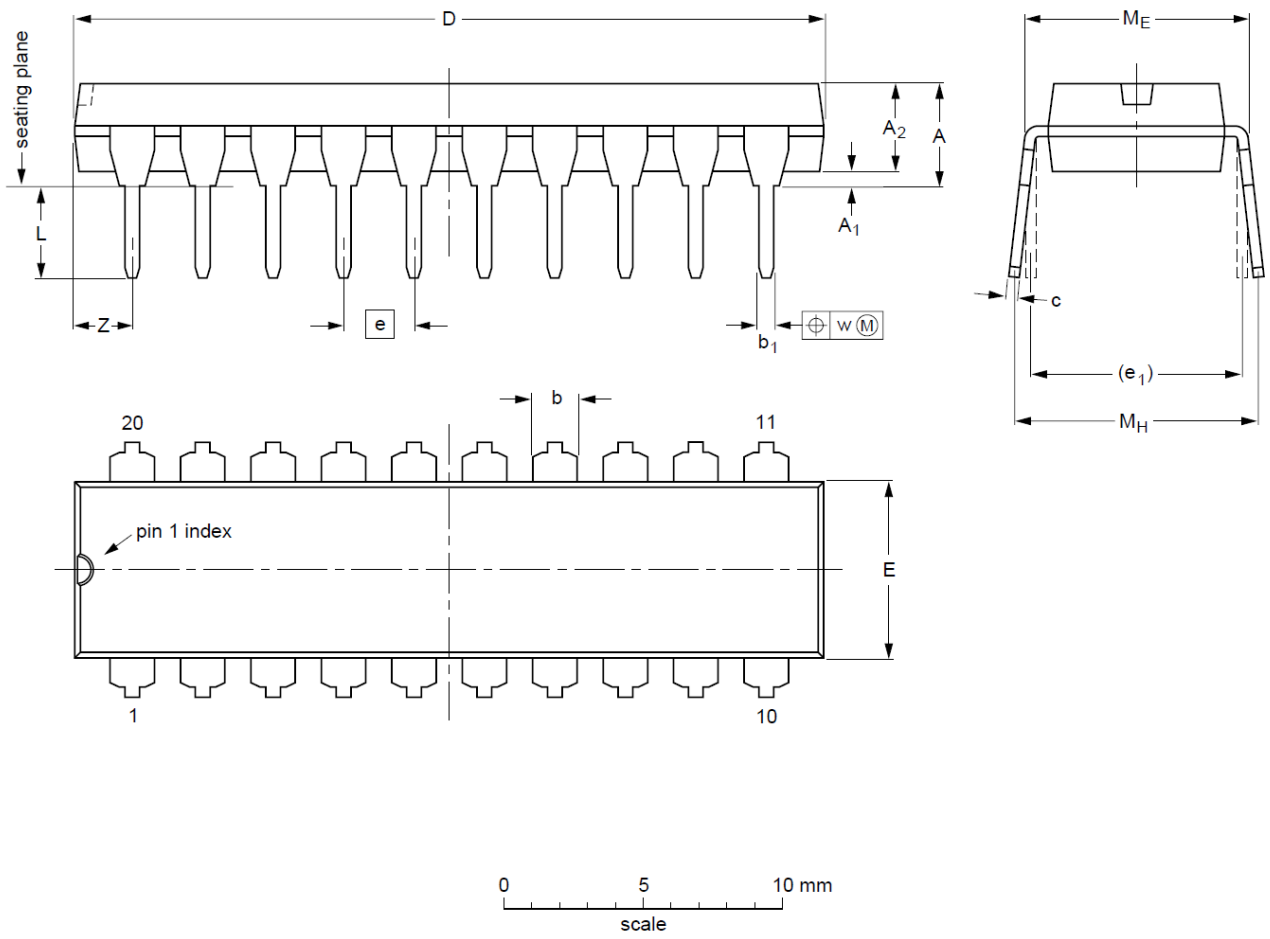




DIMENSIONS (mm are the original dimensions)

UNIT	A max.	A_1	A_2	A_3	b_p	c	D (1)	E (2)	e	H_E	L	L_p	Q	v	w	y	Z (1)	θ
mm	1.1	0.15 0.05	0.95 0.80	0.25	0.30 0.19	0.2 0.1	6.6 6.4	4.5 4.3	0.65	6.6 6.2	1	0.75 0.50	0.4 0.3	0.2	0.13	0.1	0.5 0.2	8^o 0^o

DIP20:



DIMENSIONS (inch dimensions are derived from the original mm dimensions)

UNIT	A max.	A_1 min.	A_2 max.	b	b_1	c	D (1)	E (1)	e	e_1	L	M_E	M_H	w	Z (1) max.
mm	4.2	0.51	3.2	1.73 1.30	0.53 0.38	0.36 0.23	26.92 26.54	6.40 6.22	2.54	7.62	3.60 3.05	8.25 7.80	10.0 8.3	0.254	2
inches	0.17	0.02	0.13	0.068 0.051	0.021 0.015	0.014 0.009	1.060 1.045	0.25 0.24	0.1	0.3	0.14 0.12	0.32 0.31	0.39 0.33	0.01	0.078