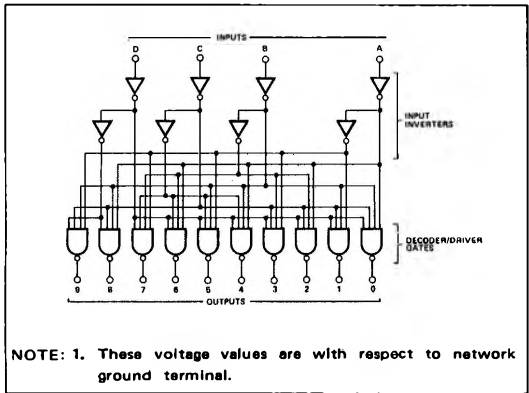


DESCRIPTION

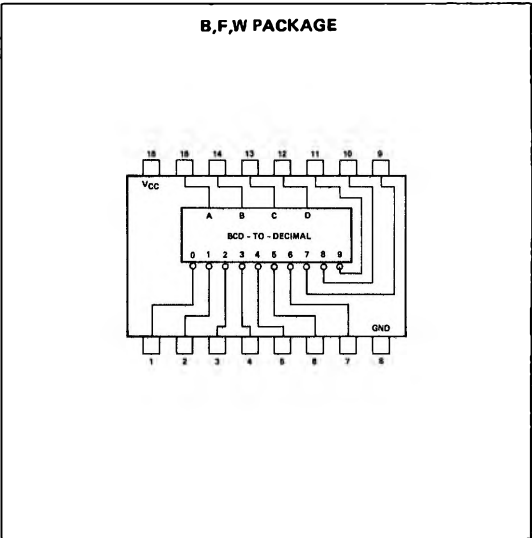
The 54/7445 and 54/74145 BCD-to-Decimal Decoder/Driver is a TTL MSI array. It features standard TTL inputs and high voltage, high current (80mA) outputs. The 54/7445 minimum output breakdown is 30 volts and the 54/74145 minimum output break-down is 15 volts.

LOGIC DIAGRAM



NOTE: 1. These voltage values are with respect to network ground terminal.

PIN CONFIGURATIONS



TRUTH TABLE

INPUTS				OUTPUTS									
D	C	B	A	0	1	2	3	4	5	6	7	8	9
0	0	0	0	1	0	0	0	0	0	0	0	0	0
0	0	0	1	0	1	0	0	0	0	0	0	0	1
0	0	1	0	0	0	1	0	0	0	0	0	1	0
0	0	1	1	0	0	0	1	0	0	0	1	0	0
0	1	0	0	0	1	0	0	1	0	0	0	1	0
0	1	0	1	0	0	1	0	0	1	0	0	0	1
0	1	1	0	0	1	0	1	0	0	1	0	0	0
0	1	1	1	0	1	0	0	1	0	0	1	0	0
1	0	0	0	0	1	1	0	0	1	0	0	1	0
1	0	0	1	0	0	1	1	0	0	1	0	0	1
1	0	1	0	0	1	0	1	0	1	0	0	1	0
1	0	1	1	0	1	0	0	1	0	0	1	0	1
1	1	0	0	0	1	1	0	1	0	0	1	0	0
1	1	0	1	0	0	1	1	0	0	1	0	0	1
1	1	1	0	0	1	0	1	0	1	0	0	1	0
1	1	1	1	0	1	0	0	1	0	0	1	0	1
1	1	1	1	1	0	0	0	1	0	0	0	1	1

RECOMMENDED OPERATING CONDITIONS

	MIN	NOM	MAX	UNIT
Supply Voltage V _{CC} (See Note 1): S5445, S54145 Circuits	4.5	5	5.5	V
N7445, N74145 Circuits	4.75	5	5.25	V
Voltage on any Output S5445, N7445 Circuits			30	V
S54145, N74145 Circuits			15	V

DIGITAL 54/74 TTL SERIES ■ S5445, S54145, N7445, N74145

ELECTRICAL CHARACTERISTICS (over recommended operating free-air temperature range unless otherwise noted)

PARAMETER		TEST CONDITIONS *	MIN	TYP **	MAX	UNIT
$V_{in(1)}$	Input voltage required to ensure logical 1 at any input terminal	$V_{CC} = \text{MIN}$	2			V
$V_{in(0)}$	Input voltage required to ensure logical 0 at any input terminal	$V_{CC} = \text{MIN}$			0.8	V
V_{on}	On-state output voltage	$V_{CC} = \text{MIN}, I_{\text{sink}} = 80\text{mA}$ $V_{CC} = \text{MIN}, I_{\text{sink}} = 20\text{mA}$		0.5	0.9 0.4	V V
V_{off}	Off-state output voltage (S5445 or N7445)	$V_{CC} = \text{MAX}, I_{\text{off}} = 250\mu\text{A}$	30			V
V_{off}	Off-state output voltage (S54145 or N74145)	$V_{CC} = \text{MAX}, I_{\text{off}} = 250\mu\text{A}$	15			V
$I_{in(1)}$	Logical 1 level input current (each input)	$V_{CC} = \text{MAX}, V_{in} = 2.4\text{V}$ $V_{CC} = \text{MAX}, V_{in} = 5.5\text{V}$			40 1	μA mA
$I_{in(0)}$	Logical 0 level input current (each input)	$V_{CC} = \text{MAX}, V_{in} = 0.4\text{V}$			-1.6	mA
I_{CC}	Supply current	$V_{CC} = \text{MAX}$ S5445, S54145 N7445, N74145		43 43	62 70	mA mA

SWITCHING CHARACTERISTICS, $V_{CC} = 5\text{V}$, $T_A = 25^\circ\text{C}$

PARAMETER		TEST CONDITIONS	MIN	TYP	MAX	UNIT
t_{pd1}	Propagation delay time logical 1 level	$C_L = 15\text{pF}, R_L = 100\Omega$			50	ns
t_{pd0}	Propagation delay time to logical 0 level	$C_L = 15\text{pF}, R_L = 100\Omega$			50	ns

* For conditions shown as MIN or MAX, use the appropriate value specified under recommended operating conditions for the applicable circuit type.

** All typical values are at $V_{CC} = 5\text{V}$, $T_A = 25^\circ\text{C}$.