SERTECH LABS
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TSC382
BCD-to-Decoder/Driver
• Gas Tube Driver

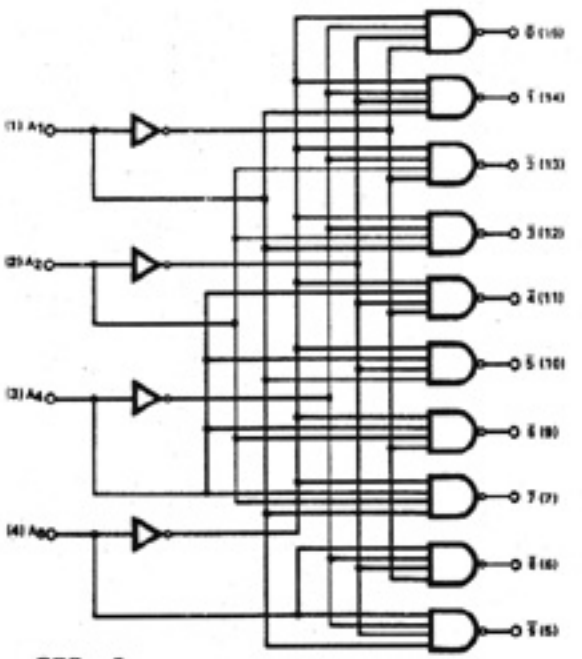
Features

- NO AMBIGUOUS OUTPUTS
- BLANKING MODE
- 70 VOLT OUTPUT CAPABILITY
- 7 mA CATHODE CURRENT CAPABILITY

General Description

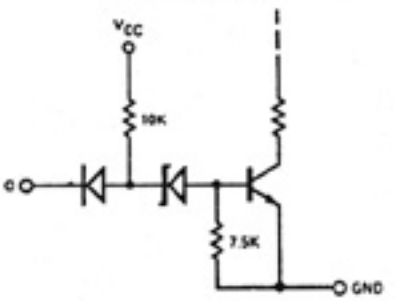
The 382 decodes BCD inputs (1-2-4-8 code) and drives the 10 segments of a gas filled, cold cathode indicator tube. Since the 382 produces no ambiguous outputs, input codes for 10 to 15 will blank the tube. The outputs of a 371 decade counter are ideal as 382 inputs for display control.

Logic Diagram

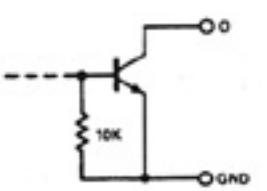


Equivalent Circuits

TYPICAL INPUT



TYPICAL OUTPUT



Truth Table

INPUTS				OUTPUTS									
A_1	A_2	A_4	A_8	0	1	2	3	4	5	6	7	8	9
0	0	0	0	0	1	1	1	1	1	1	1	1	1
1	0	0	0	1	0	1	1	1	1	1	1	1	1
0	1	0	0	1	1	0	1	1	1	1	1	1	1
1	1	0	0	1	1	1	0	1	1	1	1	1	1
0	0	1	0	1	1	1	1	0	1	1	1	1	1
1	0	1	0	1	1	1	1	1	0	1	1	1	1
0	1	1	0	1	1	1	1	1	1	0	1	1	1
1	1	1	0	1	1	1	1	1	1	1	0	1	1
0	0	0	1	1	1	1	1	1	1	1	1	0	1
1	0	0	1	1	1	1	1	1	1	1	1	1	0
0	1	0	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
0	0	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
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

Specifications

I_{CC} (WORST-CASE)	24 mA @ 13V, 31 mA @ 16V

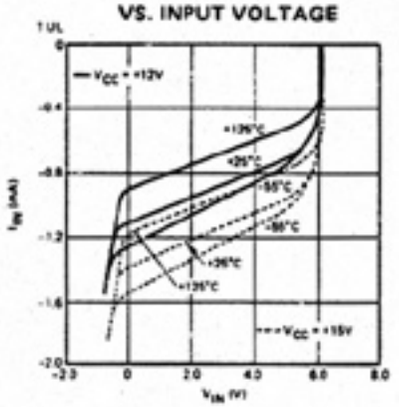
NOTE:
I_{CC} is tested at V_{CC} +1 Volt (+13V for C type and +16V for A type) and is guaranteed across the applicable temp range.
See page 12 for electrical summary data.

