

5 Orderable Information

DEVICE	PACKAGE	OP TEMP	ECO PLAN	MSL	PACKING OPTION	SORT
CJ74HC245AGN	SOP20	-40~125°C	RoHS & Green	Level 3 168HR	Tape and Reel 2000 Units / Reel	Active
CJ74HCT245AGN	SOP20	-40~125°C	RoHS & Green	Level 3 168HR	Tape and Reel 2000 Units / Reel	Active
CJ74HC245BGN	TSSOP20	-40~125°C	RoHS & Green	Level 3 168HR	Tape and Reel 4000 Units / Reel	Active
CJ74HCT245BGN	TSSOP20	-40~125°C	RoHS & Green	Level 3 168HR	Tape and Reel 4000 Units / Reel	Active
CJ74HC245QDN	QFN4.5x2.5-20L	-40~125°C	RoHS & Green	Level 3 168HR	Tape and Reel 3000 Units / Reel	Active
CJ74HCT245QDN	QFN4.5x2.5-20L	-40~125°C	RoHS & Green	Level 3 168HR	Tape and Reel 3000 Units / Reel	Active

Note:

ECO PLAN: For the RoHS and Green certification standards of this product, please refer to the official report provided by JSCJ.

MSL: Moisture Sensitivity Level. Determined according to JEDEC industry standard classification.

SORT: Specifically defined as follows:

Active: Recommended for new products;

Customized: Products manufactured to meet the specific needs of customers;

Preview: The device has been released and has not been fully mass produced. The sample may or may not be available;

NoRD: It is not recommended to use the device for new design. The device is only produced for the needs of existing customers;

Obsolete: The device has been discontinued.

6 Pin Configuration and Marking Information

6.1 Pin Configuration

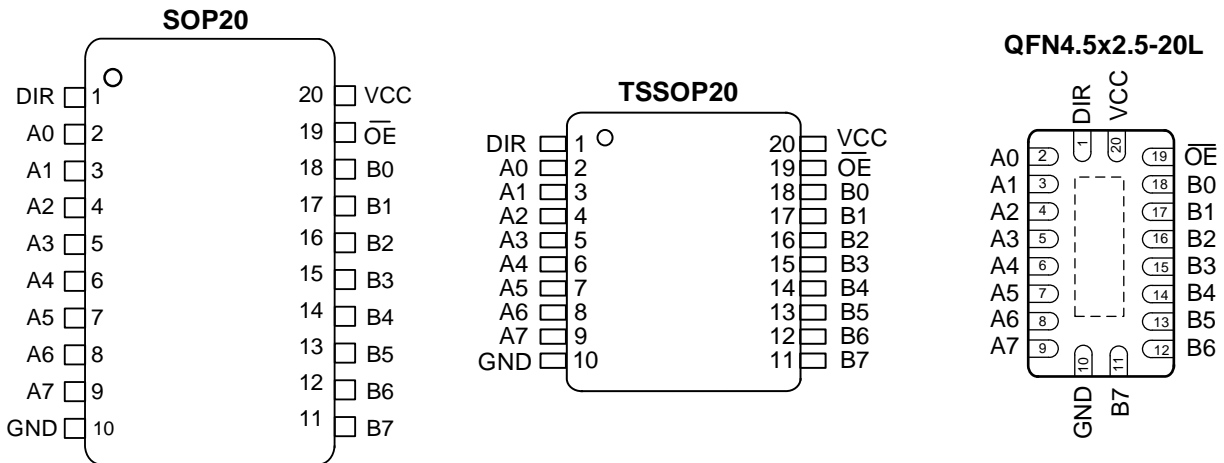


Figure 6-1 Pin Configuration

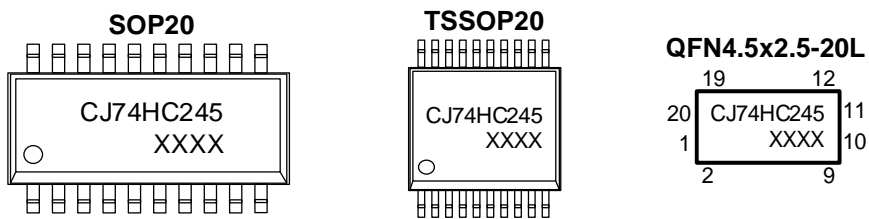
6.2 Pin Function

PIN		I/O ⁽¹⁾	DESCRIPTION
No.	NAME		
1	DIR	I	Direction control
2	A0	I/O	Data input/output
3	A1	I/O	Data input/output
4	A2	I/O	Data input/output
5	A3	I/O	Data input/output
6	A4	I/O	Data input/output
7	A5	I/O	Data input/output
8	A6	I/O	Data input/output
9	A7	I/O	Data input/output
10	GND	G	Ground (0V)
11	B7	I/O	Data input/output
12	B6	I/O	Data input/output
13	B5	I/O	Data input/output
14	B4	I/O	Data input/output
15	B3	I/O	Data input/output
16	B2	I/O	Data input/output
17	B1	I/O	Data input/output
18	B0	I/O	Data input/output
19	\overline{OE}	I	Output enable input (active LOW)
20	VCC	P	Supply voltage

(1) I-Input, O-Output, P-Power, G-Ground.

