

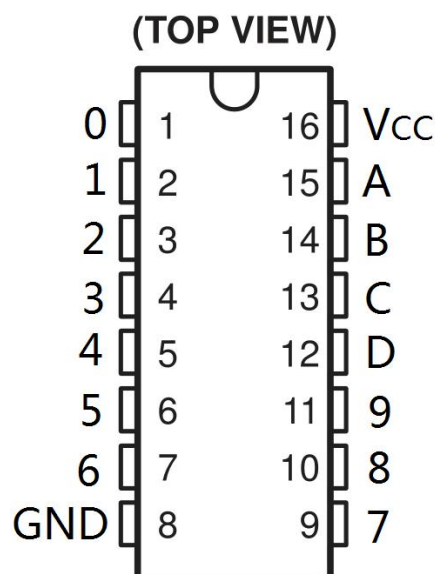
1. DESCRIPTION

These monolithic BCD-to-decimal decoder/drivers consist of eight inverters and ten four-input NAND gates. The inverters are connected in pairs to make BCD input data available for decoding by the NAND gates. Full decoding of valid BCD input logic ensures that all outputs remain off for all invalid binary input conditions. These decoders feature high-performance, n-p-n output transistors designed for use as indicator/relay drivers or as open-collector logic-circuit drivers. Each of the high-breakdown output transistors (15 volts) of the XD74LS145 will sink up to 80 milliamperes of current. Each input is one Series 74LS standard load, respectively. Inputs and outputs are entirely compatible for use with TTL or DTL logic circuits, and the outputs are compatible for interfacing with most MOS integrated circuits. Power dissipation is typically 215 milliwatts for the XD74LS145

2. FEATURES

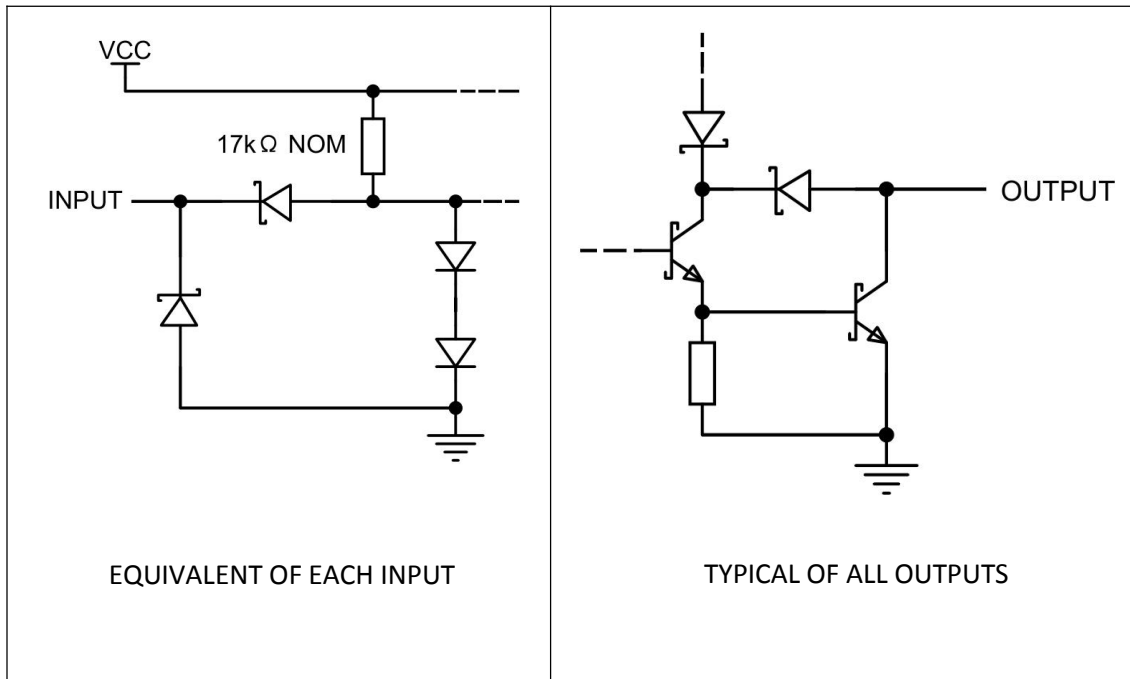
- Full Decoding of Input Logic
- XD74LS145 Have 80-mA Sink-Current Capability
- All Outputs Are Off for Invalid BCD Input Conditions
- Low Power Dissipation of 'LS145...35mW Typical