Loading Table

PINS	FUNCTION	LOADING
A	BCD inputs	1 UL
0-9	Outputs	Unit loading does not apply

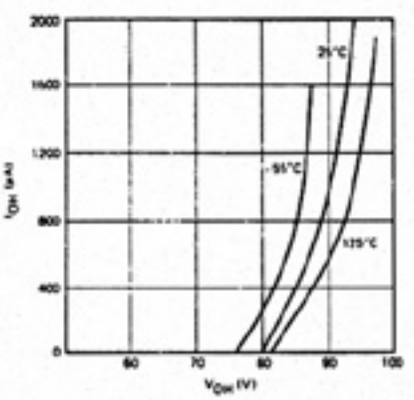
Typical Performance Characteristics

INPUT CURRENT VS. INPUT VOLTAGE

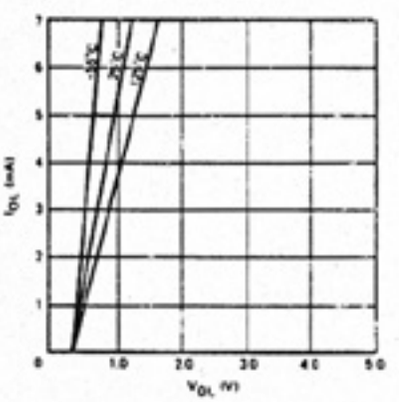


OUTPUT CURRENT VS OUTPUT VOLTAGE

OUTPUT HIGH



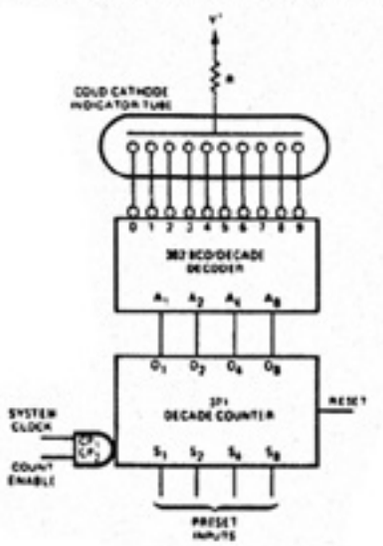
OUTPUT LOW



Typical Applications

The typical input and output circuits may be used to calculate interface designs.

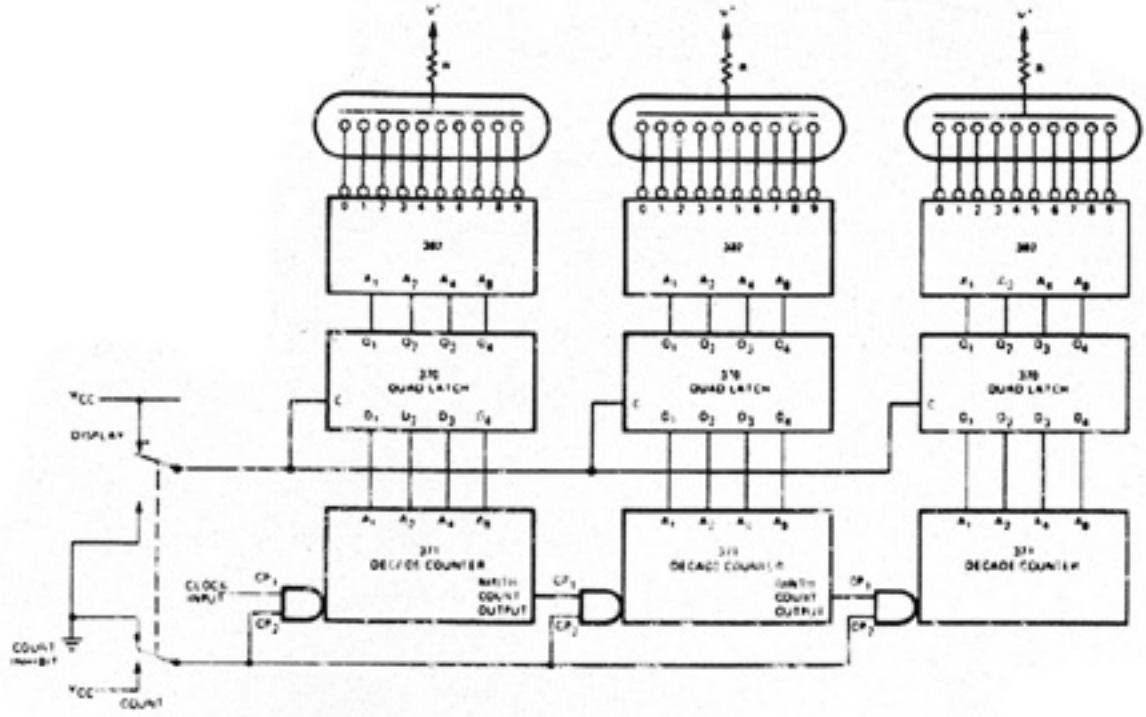
COUNTING-DISPLAY SYSTEM



The 382 is used here to drive a cold cathode indicator tube. The circuit will count system clock pulses as long as the count enable line is held high. The counter can be reset, or a number preset into the counter by taking the reset/preset inputs high. During normal operation they should be held low. This setting/presetting operation should be done only with the count enable line low. The values for V^+ and R can be determined from the manufacturer's literature published on the indicator tube.

Typical Applications (con't)

SAMPLE AND HOLD DISPLAY SYSTEM



This circuit counts, stores, and displays the count. When the switch is in the count position, the decade counters count clock pulses and the indicator tubes display the count being held in the quad latches. When the switch is moved to the display/count inhibit position the counters stop counting; the number at which they were stopped is transferred to storage and the display tubes change to the new number. If the switch is then returned to its original position the circuit will resume counting.

MINIMUM LOGIC DIGITAL CLOCK