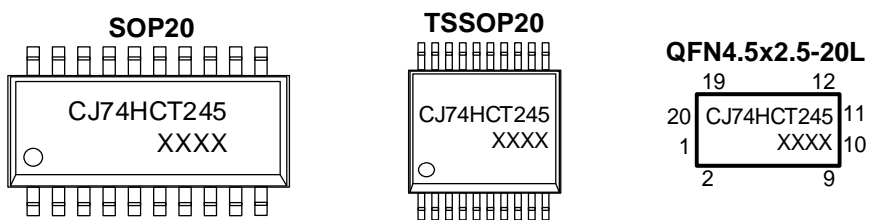
6.3 Marking Information

6.3.1 CJ74HC245



XXXX: Code, indicates weekly record information.

6.3.2 CJ74HCT245



XXXX: Code, indicates weekly record information.

7 Specifications

7.1 Absolute Maximum Ratings

Voltages are referenced to GND(ground=0V), unless otherwise specified.

SYMBOL	CHARACTERISTIC	CONDITIONS		MIN.	MAX.	UNIT
V _{CC}	Supply voltage	-		-0.5	+7.0	V
I _{IK}	Input clamping current	V _I < -0.5V or V _I > V _{CC} +0.5V		-	±20	mA
I _{OK}	Output clamping current	V _O < -0.5V or V _O > V _{CC} +0.5V		-	±20	mA
I _O	Output current	-0.5V < V _O < V _{CC} +0.5V		-	±35	mA
I _{CC}	Supply current	-		-	70	mA
I _{GND}	Ground current	-		-70	-	mA
T _{stg}	Storage temperature	-		-65	+150	°C
P _{tot}	Total power dissipation	-		-	500	mW
T _L	Soldering temperature	10s	SOP/TSSOP/QFN	-	260	°C

Note: Absolute maximum ratings indicate sustained limits beyond which damage to the device may occur. All voltage parameters are absolute voltages referenced to GND. The thermal resistance and power dissipation ratings are measured under board mounted and still air conditions.

7.2 Recommended Operating Conditions

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
CJ74HC245						
V _{CC}	Supply voltage	-	2.0	5.0	6.0	V
V _I	Input voltage	-	0	-	V _{CC}	V
V _O	Output voltage	-	0	-	V _{CC}	V
Δt/ΔV	Input transition rise and fall rate	V _{CC} =2.0V	-	-	625	ns/V
		V _{CC} =4.5V	-	1.67	139	ns/V
		V _{CC} =6.0V	-	-	83	ns/V
T _{amb}	Ambient temperature	-	-40	-	+125	°C
CJ74HCT245						
V _{CC}	Supply voltage	-	4.5	5.0	5.5	V
V _I	Input voltage	-	0	-	V _{CC}	V
V _O	Output voltage	-	0	-	V _{CC}	V
Δt/ΔV	Input transition rise and fall rate	V _{CC} =4.5V	-	1.67	139	ns/V
T _{amb}	Ambient temperature	-	-40	-	+125	°C

7.3 ESD Ratings

SYMBOL	ESD RATINGS		VALUE	UNIT
V _{ESD-HBM}	Electrostatic discharge	Human body model (HBM) ⁽¹⁾	±4000	V

(1) JEDEC document JEP155 states that 500-V H1BM allows safe manufacturing with a standard ESD control process.

7.4 Electrical Characteristics
7.4.1 DC Characteristics 1
 $T_{amb}=25^{\circ}\text{C}$, voltages are referenced to GND (ground=0V), unless otherwise specified.

SYMBOL	CHARACTERISTIC	CONDITIONS	MIN.	TYP.	MAX.	UNIT	
CJ74HC245							
V_{IH}	HIGH-level input voltage	$V_{CC}=2.0\text{V}$	1.5	1.2	-	V	
		$V_{CC}=4.5\text{V}$	3.15	2.4	-	V	
		$V_{CC}=6.0\text{V}$	4.2	3.2	-	V	
V_{IL}	LOW-level input voltage	$V_{CC}=2.0\text{V}$	-	0.8	0.5	V	
		$V_{CC}=4.5\text{V}$	-	2.1	1.35	V	
		$V_{CC}=6.0\text{V}$	-	2.8	1.8	V	
V_{OH}	HIGH-level output voltage	$V_I=V_{IH}$ or V_{IL}	$I_O=-20\mu\text{A}; V_{CC}=2.0\text{V}$	1.9	2.0	-	V
			$I_O=-20\mu\text{A}; V_{CC}=4.5\text{V}$	4.4	4.5	-	V
			$I_O=-20\mu\text{A}; V_{CC}=6.0\text{V}$	5.9	6.0	-	V
			$I_O=-6.0\text{mA}; V_{CC}=4.5\text{V}$	3.98	4.32	-	V
			$I_O=-7.8\text{mA}; V_{CC}=6.0\text{V}$	5.48	5.81	-	V
V_{OL}	LOW-level output voltage	$V_I=V_{IH}$ or V_{IL}	$I_O=20\mu\text{A}; V_{CC}=2.0\text{V}$	-	0	0.1	V
			$I_O=20\mu\text{A}; V_{CC}=4.5\text{V}$	-	0	0.1	V
			$I_O=20\mu\text{A}; V_{CC}=6.0\text{V}$	-	0	0.1	V
			$I_O=6.0\text{mA}; V_{CC}=4.5\text{V}$	-	0.15	0.26	V
			$I_O=7.8\text{mA}; V_{CC}=6.0\text{V}$	-	0.16	0.26	V
I_I	Input leakage current	$V_I=V_{CC}$ or GND; $V_{CC}=6.0\text{V}$	-	-	± 1.0	μA	
I_{OZ}	OFF-state output current	$V_I=V_{IH}$ or $V_{IL}; V_{CC}=6.0\text{V}; V_O=V_{CC}$ or GND	-	-	± 1.0	μA	
I_{CC}	Supply current	$V_I=V_{CC}$ or GND; $I_O=0\text{A}; V_{CC}=6.0\text{V}$	-	-	8.0	μA	
C_I	Input capacitance	-	-	3.5	-	pF	
$C_{I/O}$	Input/output capacitance	-	-	10	-	pF	
CJ74HCT245							
V_{IH}	HIGH-level input voltage	$V_{CC}=4.5\text{V}$ to 5.5V	2.0	1.6	-	V	
V_{IL}	LOW-level input voltage	$V_{CC}=4.5\text{V}$ to 5.5V	-	1.2	0.8	V	
V_{OH}	HIGH-level output voltage	$V_I=V_{IH}$ or $V_{IL}; V_{CC}=4.5\text{V}$	$I_O=-20\mu\text{A}$	4.4	4.5	-	V
			$I_O=-6.0\text{mA}$	3.98	4.32	-	V
V_{OL}	LOW-level output voltage	$V_I=V_{IH}$ or $V_{IL}; V_{CC}=4.5\text{V}$	$I_O=20\mu\text{A}$	-	0	0.1	V
			$I_O=6.0\text{mA}$	-	0.15	0.26	V
I_I	Input leakage current	$V_I=V_{CC}$ or GND; $V_{CC}=5.5\text{V}$	-	-	± 1.0	μA	
I_{OZ}	OFF-state output current	$V_I=V_{IH}$ or $V_{IL}; V_{CC}=5.5\text{V}; V_O=V_{CC}$ or GND	-	-	± 1.0	μA	
I_{CC}	Supply current	$V_I=V_{CC}$ or GND; $I_O=0\text{A}; V_{CC}=5.5\text{V}$	-	-	8.0	μA	

