

1. DESCRIPTION

The XL74HC245 and XD74HC245 are 8-bit transceiver with 3-state outputs. The device features an output enable (\overline{OE}) and send/receive (DIR) for direction control. A HIGH on \overline{OE} causes the outputs to assume a high-impedance OFF-state. Inputs include clamp diodes. This enables the use of current limiting resistors to interface inputs to voltages in excess of V_{CC} .

2. FEATURES

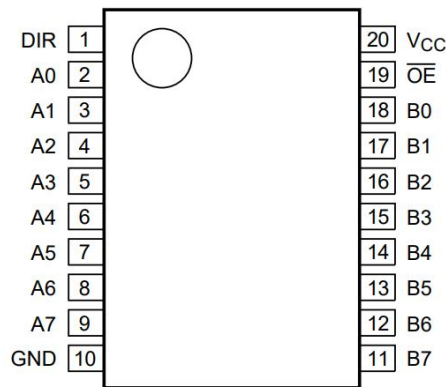
- Eight-channel signal bidirectional transceiver
- Forward tri-state output
- Meets JEDEC standard no.7A
- ESD protection

HBM EIA/JESD22-A114-B exceeds 2000V

MM EIA/JESD22-A115-A Over 2000V

- The specified temperature is $-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$
- Available package: SOP20(XL74HC245), DIP20(XD74HC245)

3. PIN CONFIGURATIONS AND FUNCTIONS



(Top View)

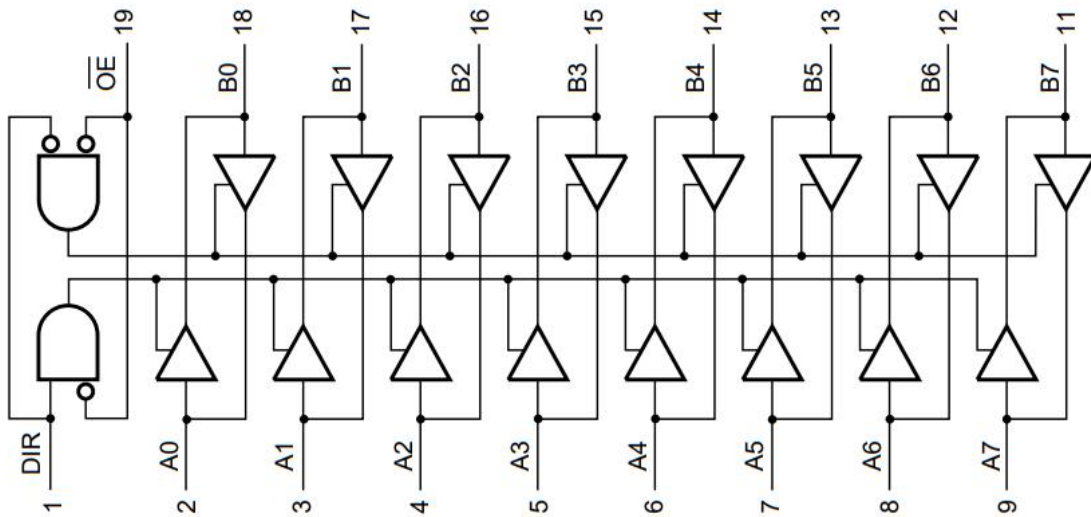
Pin Functions

Symbol	Pin name	Pin	Description
A0--A7	Data input/output	2-9	Direction control
B0--B7	Data input/output	18-11	Data input/output
\overline{OE}	Output enable	19	Output enable input (active LOW)
DIR	Direction control	1	DIR=1,A \rightarrow B; DIR=0,B \rightarrow A
GND	Logic ground	10	Logic ground
Vcc	Logic power supply	20	Power terminal

4. FUNCTION TRUTH TABLE

Output enable	Output control	Working condition
\overline{OE}	DIR	
L	L	Data transmitted from Bus B to Bus A
L	H	Data transmitted from Bus A to Bus B
H	X	High-Impedance State

5. LOGIC BLOCK DIAGRAM



6. DC ELECTRICAL PARAMETER

6.1 Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$) :

