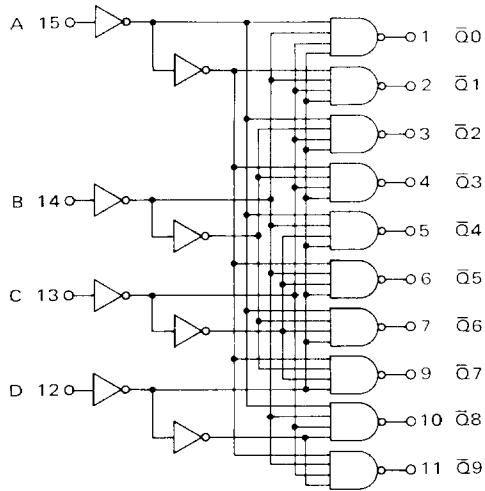




MC5445 • MC7445
MC9345 • MC8345
MC54145 • MC74145
MC93145 • MC83145

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.



V_{CC} = Pin 16
GND = Pin 8

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

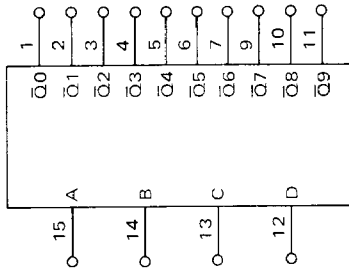
Total Power Dissipation = 215 mW typ/pkg
Propagation Delay Time = 50 ns max

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4472
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NOT

| INPUTS | | | | OUTPUTS | | | | | | | | | |
|--------|---|---|---|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| D | C | B | A | \bar{Q}_9 | \bar{Q}_8 | \bar{Q}_7 | \bar{Q}_6 | \bar{Q}_5 | \bar{Q}_4 | \bar{Q}_3 | \bar{Q}_2 | \bar{Q}_1 | \bar{Q}_0 |
| 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 | 1 | 0 | 1 | 1 |
| 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 |
| 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 |
| 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 1 | 0 | 1 | 0 | 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 | 0 | 0 | 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 | 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

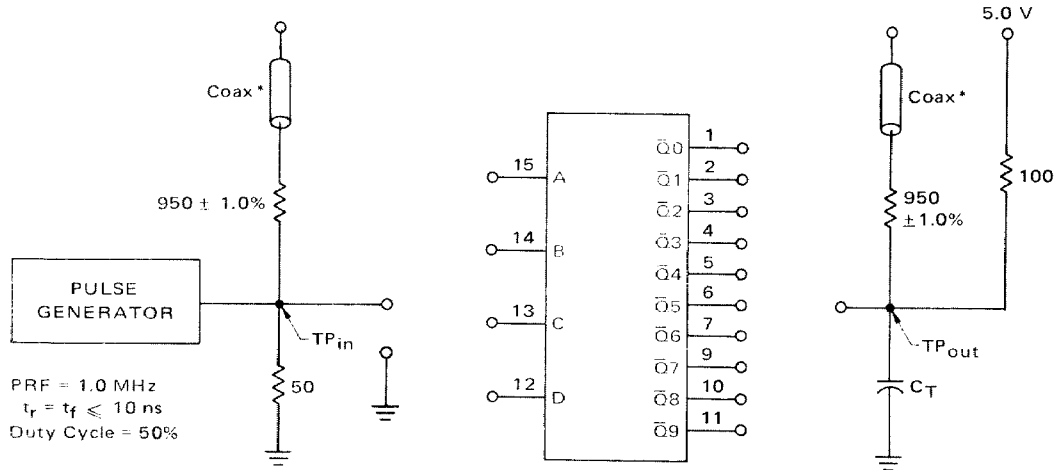
Test procedures are shown for only one input and one output. Test other inputs and outputs in the same manner according to the truth table. Test all input-output combinations according to the truth table.



