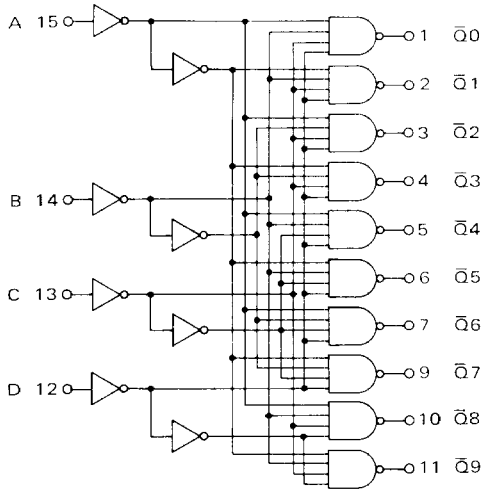
MC5445 • MC7445
MC9345 • MC8345
MC54145 • MC74145
MC93145 • MC83145

ISSUE A

Add Suffix L for 16-pin ceramic dual in-line package (Case 620).
Suffix P for 16-pin plastic dual in-line package (Case 648) MC7445/74145, MC8345/83145.

These devices are intended for use as drivers for indicators or relays, rather than drivers for MTTL logic gates, as is the case with the MC5442/7442, which is functionally identical. The output transistors of these devices are capable of sinking 80 mA, and have breakdown voltages of 30 V (MC5445/7445, MC9345/8345 and 15 V (MC54145/74145, MC93145/83145. The outputs are suitable for open-collector logic applications, and are compatible for interfacing with most MOS integrated circuits. Since full decoding is included, all outputs remain off for non-BCD inputs



V_{CC} = Pin 16
GND = Pin 8

Total Power Dissipation = 215 mW typ/pkg
Propagation Delay Time = 50 ns max

INPUTS				OUTPUTS									
D	C	B	A	Q̄9	Q̄8	Q̄7	Q̄6	Q̄5	Q̄4	Q̄3	Q̄2	Q̄1	Q̄0
0	0	0	0	1	1	1	1	1	1	1	1	1	0
0	0	0	1	1	1	1	1	1	1	1	1	0	1
0	0	1	0	1	1	1	1	1	1	1	0	1	1
0	0	1	1	1	1	1	1	1	1	0	1	1	1
0	1	0	0	1	1	1	1	1	0	1	1	1	1
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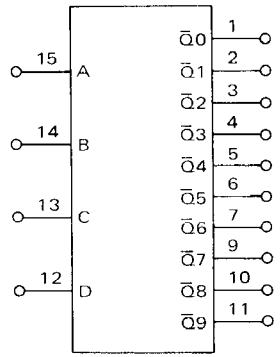
1	1	0	1	1	1	1	1	1	1	1	1	1	1
1	1	1	0	1	1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	1	1	1	1	1	1

ELECTRICAL CHARACTERISTICS

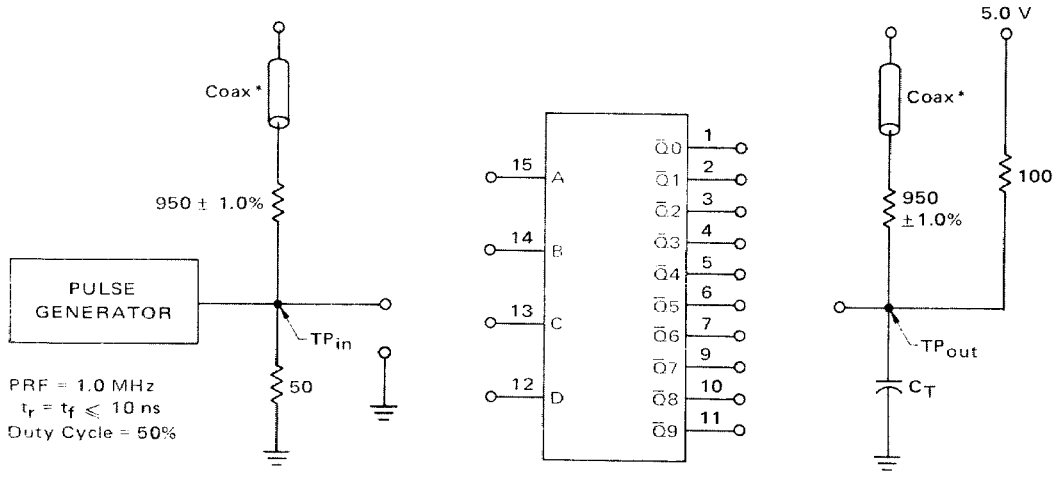
Test procedures are shown for only one input and one output. Test other inputs and outputs in the same manner according to the truth table. Test all input-output combinations according to the truth table.