Parameter	Symbol	Range	Unit
Supply voltage	V_{CC}	-0.5 ~ +7.0	V
Logic input voltage	V_{IN}	-0.5 ~ $V_{CC} + 0.5$	V
Total power dissipation	P_{tot}	750 (DIP20 package)	mW
		500 (SOP20 package)	
Operating temperature	T_{opt}	-40 ~ +85	$^\circ\text{C}$
Storage temperature	T_{stg}	-50 ~ +150	$^\circ\text{C}$

6.2 Recommended Operating Conditions

Parameter	Symbol	Min	Typical	Max	Unit	Test condition
Supply voltage	V _{CC}	2.0	5.0	6.0	V	-
Input voltage	V _I	0	-	V _{CC}	V	-
Output voltage	V _O	0	-	V _{CC}	V	-
Enter rise and fall times	t _r , t _f	-	-	1000	ns	V _{CC} =2.0V
		-	6.0	500	ns	V _{CC} =4.5V
		-	-	400	ns	V _{CC} =6.0V

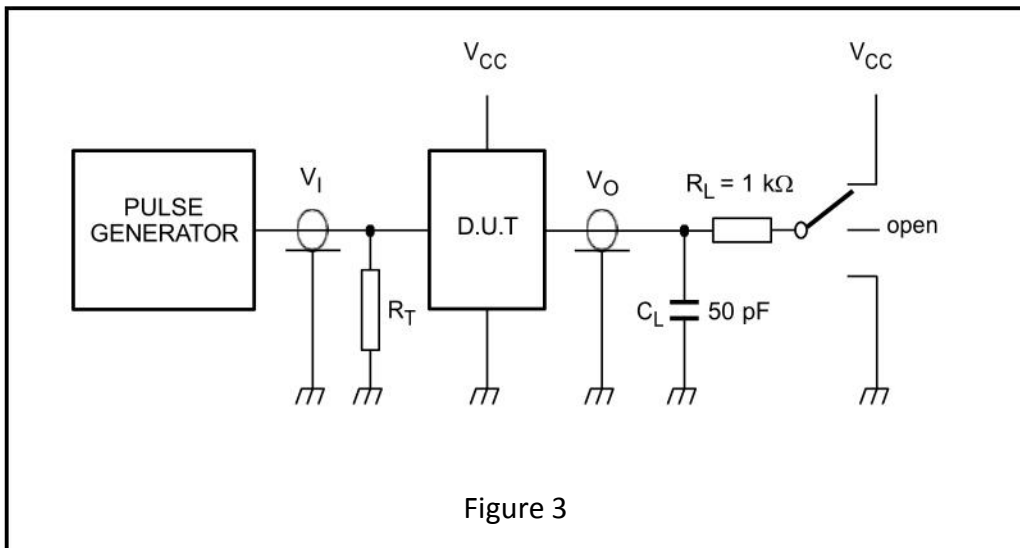
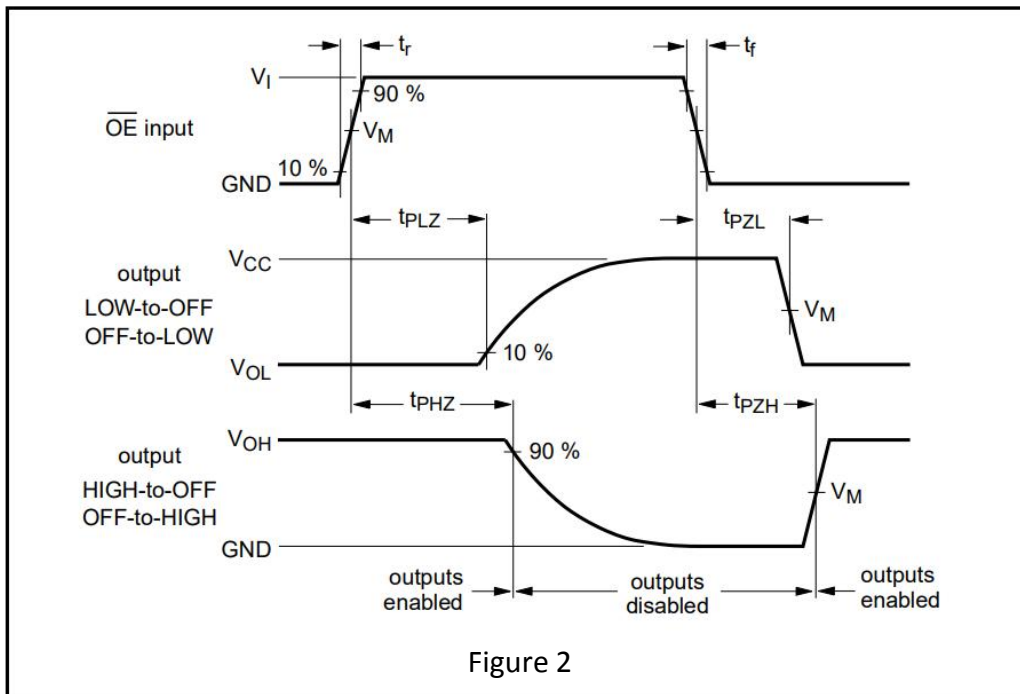
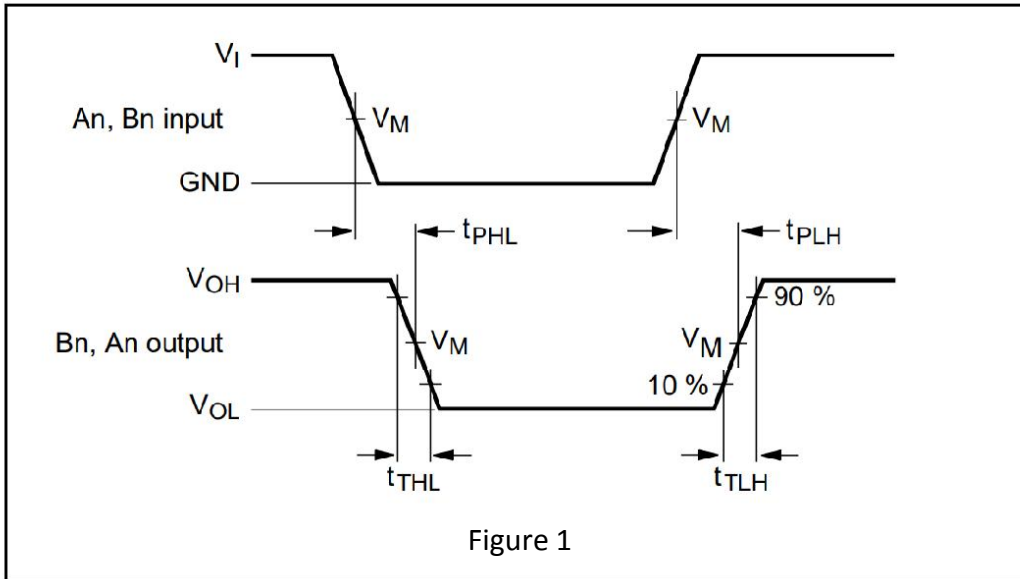
6.3 Dc characteristic :T=25°C