3. PIN CONFIGURATIONS

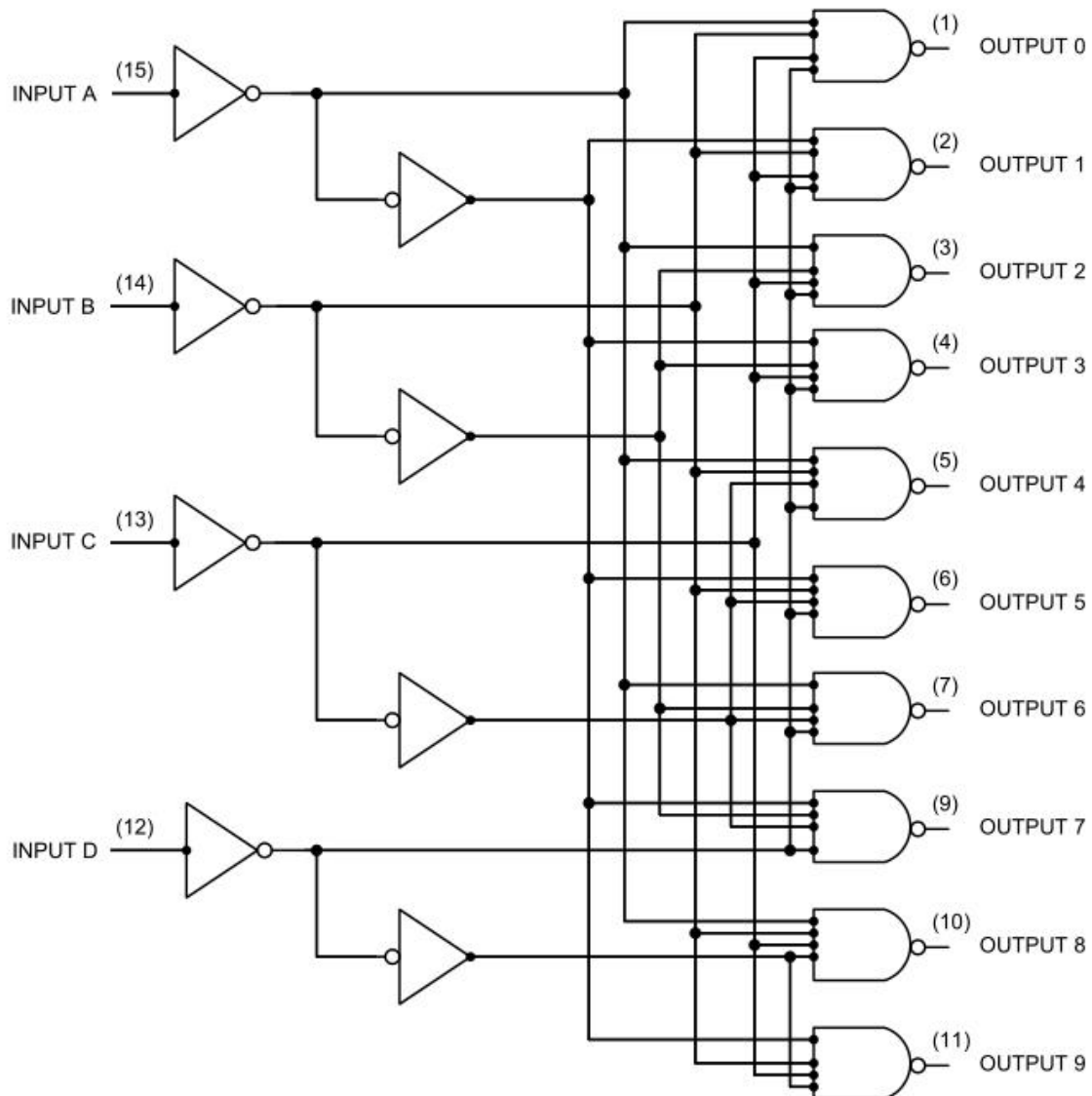


NO.	INPUTS				OUTPUTS									
	D	C	B	A	0	1	2	3	4	5	6	7	8	9
0	L	L	L	L	L	H	H	H	H	H	H	H	H	H
1	L	L	L	H	H	L	H	H	H	H	H	H	H	H
2	L	L	H	L	H	H	L	H	H	H	H	H	H	H
3	L	L	H	H	H	H	H	L	H	H	H	H	H	H
4	L	H	L	L	H	H	H	H	L	H	H	H	H	H
5	L	H	L	H	H	H	H	H	H	L	H	H	H	H
6	L	H	H	L	H	H	H	H	H	H	L	H	H	H
7	L	H	H	H	H	H	H	H	H	H	H	L	H	H
8	H	L	L	L	H	H	H	H	H	H	H	H	L	H
9	H	L	L	H	H	H	H	H	H	H	H	H	H	L
INVALID	H	L	H	L	H	H	H	H	H	H	H	H	H	H
	H	L	H	H	H	H	H	H	H	H	H	H	H	H
	H	H	L	L	H	H	H	H	H	H	H	H	H	H
	H	H	L	H	H	H	H	H	H	H	H	H	H	H
	H	H	H	L	H	H	H	H	H	H	H	H	H	H
	H	H	H	H	H	H	H	H	H	H	H	H	H	H

4. LOGIC DIAGRAM



5. SCHEMATICS OF INPUTS AND OUTPUTS



6. ABSOLUTE MAXIMUM RATINGS OVER OPERATING FREE-AIR TEMPERATURE RANGE (UNLESS OTHERWISE NOTES)

Supply voltage, V_{CC} (see Note 1)..... 7V

Input voltage, V_I : XD74LS145..... 7V

Operating free-air temperature range: DIP package..... 0°C to 70°C

Storage temperature range, T_{stg} -65°C to 150°C

NOTES 1: Voltage values, except inter-emitter voltage, are with respect to the network ground terminal.

