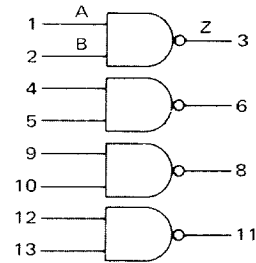
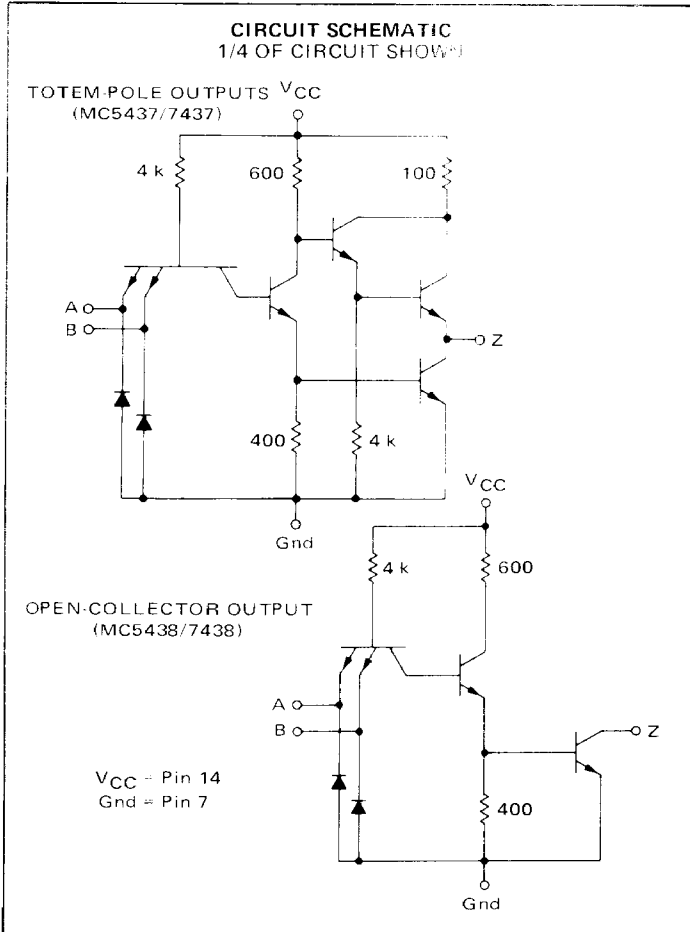




MC5437 • MC7437
MC5438 • MC7438

Add Suffix F for TO-86 ceramic package (Case 907)
Suffix L for TO-116 ceramic package (Case 632)
Suffix P for TO-116 plastic package (Case 645) MC7437, MC7438.

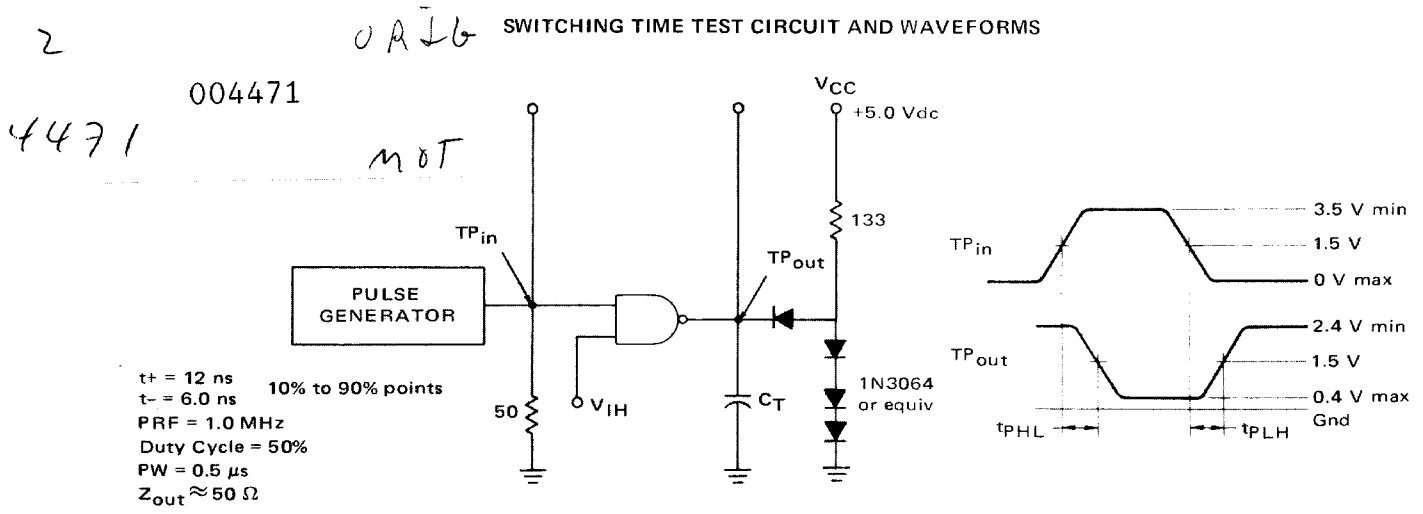
These devices consist of four 2-input NAND power gate circuits. Each gate is designed for driving high fan-out loads (30). The MC5438/MC7438 features open collector outputs to be used where the wired-OR function is required, or for driving discrete components.