Parameter	Symbol	V _{CC}	Min	Typical	Max	Unit	Test condition
High level input voltage	V _{IH}	V _{CC} =2.0V	1.5	1.2	-	V	-
		V _{CC} =4.5V	3.15	2.4	-		
		V _{CC} =6.0V	4.2	3.2	-		
Low level input voltage	V _{IL}	V _{CC} =2.0V	-	0.8	0.5	V	-
		V _{CC} =4.5V	-	2.1	1.35		
		V _{CC} =6.0V	-	2.8	1.8		
High level output voltage	V _{OH}	V _{CC} =2.0V	1.9	2.0	-	V	V _I = V _{IH} or V _{IL} ;I _O =-20uA
		V _{CC} =4.5V	4.4	4.5	-		
		V _{CC} =6.0V	5.9	6.0	-		
		V _{CC} =4.5V	3.98	4.32	-		V _I = V _{IH} or V _{IL} ;I _O =-4.0mA
		V _{CC} =6.0V	5.48	5.81	-		V _I = V _{IH} or V _{IL} ;I _O =-5.2mA
Low output voltage	V _{OL}	V _{CC} =2.0V	-	0	0.1	V	V _I = V _{IH} or V _{IL} ;I _O =20uA
		V _{CC} =4.5V	-	0	0.1		