ΔI_{CC}	Additional supply current	Per input pin; $V_I=V_{CC}-2.1V$; Other inputs at V_{CC} or GND; $V_{CC}=4.5V$ to $5.5V$; $I_O=0A$	An or Bn inputs	-	-	144	μA
			\overline{OE} input	-	-	540	μA
			DIR input	-	-	324	μA
C_I	Input capacitance		-	-	3.5	-	pF
$C_{I/O}$	Input/output capacitance		-	-	10	-	pF

7.4.2 DC Characteristics 2
 $T_{amb}=-40^{\circ}C$ to $+85^{\circ}C$, voltages are referenced to GND (ground=0V), unless otherwise specified.

SYMBOL	CHARACTERISTIC	CONDITIONS	MIN.	TYP.	MAX.	UNIT	
CJ74HC245							
V_{IH}	HIGH-level input voltage	$V_{CC}=2.0V$	1.5	-	-	V	
		$V_{CC}=4.5V$	3.15	-	-	V	
		$V_{CC}=6.0V$	4.2	-	-	V	
V_{IL}	LOW-level input voltage	$V_{CC}=2.0V$	-	-	0.5	V	
		$V_{CC}=4.5V$	-	-	1.35	V	
		$V_{CC}=6.0V$	-	-	1.8	V	
V_{OH}	HIGH-level output voltage	$V_I=V_{IH}$ or V_{IL}	$I_O=-20\mu A$; $V_{CC}=2.0V$	1.9	-	-	V
			$I_O=-20\mu A$; $V_{CC}=4.5V$	4.4	-	-	V
			$I_O=-20\mu A$; $V_{CC}=6.0V$	5.9	-	-	V
			$I_O=-6.0mA$; $V_{CC}=4.5V$	3.84	-	-	V
			$I_O=-7.8mA$; $V_{CC}=6.0V$	5.34	-	-	V
V_{OL}	LOW-level output voltage	$V_I=V_{IH}$ or V_{IL}	$I_O=20\mu A$; $V_{CC}=2.0V$	-	-	0.1	V
			$I_O=20\mu A$; $V_{CC}=4.5V$	-	-	0.1	V
			$I_O=20\mu A$; $V_{CC}=6.0V$	-	-	0.1	V
			$I_O=6.0mA$; $V_{CC}=4.5V$	-	-	0.33	V
			$I_O=7.8mA$; $V_{CC}=6.0V$	-	-	0.33	V
I_I	Input leakage current	$V_I=V_{CC}$ or GND; $V_{CC}=6.0V$	-	-	± 1.0	μA	
I_{OZ}	OFF-state output current	$V_I=V_{IH}$ or V_{IL} ; $V_{CC}=6.0V$; $V_O=V_{CC}$ or GND	-	-	± 5.0	μA	
I_{CC}	Supply current	$V_I=V_{CC}$ or GND; $I_O=0A$; $V_{CC}=6.0V$	-	-	80	μA	
CJ74HCT245							
V_{IH}	HIGH-level input voltage	$V_{CC}=4.5V$ to $5.5V$	2.0	-	-	V	
V_{IL}	LOW-level input voltage	$V_{CC}=4.5V$ to $5.5V$	-	-	0.8	V	
V_{OH}	HIGH-level output voltage	$V_I=V_{IH}$ or V_{IL} ; $V_{CC}=4.5V$	$I_O=-20\mu A$	4.4	-	-	V
			$I_O=-6.0mA$	3.84	-	-	V
V_{OL}	LOW-level output	$V_I=V_{IH}$ or V_{IL} ;	$I_O=20\mu A$	-	-	0.1	V

