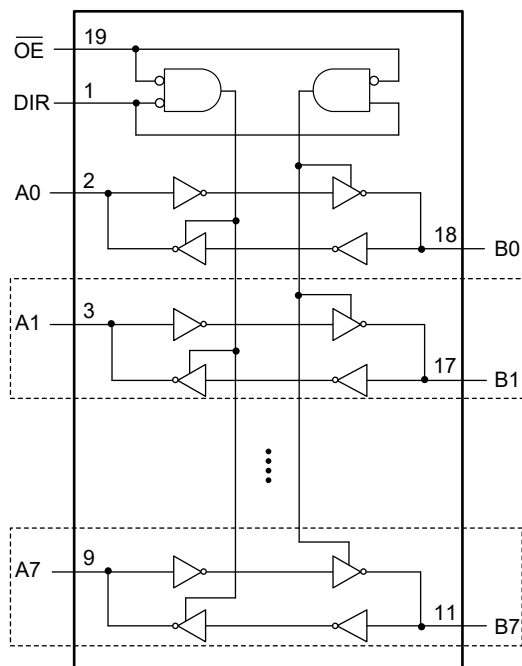


### GENERAL DESCRIPTION

The 74HC245 is an 8-bit bus transceiver with 3-state outputs. The supply voltage can accept any voltage from 2.0V to 5.5V. The An and Bn are 8-bit data input-output ports. DIR is the direction control input and  $\overline{OE}$  is the output enable input.

When DIR is set high, it allows transmission from An to Bn. When DIR is set low, it allows transmission from Bn to An.  $\overline{OE}$  can be used to make the outputs disabled so that the buses are effectively isolated. The clamp diodes of inputs allow the use of current limiting resistors to connect inputs to the voltage exceeding supply voltage.

### LOGIC DIAGRAM



### FEATURES

- Wide Operating Voltage Range: 2.0V to 5.5V
- +7.8mA/-7.8mA Output Current
- CMOS Low Power Consumption
- High Noise Immunity
- Octal Bus Interface with Bidirectional Translation
- 3-State Non-Inverting Outputs
- -40°C to +125°C Operating Temperature Range
- Available in Green SOIC-20 and TSSOP-20 Packages

### APPLICATIONS

Network Switch  
Telecom Equipment

### FUNCTION TABLE

CONTROL INPUT		INPUT/OUTPUT	
$\overline{OE}$	DIR	An	Bn
L	L	An = Bn	Inputs
L	H	Inputs	Bn = An
H	X	Z	Z

H = High Voltage Level  
L = Low Voltage Level  
Z = High-Impedance State  
X = Don't Care

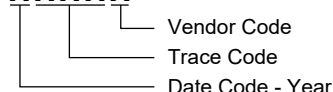
## PACKAGE/ORDERING INFORMATION

MODEL	PACKAGE DESCRIPTION	SPECIFIED TEMPERATURE RANGE	ORDERING NUMBER	PACKAGE MARKING	PACKING OPTION
74HC245	SOIC-20	-40°C to +125°C	74HC245XS20G/TR	74HC245XS20 XXXXXX	Tape and Reel, 1500
	TSSOP-20	-40°C to +125°C	74HC245XTS20G/TR	0HGXTS20 XXXXXX	Tape and Reel, 4000

## MARKING INFORMATION

NOTE: XXXXX = Date Code, Trace Code and Vendor Code.

**XXXXX**



Green (RoHS & HSF): SG Micro Corp defines "Green" to mean Pb-Free (RoHS compatible) and free of halogen substances. If you have additional comments or questions, please contact your SGMICRO representative directly.

ABSOLUTE MAXIMUM RATINGS <sup>(1)</sup>

Supply Voltage Range, $V_{CC}$ .....	-0.5V to 7.0V
Input Voltage Range, $V_I$ <sup>(2)</sup> ....	-0.5V to MIN(7.0V, $V_{CC} + 0.5V$ )
Output Voltage Range, $V_O$ <sup>(2)</sup> .....	-0.5V to MIN(7.0V, $V_{CC} + 0.5V$ )
Input Clamp Current, $I_{IK}$ ( $V_I < -0.5V$ or $V_I > V_{CC} + 0.5V$ ) .....	$\pm 20mA$
Output Clamp Current, $I_{OK}$ ( $V_O < -0.5V$ or $V_O > V_{CC} + 0.5V$ ) .....	$\pm 20mA$
Continuous Output Current, $I_O$ ( $-0.5V < V_O < V_{CC} + 0.5V$ ) .....	$\pm 35mA$
Continuous Current through $V_{CC}$ or GND.....	$\pm 70mA$
Junction Temperature <sup>(3)</sup> .....	+150°C
Storage Temperature Range .....	-65°C to +150°C
Lead Temperature (Soldering, 10s).....	+260°C
ESD Susceptibility	
HBM.....	6000V
CDM .....	1000V