		V _{CC} =6.0V	-	0	0.1		
		V _{CC} =4.5V	-	0.15	0.26		V _I = V _{IH} or V _{IL} ; I _O =6.0mA
		V _{CC} =6.0V	-	0.16	0.26		V _I = V _{IH} or V _{IL} ; I _O =7.8mA
Supply current	I _{CC}	V _{CC} =6.0V	-	-	8.0	uA	V _I =V _{CC} or GND
Input port leakage current	I _{LI}	V _{CC} =6.0V	-	-	± 0.1	uA	V _I =V _{CC} or GND
Output port leakage current	I _{OZ}	V _{CC} =6.0V	-	-	± 0.5	uA	V _I =V _{CC} or GND

6.4 Ac characteristic: T=25°C

Parameter	Symbol	VCC	Min	Typical	Max	Unit	Test condition
A→B Output delay	t _{PHL} , t _{PLH}	V _{CC} =2.0V	-	25	90	ns	f=250KHz, CL=50P Vm=0.5V _{CC} , tr=tf=6ns, VI=V _{CC} The timing diagram is shown in Figure 1 The test circuit is shown in Figure 3
		V _{CC} =4.5V	-	9	18	ns	
		V _{CC} =6.0V	-	7	15	ns	
Output transition time	t _{THL} , t _{TLH}	V _{CC} =2.0V	-	14	60	ns	
		V _{CC} =4.5V	-	5	12	ns	
		V _{CC} =6.0V	-	4	10	ns	
OE to output Enable time	t _{PZH} , t _{PZL}	V _{CC} =2.0V	-	30	150	ns	
		V _{CC} =4.5V	-	11	30	ns	
		V _{CC} =6.0V	-	9	26	ns	
OE to output Forbidden time	t _{PHZ} , t _{PLZ}	V _{CC} =2.0V	-	41	150	ns	
		V _{CC} =4.5V	-	15	30	ns	
		V _{CC} =6.0V	-	12	26	ns	