| Characteristic | Symbol | Pin Under Test | Test Limits -55 to +125°C | | | Test Limits 0 to +75°C | | | TEST CURRENT/VOLTAGE VALUES (All Temperatures) | | | | | | | | | | | |
|---|------------------|----------------|------------------------------|------|------------------|---------------------------|-----|------------------|--|------------------|------------------|-----------------|-----------------|------------------|------------------|------------------|-----------------|-------------------|------------------|--|
| | | | Min | Max | Unit | Min | Max | Unit | mA | | Volts | | | | | | | | | |
| Input | | | | | | | | | I _{OL1} | I _{OL2} | I _{CEX} | V _{IL} | V _{IH} | V _{IHH} | V _{ILT} | V _{IHT} | V _{CC} | V _{CCCL} | V _{CCH} | |
| Forward Current | I _L | 12 | | -1.6 | mA _{dc} | | | | 70 | 80 | 0.75 | 0.4 | 2.4 | 5.5 | 0.8 | 2.0 | 5.0 | 4.5 | 5.5 | |
| Leakage Current | I _{IH} | 12 | | 40 | μA _{dc} | | 40 | μA _{dc} | | | | | | | | | | | | |
| | I _{IHH} | 12 | | 1.0 | mA _{dc} | | 1.0 | mA _{dc} | | | | | 12 | 12 | | | | | | |
| Output | V _{OL} | 1 | | 0.9 | V _{dc} | | 0.0 | V _{dc} | | 1 | | | | | 12, 13, 14, 15 | 12, 13, 14, 15 | 16 | 16 | 16 | |
| | | 1 | | 0.4 | V _{dc} | | 0.4 | V _{dc} | | | | | | | | | 16 | 16 | 16 | |
| MC5445/7445 MC54145/74145 | V _{CEX} | 1 | 30 | | V _{dc} | 30 | | V _{dc} | | | 1 | | | | 12, 13, 14, 15 | 12, 13, 14, 15 | 16 | 16 | 16 | |
| | | 1 | 15 | | V _{dc} | 15 | | V _{dc} | | | 1 | | | | 12, 13, 14, 15 | 12, 13, 14, 15 | 16 | 16 | 16 | |
| Power Requirements (Total Device) Power Supply Drain | I _{CC} | 16 | | 67 | mA _{dc} | | 70 | mA _{dc} | | | | | | | | | | | | |
| Switching Parameters | t _{PHL} | 15, 1 | | 50 | ns | | 50 | ns | | | | | | | | | 16 | | | |
| | | 15, 1 | | 50 | ns | | 50 | ns | | | | | | | | | 16 | | | |

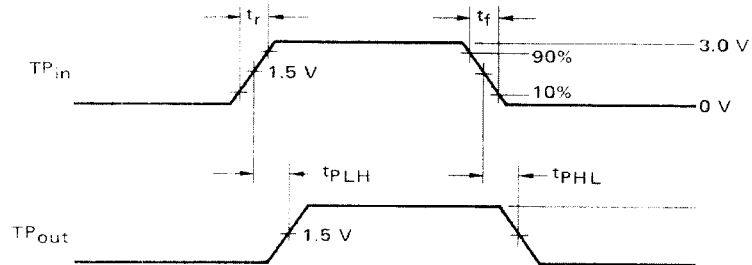
*Tested only at 25°C.

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 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 (MC9345/8345) decoder/driver control lines.