## RECOMMENDED OPERATING CONDITIONS

Supply Voltage Range, $V_{CC}$ .....	2.0V to 5.5V
Input Voltage Range, $V_I$ .....	0V to $V_{CC}$
Output Voltage Range, $V_O$ .....	0V to $V_{CC}$
Output Current, $I_O$ .....	$\pm 7.8mA$
Input Transition Rise or Fall Rate, $\Delta t/\Delta V$	
$V_{CC} = 2.0V$ .....	625ns/V (MAX)
$V_{CC} = 4.5V$ .....	139ns/V (MAX)
$V_{CC} = 5.5V$ .....	83ns/V (MAX)
Operating Temperature Range .....	-40°C to +125°C

## OVERSTRESS CAUTION

1. Stresses beyond those listed in Absolute Maximum Ratings may cause permanent damage to the device. Exposure to absolute maximum rating conditions for extended periods may affect reliability. Functional operation of the device at any conditions beyond those indicated in the Recommended Operating Conditions section is not implied.
2. The input and output negative voltage ratings may be exceeded if the input and output clamp current ratings are observed.
3. The performance capability of a high-performance integrated circuit in conjunction with its thermal environment can create junction temperatures which are detrimental to reliability.

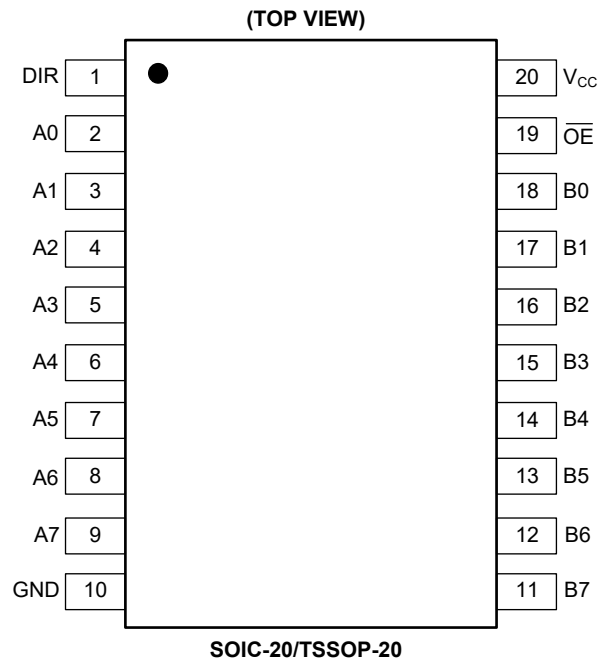
## ESD SENSITIVITY CAUTION

This integrated circuit can be damaged if ESD protections are not considered carefully. SGMICRO recommends that all integrated circuits be handled with appropriate precautions. Failure to observe proper handling and installation procedures can cause damage. ESD damage can range from subtle performance degradation to complete device failure. Precision integrated circuits may be more susceptible to damage because even small parametric changes could cause the device not to meet the published specifications.

## DISCLAIMER

SG Micro Corp reserves the right to make any change in circuit design, or specifications without prior notice.