	voltage	$V_{CC}=4.5V$	$I_o=6.0mA$	-	-	0.33	V
I_i	Input leakage current	$V_i=V_{CC}$ or GND; $V_{CC}=5.5V$		-	-	± 1.0	μA
I_{oz}	OFF-state output current	$V_i=V_{IH}$ or V_{IL} ; $V_{CC}=5.5V$; $V_o=V_{CC}$ or GND		-	-	± 5.0	μA
I_{CC}	Supply current	$V_i=V_{CC}$ or GND; $I_o=0A$; $V_{CC}=5.5V$		-	-	80	μA
ΔI_{CC}	Additional supply current	Per input pin; $V_i=V_{CC}-2.1V$; Other inputs at V_{CC} or GND; $V_{CC}=4.5V$ to $5.5V$; $I_o=0A$	An or Bn inputs	-	-	180	μA
			$\bar{O}E$ input	-	-	675	μA
			DIR input	-	-	405	μA

7.4.3 DC Characteristics 3

$T_{amb}=-40^{\circ}C$ to $+125^{\circ}C$, voltages are referenced to GND (ground=0V), unless otherwise specified.

SYMBOL	CHARACTERISTIC	CONDITIONS		MIN.	TYP.	MAX.	UNIT
CJ74HC245							
V_{IH}	HIGH-level input voltage	$V_{CC}=2.0V$		1.5	-	-	V
		$V_{CC}=4.5V$		3.15	-	-	V
		$V_{CC}=6.0V$		4.2	-	-	V
V_{IL}	LOW-level input voltage	$V_{CC}=2.0V$		-	-	0.5	V
		$V_{CC}=4.5V$		-	-	1.35	V
		$V_{CC}=6.0V$		-	-	1.8	V
V_{OH}	HIGH-level output voltage	$V_i=V_{IH}$ or V_{IL}	$I_o=-20\mu A$; $V_{CC}=2.0V$	1.9	-	-	V
			$I_o=-20\mu A$; $V_{CC}=4.5V$	4.4	-	-	V
			$I_o=-20\mu A$; $V_{CC}=6.0V$	5.9	-	-	V
			$I_o=-6.0mA$; $V_{CC}=4.5V$	3.7	-	-	V
			$I_o=-7.8mA$; $V_{CC}=6.0V$	5.2	-	-	V
V_{OL}	LOW-level output voltage	$V_i=V_{IH}$ or V_{IL}	$I_o=20\mu A$; $V_{CC}=2.0V$	-	-	0.1	V
			$I_o=20\mu A$; $V_{CC}=4.5V$	-	-	0.1	V
			$I_o=20\mu A$; $V_{CC}=6.0V$	-	-	0.1	V
			$I_o=6.0mA$; $V_{CC}=4.5V$	-	-	0.4	V
			$I_o=7.8mA$; $V_{CC}=6.0V$	-	-	0.4	V
I_i	Input leakage current	$V_i=V_{CC}$ or GND; $V_{CC}=6.0V$		-	-	± 1.0	μA
I_{oz}	OFF-state output current	$V_i=V_{IH}$ or V_{IL} ; $V_{CC}=6.0V$; $V_o=V_{CC}$ or GND		-	-	± 10	μA
I_{CC}	Supply current	$V_i=V_{CC}$ or GND; $I_o=0A$; $V_{CC}=6.0V$		-	-	160	μA
CJ74HCT245							
V_{IH}	HIGH-level input voltage	$V_{CC}=4.5V$ to $5.5V$		2.0	-	-	V
V_{IL}	LOW-level input voltage	$V_{CC}=4.5V$ to $5.5V$		-	-	0.8	V
V_{OH}	HIGH-level output	$V_i=V_{IH}$ or V_{IL} ;	$I_o=-20\mu A$	4.4	-	-	V

	voltage	$V_{CC}=4.5V$	$I_o=-6.0mA$	3.7	-	-	V
V_{OL}	LOW-level output voltage	$V_i=V_{IH}$ or V_{IL} ; $V_{CC}=4.5V$	$I_o=20\mu A$	-	-	0.1	V
			$I_o=6.0mA$	-	-	0.4	V
I_i	Input leakage current	$V_i=V_{CC}$ or GND; $V_{CC}=5.5V$		-	-	± 1.0	μA
I_{OZ}	OFF-state output current	$V_i=V_{IH}$ or V_{IL} ; $V_{CC}=5.5V$; $V_o=V_{CC}$ or GND		-	-	± 10	μA
I_{CC}	Supply current	$V_i=V_{CC}$ or GND; $I_o=0A$; $V_{CC}=5.5V$		-	-	160	μA
ΔI_{CC}	Additional supply current	Per input pin; $V_i=V_{CC}-2.1V$; Other inputs at V_{CC} or GND; $V_{CC}=4.5V$ to $5.5V$; $I_o=0A$	An or Bn inputs	-	-	196	μA
			\overline{OE} input	-	-	735	μA
			DIR input	-	-	441	μA