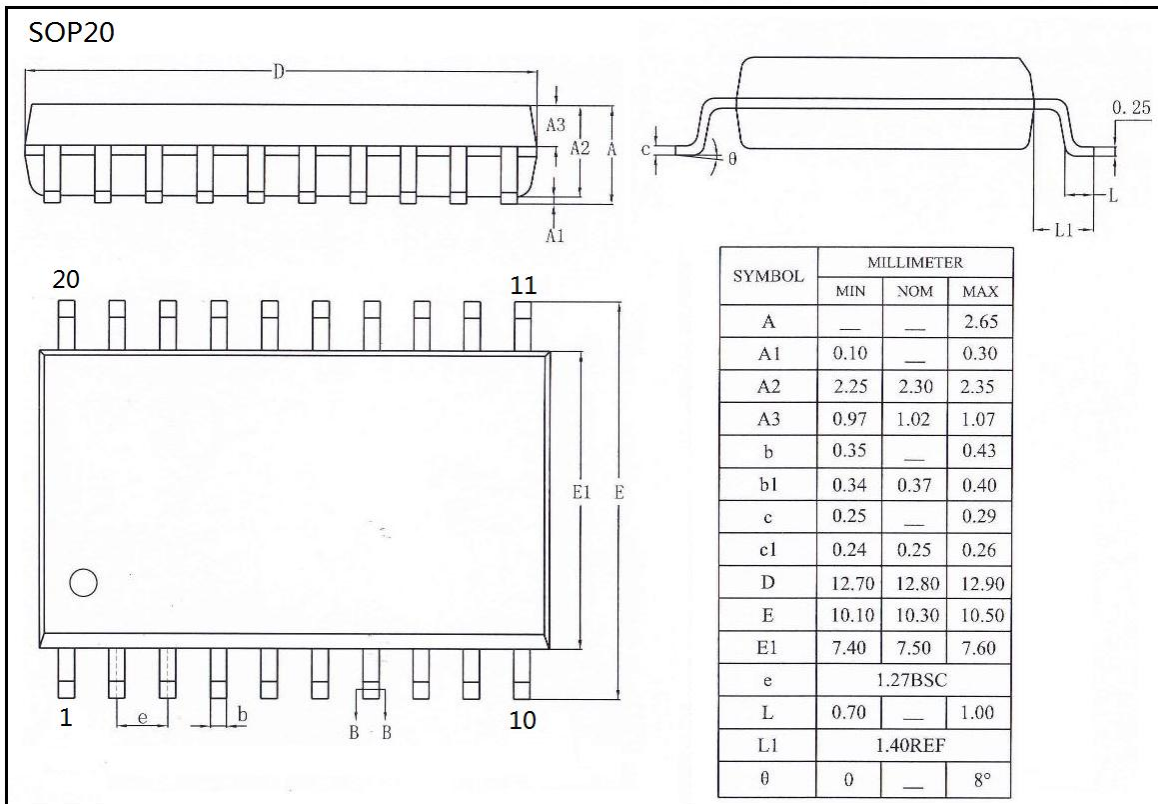


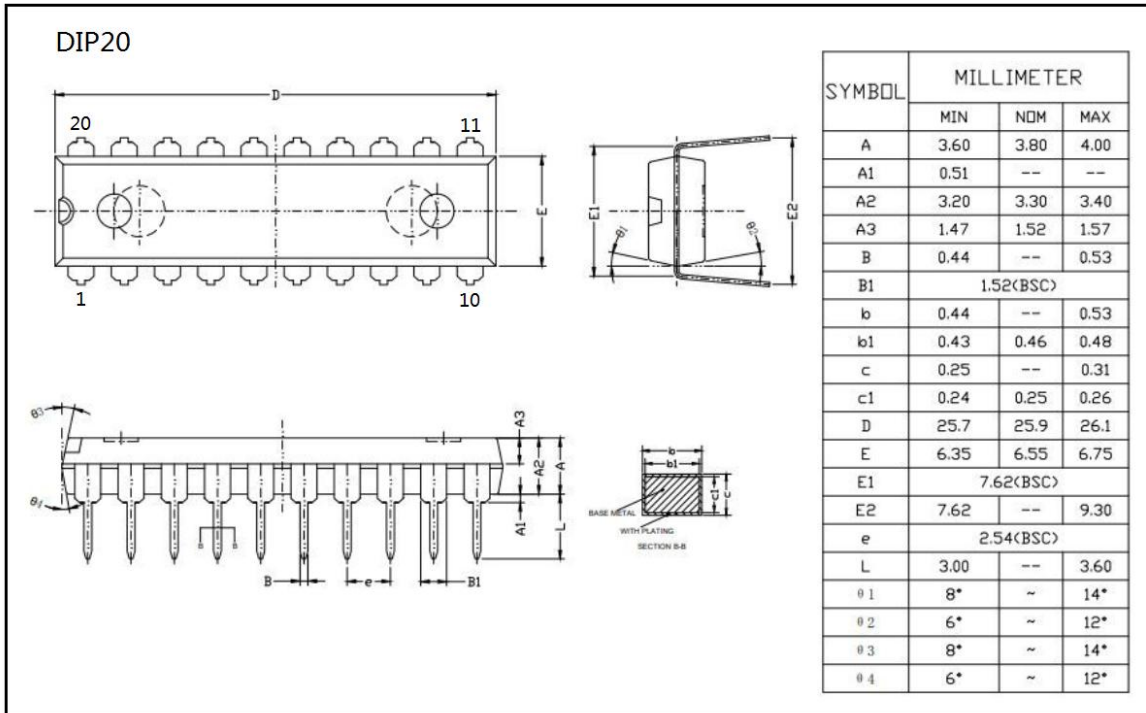
7. ORDERING INFORMATION

Ordering Information

Part Number	Device Marking	Package Type	Body size (mm)	Temperature (°C)	MSL	Transport Media	Package Quantity
XL74HC245	XL74HC245	SOP20	12.60 * 7.50	- 40 to +85	MSL3	T&R	2000
XD74HC245	XD74HC245	DIP20	25.90 * 6.55	- 40 to +85	MSL3	Tube 18	720

8. DIMENSIONAL DRAWINGS





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