## PIN CONFIGURATIONS

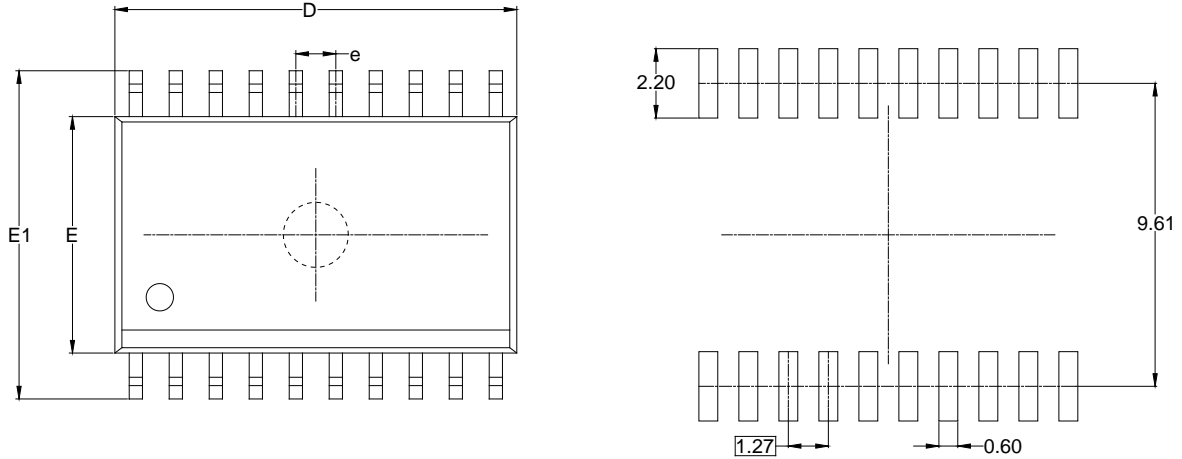


## PIN DESCRIPTION

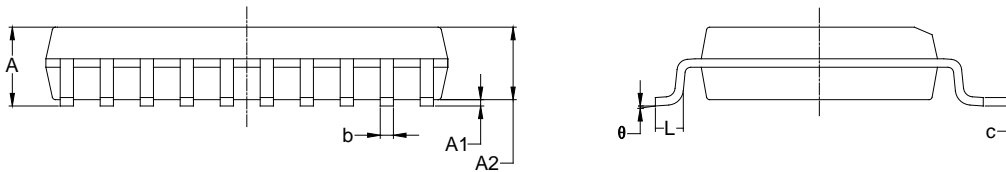
PIN	NAME	FUNCTION
1	DIR	Direction Control Input.
2, 3, 4, 5, 6, 7, 8, 9	A0, A1, A2, A3, A4, A5, A6, A7	Data Inputs/Outputs.
10	GND	Ground.
18, 17, 16, 15, 14, 13, 12, 11	B0, B1, B2, B3, B4, B5, B6, B7	Data Inputs/Outputs.
19	$\overline{\text{OE}}$	Output Enable Input (Active Low).
20	V <sub>CC</sub>	Supply Voltage.

PACKAGE OUTLINE DIMENSIONS

SOIC-20



RECOMMENDED LAND PATTERN (Unit: mm)

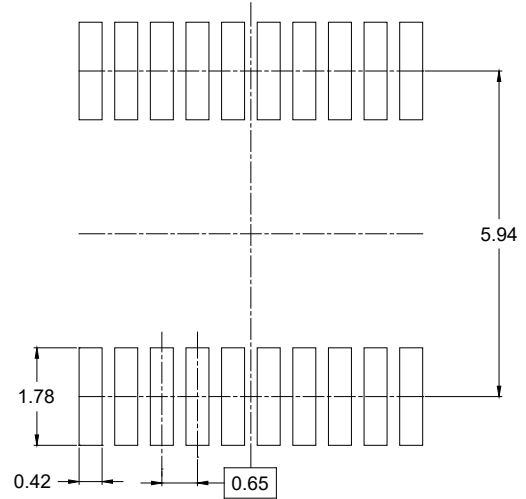
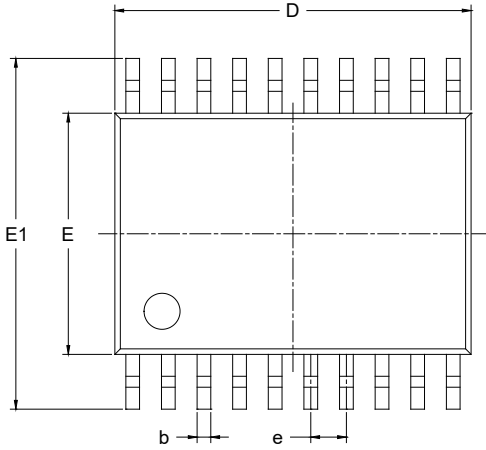