7.4.4 AC Characteristics 1

$T_{amb}=25^\circ C$, voltages are referenced to GND (ground=0V), unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT	
CJ74HC245							
t_{PLH} , t_{PHL}	An to Bn or Bn to An propagation delay	See Figure 8-4	$V_{CC}=2.0V$	-	25	90	ns
			$V_{CC}=4.5V$	-	9	18	ns
			$V_{CC}=5.0V$; $C_L=15pF$	-	7	-	ns
			$V_{CC}=6.0V$	-	7	15	ns
t_{PZL} , t_{PZH}	\overline{OE} to An or Bn enable time	See Figure 8-5	$V_{CC}=2.0V$	-	30	150	ns
			$V_{CC}=4.5V$	-	11	30	ns
			$V_{CC}=6.0V$	-	9	26	ns
t_{PLZ} , t_{PHZ}	\overline{OE} to An or Bn disable time	See Figure 8-5	$V_{CC}=2.0V$	-	41	150	ns
			$V_{CC}=4.5V$	-	15	30	ns
			$V_{CC}=6.0V$	-	12	26	ns
t_{THL} , t_{TLH}	Transition time	See Figure 8-4	$V_{CC}=2.0V$	-	14	60	ns
			$V_{CC}=4.5V$	-	5	12	ns
			$V_{CC}=6.0V$	-	4	10	ns
CJ74HCT245							
t_{PLH} , t_{PHL}	An to Bn or Bn to An propagation delay	See Figure 8-4	$V_{CC}=4.5V$	-	12	22	ns
			$V_{CC}=5.0V$; $C_L=15pF$	-	10	-	ns
t_{PZL} , t_{PZH}	\overline{OE} to An or Bn enable time	$V_{CC}=4.5V$; See Figure 8-5	-	16	30	ns	
t_{PLZ} , t_{PHZ}	\overline{OE} to An or Bn disable time	$V_{CC}=4.5V$; See Figure 8-5	-	16	30	ns	
t_{THL} , t_{TLH}	Transition time	$V_{CC}=4.5V$; See Figure 8-4	-	5	12	ns	

7.4.5 AC Characteristics 2

 T_{amb}=-40°C to +85°C, voltages are referenced to GND (ground=0V), unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT	
CJ74HC245							
t _{PLH} , t _{PHL}	An to Bn or Bn to An propagation delay	See Figure 8-4	V _{CC} =2.0V	-	-	115	ns
			V _{CC} =4.5V	-	-	23	ns
			V _{CC} =6.0V	-	-	20	ns
t _{PZL} , t _{PZH}	OE to An or Bn enable time	See Figure 8-5	V _{CC} =2.0V	-	-	190	ns
			V _{CC} =4.5V	-	-	38	ns
			V _{CC} =6.0V	-	-	33	ns
t _{PLZ} , t _{PHZ}	OE to An or Bn disable time	See Figure 8-5	V _{CC} =2.0V	-	-	190	ns
			V _{CC} =4.5V	-	-	38	ns
			V _{CC} =6.0V	-	-	33	ns
t _{THL} , t _{TLH}	Transition time	See Figure 8-4	V _{CC} =2.0V	-	-	75	ns
			V _{CC} =4.5V	-	-	15	ns
			V _{CC} =6.0V	-	-	13	ns
CJ74HCT245							
t _{PLH} , t _{PHL}	An to Bn or Bn to An propagation delay	See Figure 8-4	V _{CC} =4.5V	-	-	28	ns
t _{PZL} , t _{PZH}	OE to An or Bn enable time	V _{CC} =4.5V; See Figure 8-5		-	-	38	ns
t _{PLZ} , t _{PHZ}	OE to An or Bn disable time	V _{CC} =4.5V; See Figure 8-5		-	-	38	ns
t _{THL} , t _{TLH}	Transition time	V _{CC} =4.5V; See Figure 8-4		-	-	15	ns

7.4.6 AC Characteristics 3
 $T_{amb} = -40^{\circ}\text{C}$ to $+125^{\circ}\text{C}$, voltages are referenced to GND (ground=0V), unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT	
CJ74HC245							
t_{PLH}, t_{PHL}	An to Bn or Bn to An propagation delay	See Figure 8-4	$V_{CC}=2.0V$	-	-	135	ns
			$V_{CC}=4.5V$	-	-	27	ns
			$V_{CC}=6.0V$	-	-	23	ns
t_{PZL}, t_{PZH}	\overline{OE} to An or Bn enable time	See Figure 8-5	$V_{CC}=2.0V$	-	-	225	ns
			$V_{CC}=4.5V$	-	-	45	ns
			$V_{CC}=6.0V$	-	-	38	ns
t_{PLZ}, t_{PHZ}	\overline{OE} to An or Bn disable time	See Figure 8-5	$V_{CC}=2.0V$	-	-	225	ns
			$V_{CC}=4.5V$	-	-	45	ns
			$V_{CC}=6.0V$	-	-	38	ns
t_{THL}, t_{TLH}	Transition time	See Figure 8-4	$V_{CC}=2.0V$	-	-	90	ns
			$V_{CC}=4.5V$	-	-	18	ns
			$V_{CC}=6.0V$	-	-	15	ns
CJ74HCT245							
t_{PLH}, t_{PHL}	An to Bn or Bn to An propagation delay	See Figure 8-4	$V_{CC}=4.5V$	-	-	33	ns
t_{PZL}, t_{PZH}	\overline{OE} to An or Bn enable time	$V_{CC}=4.5V$; See Figure 8-5		-	-	45	ns
t_{PLZ}, t_{PHZ}	\overline{OE} to An or Bn disable time	$V_{CC}=4.5V$; See Figure 8-5		-	-	45	ns
t_{THL}, t_{TLH}	Transition time	$V_{CC}=4.5V$; See Figure 8-4		-	-	18	ns

8 Detailed Description

8.1 Overview

The CJ74HC/HCT245 is an 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} .

