BCD-TO-DECIMAL DECODER/DRIVER WITH OPEN COLLECTOR HIGH VOLTAGE OUTPUTS

S5445
S54145
N7445
N74145

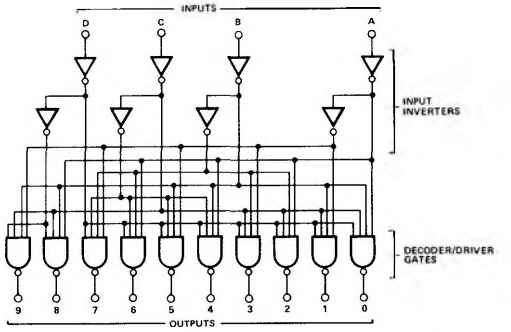
S5445–F,W • S54145–F,W • N7445–B • N74145–B

DIGITAL 54/74 TTL SERIES

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 breakdown is 15 volts.

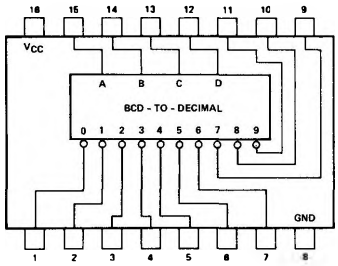
LOGIC DIAGRAM



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

PIN CONFIGURATIONS

B,F,W PACKAGE



TRUTH TABLE

INPUTS			
D	C	B	A
0	0	0	0
0	0	0	1
0	0	1	0
0	0	1	1
0	1	0	0
0	1	0	1
0	1	1	0
0	1	1	1
1	0	0	0
1	0	0	1
1	0	1	0
1	0	1	1
1	1	0	0
1	1	0	1
1	1	1	0
1	1	1	1

OUTPUTS									
0	1	2	3	4	5	6	7	8	9
0	1	1	1	1	1	1	1	1	1
1	0	1	1	1	1	1	1	1	1
1	1	0	1	1	1	1	1	1	1
1	1	1	0	1	1	1	1	1	1
1	1	1	1	0	1	1	1	1	1
1	1	1	1	1	0	1	1	1	1
1	1	1	1	1	1	0	1	1	1
1	1	1	1	1	1	1	0	1	1
1	1	1	1	1	1	1	1	0	1
1	1	1	1	1	1	1	1	1	0
1	1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	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

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

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

PARAMETER		TEST CONDITIONS	MIN	TYP	MAX	UNIT
t_{pd1}	Propagation delay time logical 1 level	C_L = 15pF, R_L = 100 Ω			60	ns
t_{pd0}	Propagation delay time to logical 0 level	C_L = 15pF, R_L = 100 Ω			60	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} = 5V, T_A = 25°C.