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MIN	MAX	MIN	MAX
A	2.350	2.650	0.093	0.104
A1	0.100	0.300	0.004	0.012
A2	2.100	2.500	0.083	0.098
b	0.330	0.510	0.013	0.020
c	0.204	0.330	0.008	0.013
D	12.520	13.000	0.493	0.512
E	7.400	7.600	0.291	0.299
E1	10.210	10.610	0.402	0.418
e	1.27 BSC		0.050 BSC	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°

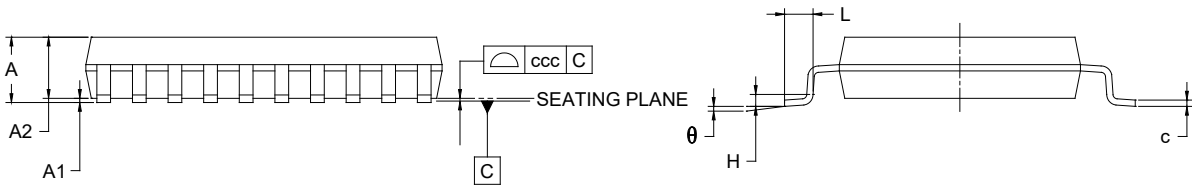
- NOTES:  
 1. Body dimensions do not include mold flash or protrusion.  
 2. This drawing is subject to change without notice.

PACKAGE OUTLINE DIMENSIONS

TSSOP-20



RECOMMENDED LAND PATTERN (Unit: mm)



Symbol	Dimensions In Millimeters		
	MIN	MOD	MAX
A	-	-	1.200
A1	0.050	-	0.150
A2	0.800	-	1.050
b	0.190	-	0.300
c	0.090	-	0.200
D	6.400	-	6.600
E	4.300	-	4.500
E1	6.200	-	6.600
e	0.650 BSC		
L	0.450	-	0.750
H	0.250 TYP		
θ	0°	-	8°
ccc	0.100		

NOTES:

1. Body dimensions do not include mode flash or protrusion.
2. This drawing is subject to change without notice.
3. Reference JEDEC MO-153.

## TAPE AND REEL INFORMATION

### REEL DIMENSIONS



### TAPE DIMENSIONS



NOTE: The picture is only for reference. Please make the object as the standard.

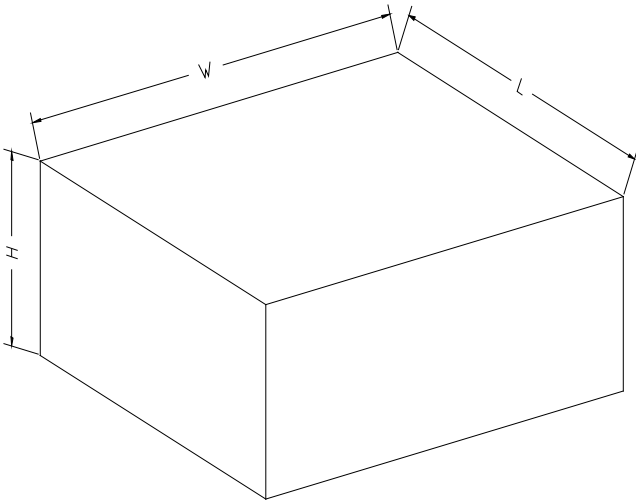
### KEY PARAMETER LIST OF TAPE AND REEL

Package Type	Reel Diameter	Reel Width W1 (mm)	A0 (mm)	B0 (mm)	K0 (mm)	P0 (mm)	P1 (mm)	P2 (mm)	W (mm)	Pin1 Quadrant
SOIC-20	13"	24.4	10.90	13.30	3.00	4.0	12.0	2.0	24.0	Q1
TSSOP-20	13"	16.4	6.80	6.90	1.50	4.0	8.0	2.0	16.0	Q1

D00001

# PACKAGE INFORMATION

## CARTON BOX DIMENSIONS



NOTE: The picture is only for reference. Please make the object as the standard.

## KEY PARAMETER LIST OF CARTON BOX

Reel Type	Length (mm)	Width (mm)	Height (mm)	Pizza/Carton
13"	386	280	370	5

DD0002