8.2 Functional Block Diagram

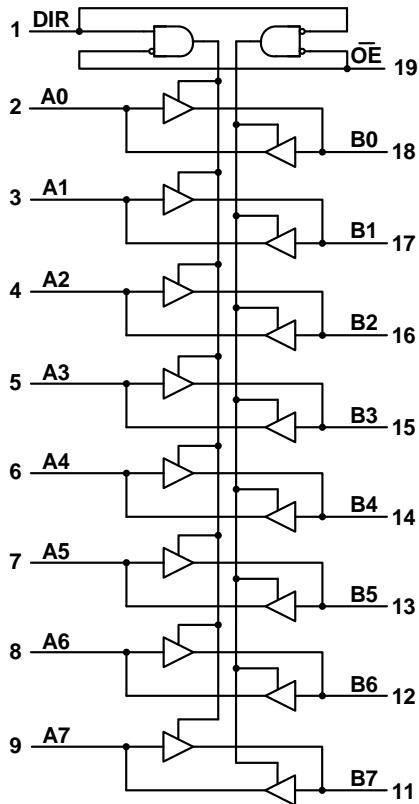


Figure 8-1 Logic symbol

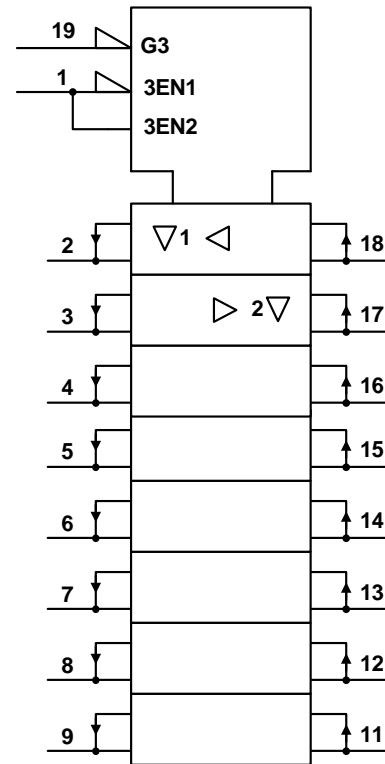


Figure 8-2 IEC logic symbol

8.3 Function Table⁽¹⁾

INPUT		OUTPUT	
\overline{OE}	DIR	A_n	B_n
L	L	$A=B$	Input
L	H	Input	$B=A$
H	X	Z	Z

(1) H=HIGH voltage level; L=LOW voltage level; X=don't care; Z=high-impedance OFF-state.

8.4 Testing Circuit

8.4.1 AC Testing Circuit

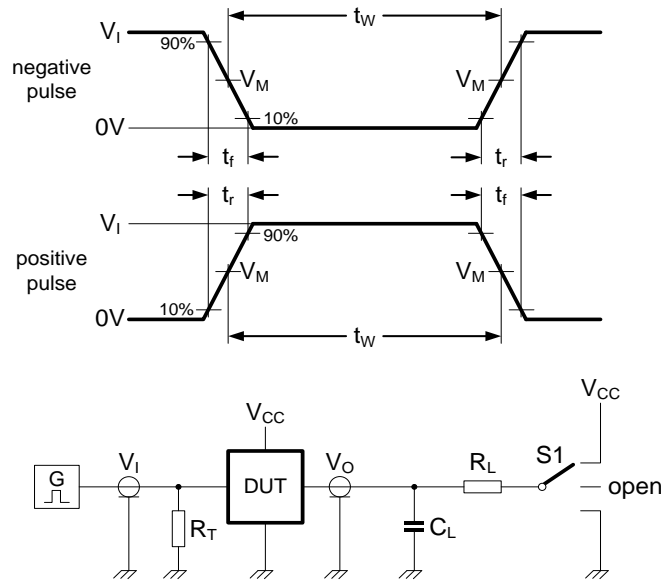


Figure 8-3 Test circuit for measuring switching times

Definitions for test circuit:

C_L =Load capacitance including jig and probe capacitance.

R_T =Termination resistance should be equal to the output impedance Z_o of the pulse generator.

R_L =Load resistance.

$S1$ =Test selection switch.

8.4.2 AC Testing Waveforms

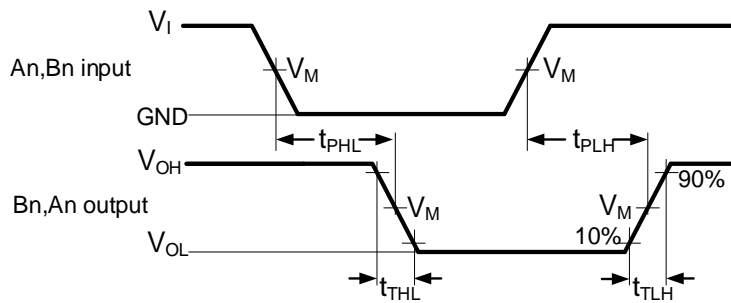


Figure 8-4 Input (An, Bn) to output (Bn, An) propagation delays and output transition times