7. RECOMMENDED OPERATING CONDITIONS

		XD74LS145			UNIT
		MIN	NOM	MAX	
V _{CC}	Supply voltage	4.5	5	5.25	V
V _{O(off)}	Off-state output voltage			15	V
T _A	Operating free-air temperature	-55		125	°C

8. ELECTRICAL CHARACTERISTICS OVER RECOMMENDED OPERATING FREE-AIR RANGE (UNLESS OTHERWISE NOTED)

PARAMETER		TEST CONDITIONS	XD74LS145			UNIT
			MIN	TYP	MAX	
V _{IH}	High-level input voltage		2			V
V _{IL}	Low-level input voltage				0.8	V
V _{IK}	Input clamp voltage	V _{CC} = MIN, I _I = -18 mA			-1.5	V
I _{O(off)}	Off-state output current	V _{CC} = MIN, V _{IL} = 0.8 V, V _{IH} = 2 V _{OH} = 15V			250	μA
V _{O(on)}	Off-state output voltage	V _{CC} = MIN, V _{IH} = 2 V, V _{IL} = V _{IL} MAX	I _{OL} = 12mA		0.25 0.4	V
			I _{OL} = 24 mA		0.35 0.5	
			I _{OL} = 80 mA		2.3 3	
I _I	Input current at maximum input voltage	V _{CC} = MAX, V _I = 7 V			0.2	mA
					0.1	
I _{IH}	High-level input current	V _{CC} = MAX, V _I = 2.7 V			40	μA
					20	
I _{IL}	Low-level input current	V _{CC} = MAX, V _I = 0.4 V			-0.8	mA
					-0.4	
I _{CC}	Supply current	V _{CC} = MAX (See Note 2)		7	13	mA

NOTE 2: I_{CC} is measured with all inputs grounded and outputs open.

9. SWITCHING CHARACTERISTICS, V_{CC} = 5 V, T_A = 25°C

V_{CC} = 5 V, T_A = 25°C

PARAMETER		TEST CONDITIONS	MIN	MAX	UNIT
t _{PLH}	Propagation delay time, low-to-high-level output	CL=45pF, RL=665Ω See Note3		50	ns
t _{PHL}	Propagation delay time, high-to-high-level output			50	ns

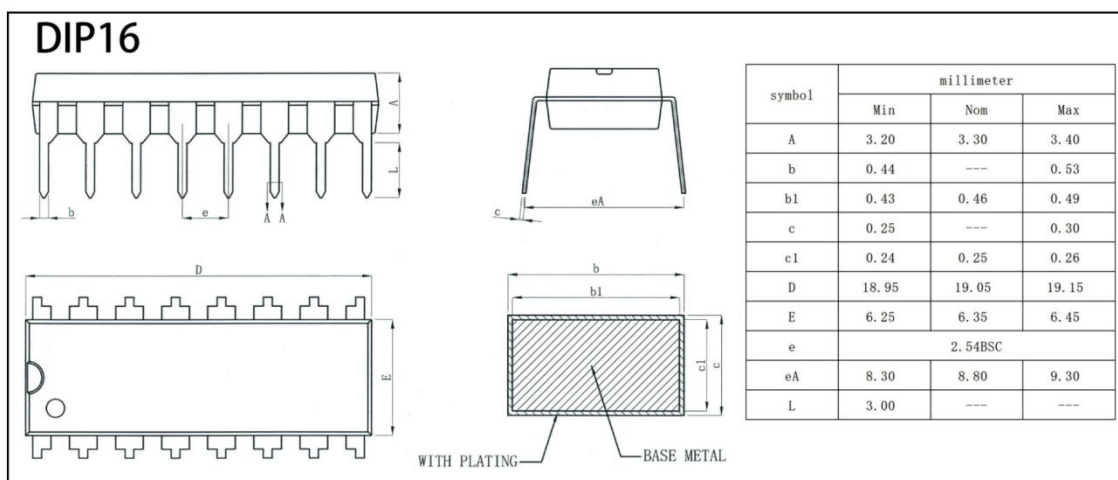
NOTE 3: Load circuits and voltage waveforms are shown in Section1.

10. ORDERING INFORMATION

Ordering Information

Part Number	Device Marking	Package Type	Body size (mm)	Temperature (°C)	MSL	Transport Media	Package Quantity
XD74LS145	XD74LS145	DIP16	19.05 * 6.35	-0 to 70	MSL3	Tube 25	1000

11. DIMENSIONAL DRAWINGS



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