COMPONENT NEWS

FAIRCHILD SEMICONDUCTOR DATA SHEETS

FAIRCHILD Semiconductor Data sheets for devices have minimum, typical and maximum curves of transistor performances.

These are not guaranteed values, but are intended to represent with a high degree of confidence the range of expected values.

If used properly, these new performance curves could be of considerable help in designing for worst case conditions.

For further information, call Ext 7711.

-Ken Tomlin

## *MOTOROLA* RTL IC'S, OUTPUT VOLTAGE IN HIGH STATE

The following comments apply to RTL gates and inverters in the *MOTOROLA* "800P" series (156-0018-00, 156-0020-00, 156-0021-00, etc).

RTL gates and inverters are specified and tested for available current in the high level output state and for output voltage in the low state as needed to drive other RTL IC's. Shown below is one part of an MC889P hex inverter:


$V_{cc} = +3.6V \pm 10\%$

OUTPUT

INPUT

R_1

R_2

1/6 MC889P
(156-0021-00)
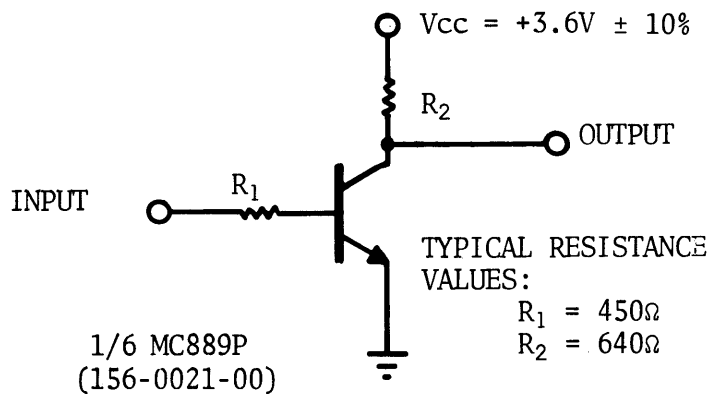
TYPICAL RESISTANCE VALUES:
$R_1 = 450\Omega$
$R_2 = 640\Omega$

When the input is high ($\geq$880mV @25°C), the transistor will be saturated producing an output low state ($\leq$400mV @25°C). When the input is low ($\leq$500mV @25°C) R_2 must produce an output high state voltage of at least 910mV @25°C (820mV @75°C). The high state output voltage is specified at maximum load, and will be higher for less or no load. However, the unloaded RTL output does not have to rise to Vcc (or greater than 1 volt for that matter) in order to satisfy specified electrical parameters. Some IC's may actually have an unloaded output high state voltage of 1.5V or lower, due to a "punch-through" condition in the transistor. These devices will meet all specified requirements for RTL gates or inverters. Problems may occur when interfacing with discrete circuitry. The following circuit is not recommended, because it requires an RTL output voltage almost equal to Vcc:
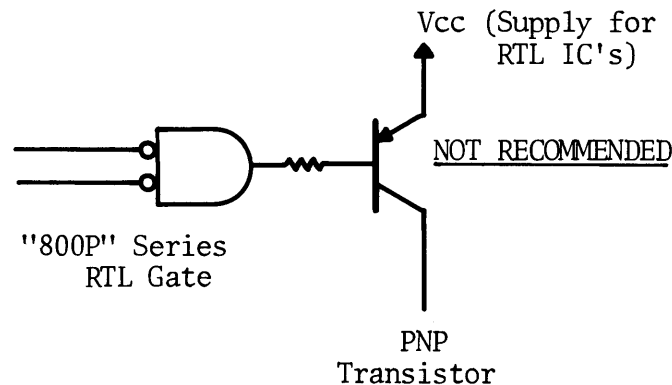
An example of a good interface with discrete circuitry is shown below:
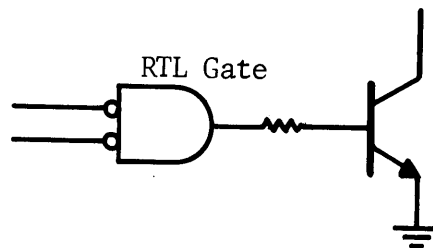
For further information refer to the IC specifications or contact me at Ext 7262.

-Bill Markwart

LOGIC DIAGRAMS STANDARD

TEKTRONIX Standard A-107 (new) titled Graphic Symbols for Logic Symbols, is now in printing. Distribution will be automatic to those having either a TTC Guidelines Manual or Standards Manuals. Others may obtain a copy by calling Ext 7977.

-Don Tucker