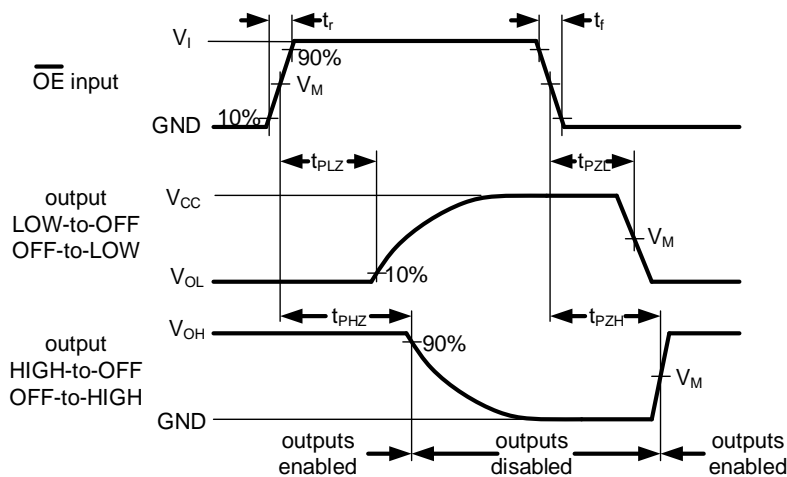


Figure 8-5 3-state enable and disable times

8.4.3 Measurement Points

TYPE	INPUT	OUTPUT
	V_M	V_M
CJ74HC245	$0.5 \times V_{CC}$	$0.5 \times V_{CC}$
CJ74HCT245	1.3V	1.3V

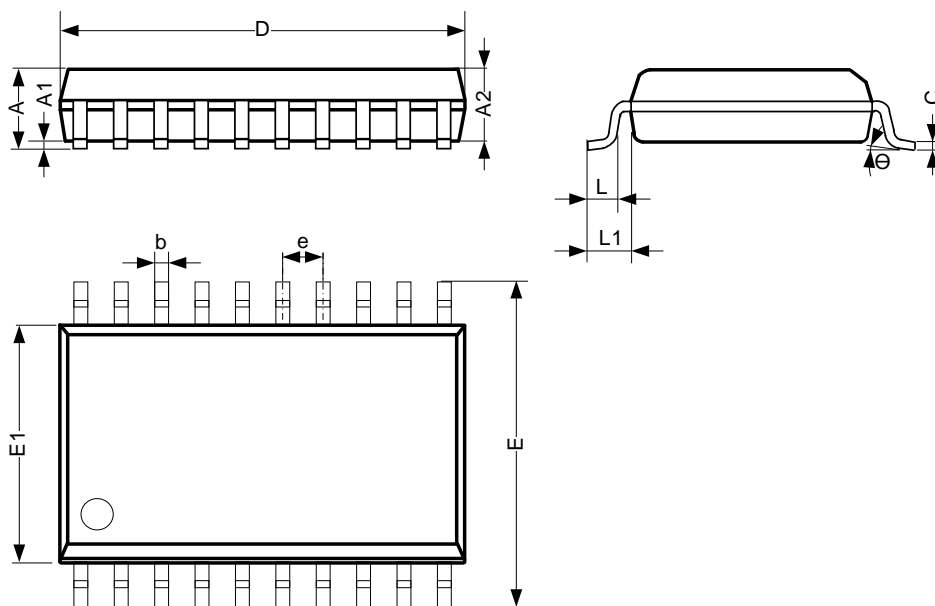
8.4.4 Test Data

TYPE	INPUT		LOAD		S1 POSITION		
	V_I	t_r, t_f	C_L	R_L	t_{PHL}, t_{PLH}	t_{PZH}, t_{PHZ}	t_{PZL}, t_{PLZ}
CJ74HC245	V_{CC}	6ns	15pF, 50pF	1k Ω	Open	GND	V_{CC}
CJ74HCT245	3V	6ns	15pF, 50pF	1k Ω	Open	GND	V_{CC}