Positive Logic: $Z = \overline{A \cdot B}$
Negative Logic: $Z = \overline{A + B}$

Input Loading Factor = 1
Output Loading Factor = 30
Total Power Dissipation = 50 mW typ/pkg

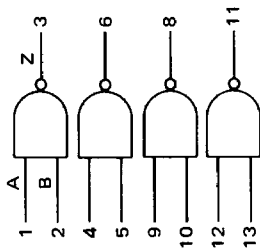
SWITCHING TIME TEST CIRCUIT AND WAVEFORMS



$C_T = 45$ pF = total parasitic capacitance, which includes probe, wiring, and load capacitances.

ELECTRICAL CHARACTERISTICS

Test procedures are shown for only one gate. The other gates are tested in the same manner. Further, test procedures are shown for only one input of the gate under test. To complete testing, sequence through remaining inputs.



$V = V_{CC} = \text{Pin 14}$
 $\text{Gnd} = \text{Pin 7}$

| Characteristic | Symbol | Pin Under Test | MC5437/5438 Test Limits -55 to +125°C | | MC7437/7438 Test Limits 0 to +70°C | | TEST CURRENT/VOLTAGE VALUE (All Temperatures) | | | | | | | | | | | | | |
|------------------------|------------------------------|----------------|---|------|--|------|---|--------------------|----------------|-----------------|------------------|------------------|------------------|------------------|-------------------|------------------|---------------------|-------------------|-------------------|---|
| | | | Min | Max | Min | Max | Volts | | | | | | | | | | | | | |
| | | | Unit | Unit | Unit | Unit | I _{OL} | I _{OH} ** | I _C | V _{IL} | V _{IH1} | V _{IH2} | V _{IHH} | V _{IHT} | V _{IILT} | V _{out} | # V _{CC} * | V _{CCCL} | V _{CCCH} | |
| Input Forward Current | I _{IL} | A | - | -1.6 | mAdc | - | -1.6 | mAdc | - | A | - | - | - | - | - | - | - | - | - | |
| Leakage Current | I _{IH} | A | - | 40 | μAdc | - | 40 | μAdc | - | - | - | - | - | - | - | - | - | - | - | |
| | I _{IHH} | A | - | 1.0 | mAdc | - | 1.0 | mAdc | - | - | - | A | - | - | - | - | - | - | - | |
| Clamp Voltage | V _{IC} | A | - | -1.5 | Vdc | - | -1.5 | Vdc | - | - | - | - | - | - | - | - | - | - | - | |
| Output Voltage | V _{OL} | Z | - | 0.4 | Vdc | - | 0.4 | Vdc | - | - | - | - | - | - | - | - | - | - | - | |
| | V _{OH} | Z | 2.4 | - | Vdc | 2.4 | - | Vdc | - | - | - | - | - | A | - | - | - | - | - | |
| Short-Circuit Current | I _{OS} [†] | Z | -20 | -70 | mAdc | -20 | -70 | mAdc | - | - | - | - | - | - | - | - | - | - | - | |
| Output Leakage Current | I _{GEX} | Z | - | 250 | μAdc | - | 250 | μAdc | - | - | - | - | - | - | - | - | - | - | - | |
| | | | | | | | | | | - | - | - | - | - | - | - | - | - | - | |
| Power Requirements | I _{CCL} | V | - | 15.5 | mAdc | - | 15.5 | mAdc | - | - | - | - | - | - | - | - | - | - | - | |
| | I _{CCCH} | V | - | 8.5 | mAdc | - | 8.5 | mAdc | - | - | - | - | - | - | - | - | - | - | - | |
| | I _{CCCL} | V | - | 54 | mAdc | - | 54 | mAdc | - | - | - | - | - | - | - | - | - | - | - | |
| Switching Parameters | Turn-On, Turn-Off Delay | MC5437/7437 | Z | 15 | ns | 25°C | 15 | ns | Z | A | Z | A | Z | A | Z | A | Z | A | Z | A |
| | | | | 22 | ns | | | 22 | | | | | | | | | | | | |
| | MC5438/7438 | Z | 18 | ns | 22 | ns | 18 | ns | Z | A | Z | A | Z | A | Z | A | Z | A | Z | A |
| | | | 22 | ns | | | | 22 | | | | | | | | | | | | |

[†] Only one output should be shorted at a time

* Test only at 25°C

For MC5438/7438 only.

** For MC5437/7437 only.