									TEST CURRENT/VOLTAGE VALUES (All Temperatures)											
									mA			Volts								
									I_{OL1}	I_{OL2}	I_{CEX}	V_{IL}	V_{IH}	V_{IHH}	V_{ILT}	V_{IHT}	V_{CC}	V_{CCL}	V_{CCH}	
									20	80	0.25	0.4	2.4	5.5	0.8	2.0	5.0	4.5	5.5	
								MC5445/145, MC9345/145												
								MC7445/145, MC8345/145	20	80	0.25	0.4	2.4	5.5	0.8	2.0	5.0	4.75	5.25	
			MC5445/145, MC9345/145 Test Limits -55 to +125°C			MC7445/145, MC8345/145 Test Limits 0 to +75°C			TEST CURRENT/VOLTAGE APPLIED TO PINS LISTED BELOW:											
Characteristic	Symbol	Pin Under Test	Min	Max	Unit	Min	Max	Unit	I_{OL1}	I_{OL2}	I_{CEX}	V_{IL}	V_{IH}	V_{IHH}	V_{ILT}	V_{IHT}	V_{CC}	V_{CCL}	V_{CCH}	Gnd
Input																				
Forward Current	I_{IL}	12		-1.6	mAdc		-1.6	mAdc				12							16	8
Leakage Current	I_{IH}	12		40	μAdc		40	μAdc					12						16	8
	I_{IHH}	12		1.0	mAdc		1.0	mAdc						12					16	8
Output																				
Output Voltage	V_{OL}	1		0.9	Vdc		0.9	Vdc		1					12,13,14,15			16		8
		1		0.4	Vdc		0.4	Vdc	1						12,13,14,15			16		8
MC5445/7445	V_{CEX}	1	30		Vdc	30		Vdc			1					12,13,14,15			16	8
MC54145/74145		1	15		Vdc	15		Vdc			1					12,13,14,15			16	8
Power Requirements (Total Device)																				
Power Supply Drain	I_{CC}	16		62	mAdc		70	mAdc											16	8,12,13,14
Switching Parameters									Pulse In	Pulse Out										
Turn-On Delay	t_{PHL}	15,1		50*	ns		50	ns	15	1							16			8,12,13,14
Turn-Off Delay	t_{PLH}	15,1		50	ns		50	ns	15	1							16			8,12,13,14

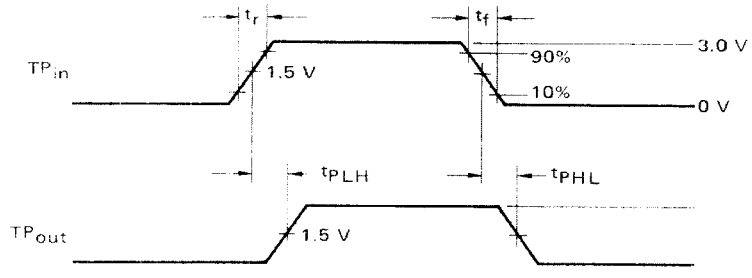
*Tested only at 25°C.

SWITCHING TIME TEST CIRCUIT AND VOLTAGE WAVEFORMS



C_T = 15 pF = total parasitic capacitance, which includes probe and wiring capacitances.

* The coax delays from input to scope and output to scope must be matched. The scope must be terminated in 50-ohm impedance. The 950-ohm resistor and the scope termination impedance constitute a 20:1 attenuator probe.