9 Mechanical Information

9.1 SOP20 Mechanical Information

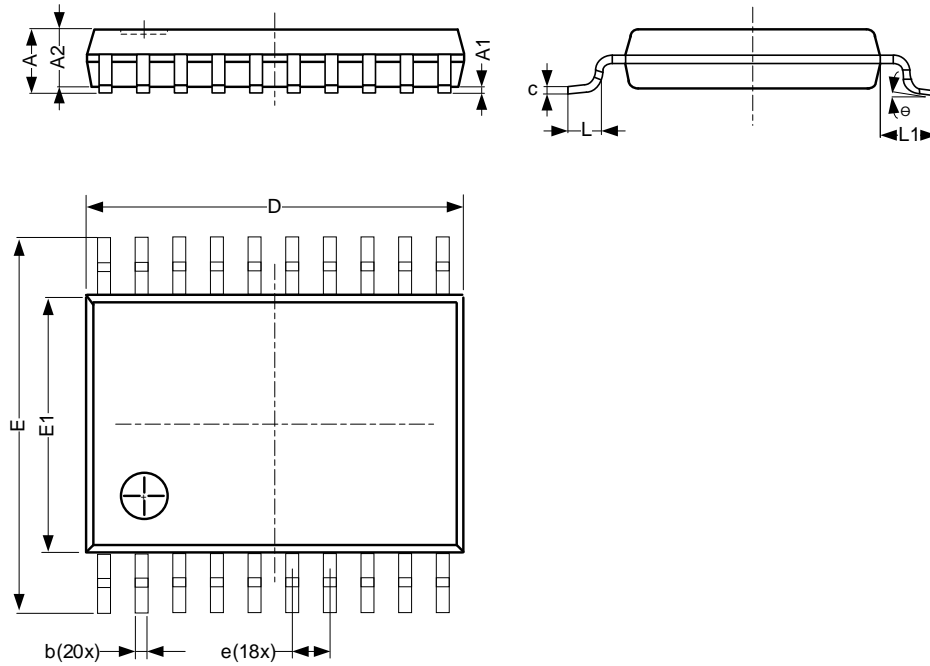
9.1.1 SOP20 Outline Dimensions



SYMBOL	Dimensions In Millimeters		
	Min.	Typ.	Max.
A	2.47	-	2.65
A1	0.05	-	0.30
A2	2.20	-	2.44
b	0.35	-	0.50
c	0.15	-	0.30
D	12.54	-	12.94
E	10.00	-	10.60
E1	7.30	-	7.70
e	1.27 BSC		
L	0.40	-	1.05
L1	1.30	-	1.50
Θ	0°	-	8°
Unit: mm			

9.2 TSSOP20 Mechanical Information

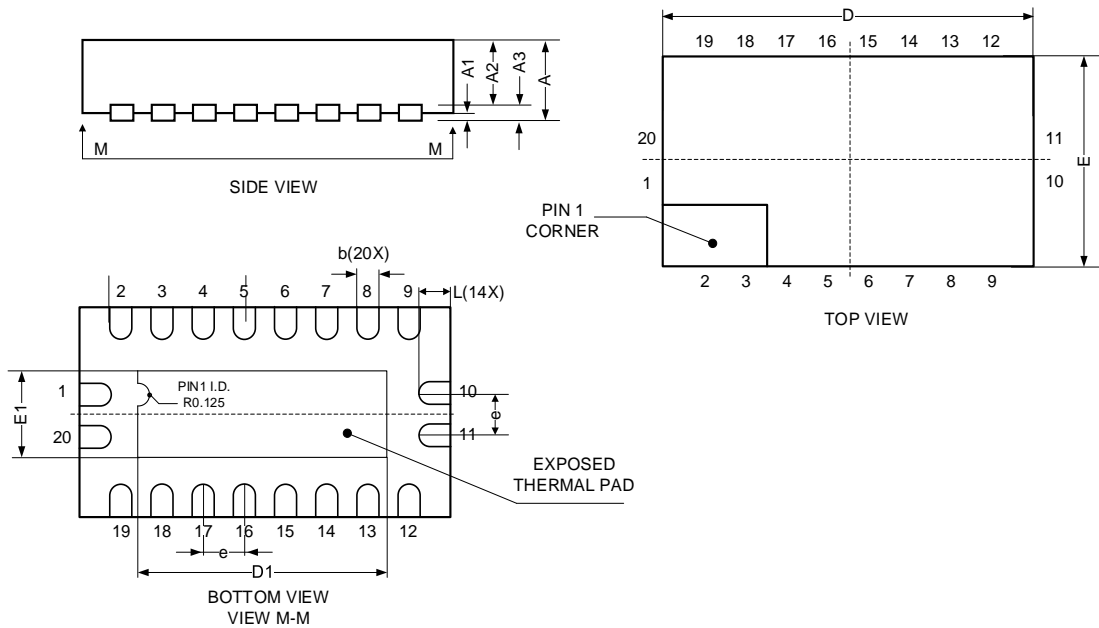
9.2.1 TSSOP20 Outline Dimensions



SYMBOL	Dimensions In Millimeters		
	Min.	Typ.	Max.
A	-	-	1.20
A1	0.05	-	0.15
A2	0.80	-	1.05
b	0.19	-	0.30
c	0.09	-	0.20
D	6.40	-	6.60
E	6.20	-	6.60
E1	4.30	-	4.50
e	0.65 BSC		
L1	-	1.00	-
L	0.45	-	0.75
θ	0°	-	8°
Unit: mm			

9.3 QFN4.5x2.5-20L Mechanical Information

9.3.1 QFN4.5x2.5-20L Outline Dimensions



SYMBOL	Dimensions In Millimeters		
	Min.	Typ.	Max.
A	0.80	-	1.00
A1	0.00	-	0.05
A2	0.60	-	0.70
A3	-	0.20	-
D	4.40	-	4.60
E	2.40	-	2.60
e	0.50 BSC		
b	0.18	-	0.30
L	0.30	-	0.50
D1	2.70		3.15
E1	0.70		1.15
Unit: mm			

10 Notes and Revision History

10.1 Associated Product Family and Others

To view other products of the same type or IC products of other types, click the official website of JSCJ -- <https://www.jscj-elec.com> for more details.

10.2 Notes

Electrostatic Discharge Caution



This IC may be damaged by ESD. Relevant personnel shall comply with correct installation and use specifications to avoid ESD damage to the IC. If appropriate measures are not taken to prevent ESD damage, the hazards caused by ESD include but are not limited to degradation of integrated circuit performance or complete damage of integrated circuit. For some precision integrated circuits, a very small parameter change may cause the whole device to be inconsistent with its published specifications.

10.3 Revision History

June, 2025: rev - 1.3, Correct parameter typo in Figure 8-4.

November, 2025: rev - 1.4, Change marking information.

DISCLAIMER

IMPORTANT NOTICE, PLEASE READ CAREFULLY

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