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

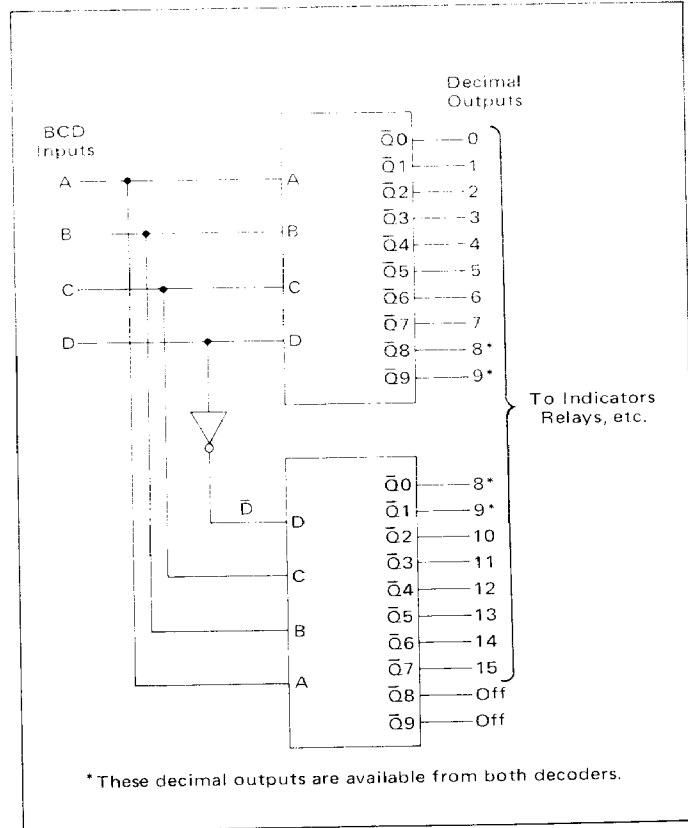
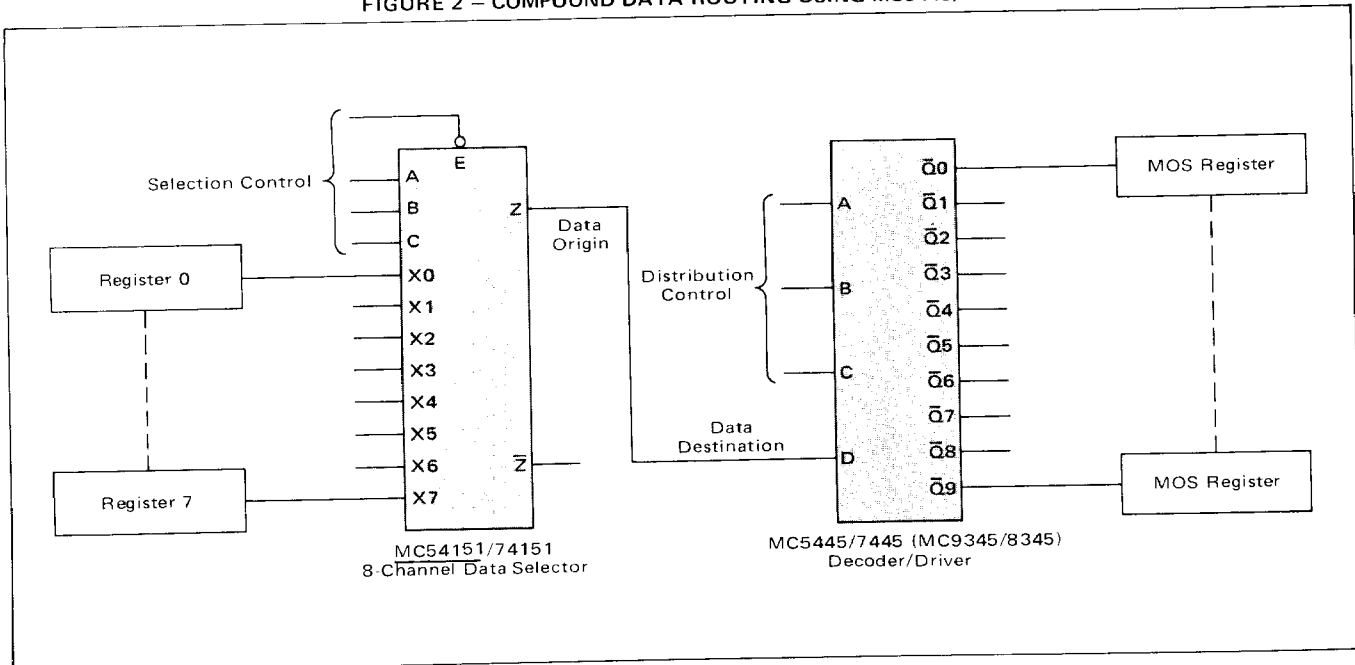


FIGURE 2 - COMPOUND DATA ROUTING USING MC5445/7445



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