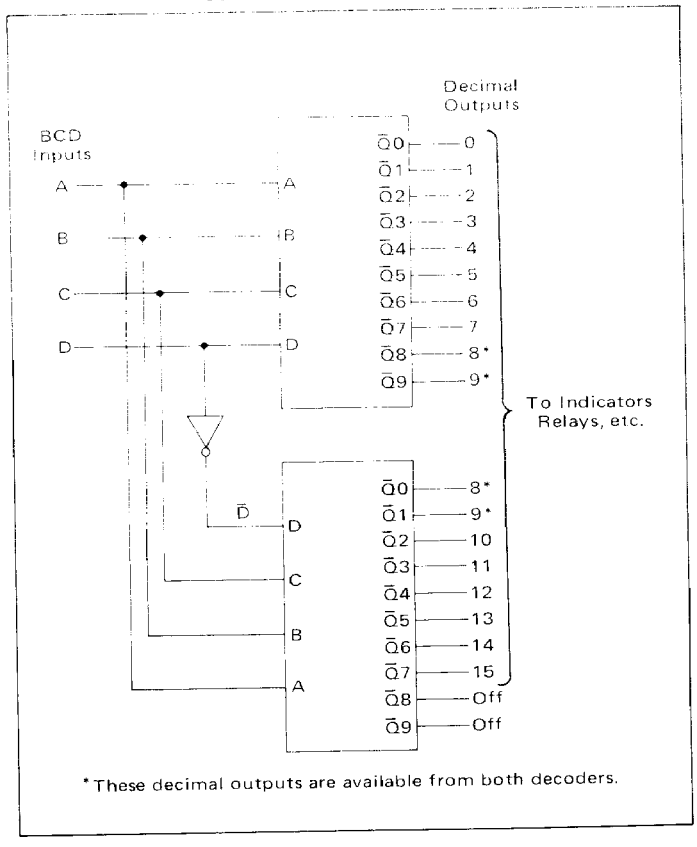


TYPICAL APPLICATIONS

Two MC5445/7445 (MC9345/8345) or MC54145/74145 (MC93145/83145) decoder/drivers (depending on drive requirements) may be used to perform 4-line to 16-line decoding. Data inputs A, B, and C are applied to both decoder/drivers, while input D is applied to one decoder and $\bar{D}$ to the other. (See Figure 1.)

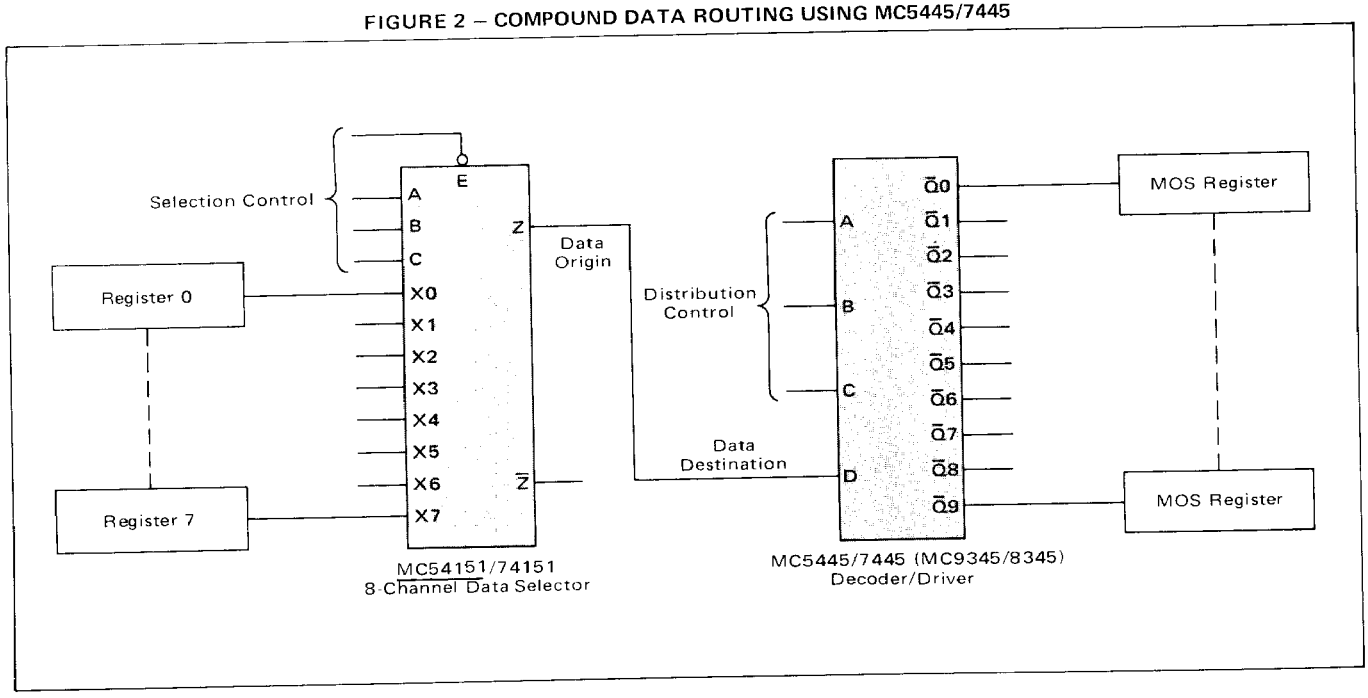
In addition to the obvious decoder applications, these circuits can also be used for data distribution (Figure 2). Inputs A, B, and C of the decoder/driver are used as control inputs, while the D input serves as the data input. In a typical compound data routing application, origin data is selected by the control inputs of the MC54151/74151 8-channel data selector. The data is then routed to the proper destination by means of the MC5445/7445 (MC9345/9345) decoder/driver control lines.

FIGURE 1 – BINARY-TO-DECIMAL DECODING USING MC5445/7445 OR MC54145/74145 MC9345/8345 OR MC93145/83145



*These decimal outputs are available from both decoders.

FIGURE 2 – COMPOUND DATA ROUTING USING MC5445/7445



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