



BCD NIXIE[®] TUBE DECODER/DRIVER

(With Integrated Circuits)

TYPES
BIP-8804-1
BIP-8804-2

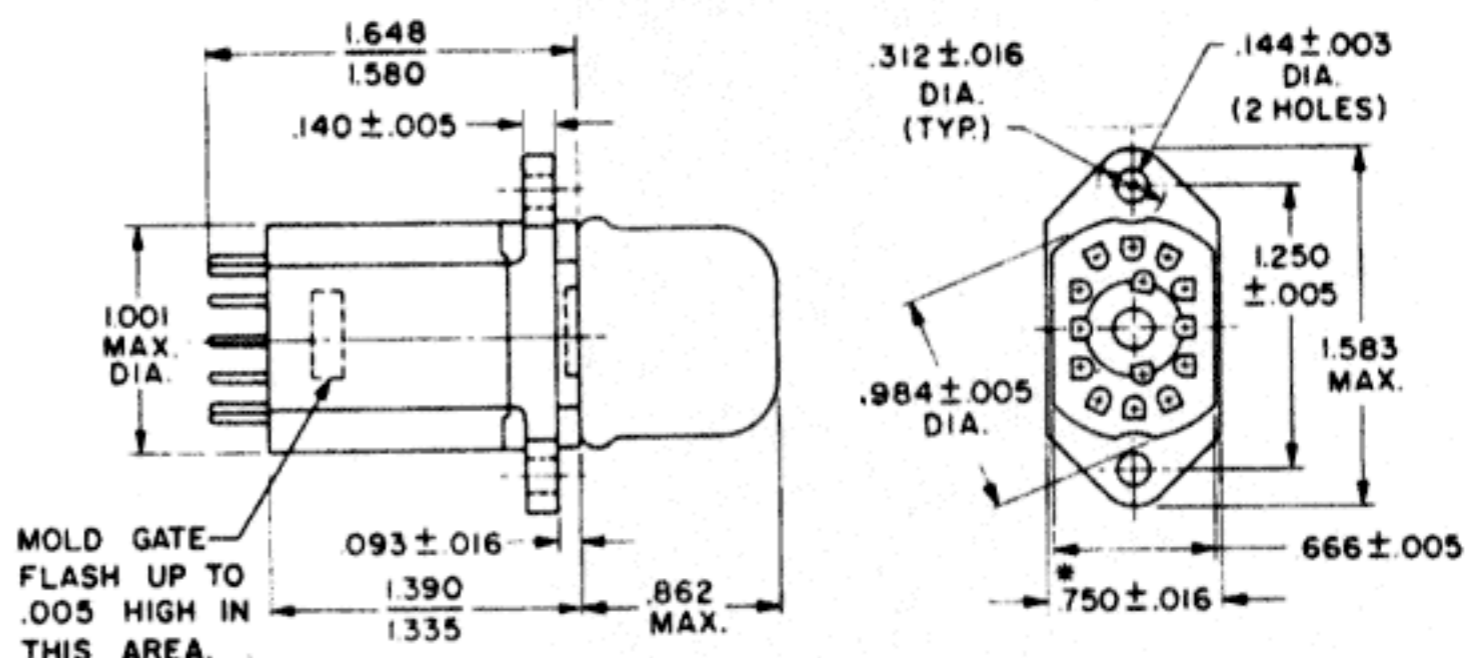
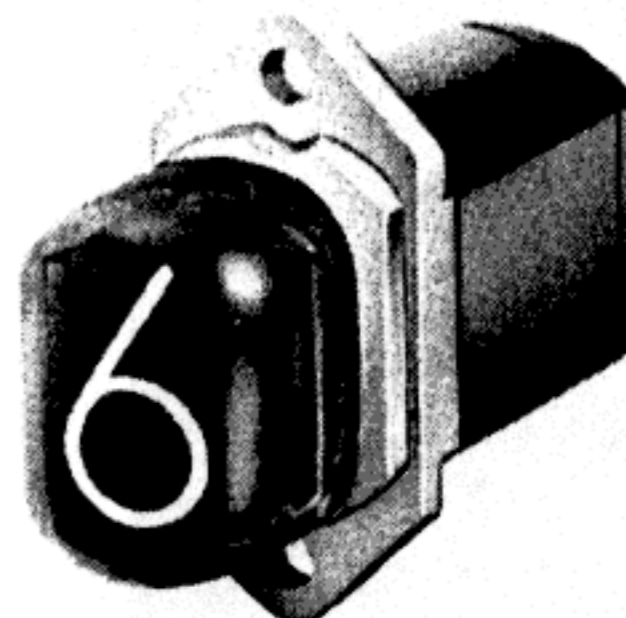
The BIP-8804 series integrated circuit decoder/drivers accept 4-line 8-4-2-1 BCD input from DTL and TTL circuitry, and provide decimal readout on integrally mounted NIXIE tubes. The BIP-8804-1 drives a standard rectangular "0-9" NIXIE tube, type 8422 (B-5991). The BIP-8804-2 drives the B-59956 standard rectangular NIXIE tube "0-9 with a decimal point."

These modules are non-latching in that they require a continuously available BCD information input.

The modules feature a socket pack construction, i.e., the socket and decoder are an integral unit. Height and width dimensions are those of the socket itself, permitting 0.8" center to center spacing of multi-digit displays. By mounting the integrated circuit as close to the NIXIE tube as possible, the undesirable effects of switching transients are minimized. A decoupling capacitor, C1, is used to bypass low voltage power supply transients.

BIP-8804-4 drives the +, -, NIXIE tube, B-5992. (Note 11, Table 2b)

For further information write to Burroughs Corporation, Electronic Components Division, Box 1226, Plainfield, New Jersey 07061.



* VIEW OF SOCKET WITHOUT NIXIE TUBE, DIMENSION WITH NIXIE TUBE IS .790 MAX. A DRAFT OF UP TO 0°30" PER SIDE INCREASES THE PACKAGE WIDTH AT THE PLUG END TO .775 MAX.

Figure 1. OUTLINE DRAWING

ELECTRICAL SPECIFICATIONS

INPUT REQUIREMENTS — 4 line 8-4-2-1 BCD (Note 1)

Logic "0" (E.)	-0.5V to +0.85V
Logic "1" (E.)	2.0V to 6.0V

INPUT CURRENT

Logic "0" present	1.5 mA max. (Note 2)
Logic "1" present	10 μ A max. Note (3)

DECIMAL POINT DRIVE REQUIREMENTS

V off	60V to 140V
V on	0 to 2V
I off	30 μ A max. (Note 4)
I on	0.5 mA max. (Note 9)

POWER REQUIREMENTS

Positive High Voltage	+200V dc \pm 10V (Note 6)
Positive Low Voltage	5V dc \pm 0.25V
Current at 200V	2.8 mA typ.; 4.0 mA max. (BIP 8804-2)
	2.3 mA typ.; 3.5 mA max. (BIP 8804-1)
Current at 5.0V	60 mA max.

MECHANICAL SPECIFICATIONS

Connector	12 pin rectangular base (Note 10)
Receptacle	Sk-169 (Fig. 4) (Note 7)
Mounting Diagram	Figure 5 (Note 8)
Outline Drawing	Figure 1

Terminal Connections	Table 1
Weight with tube	1.5 oz. max.
Temperature	
Operating (Free Air)	0°C to +75°C
Non-operating	-55°C to +125°C

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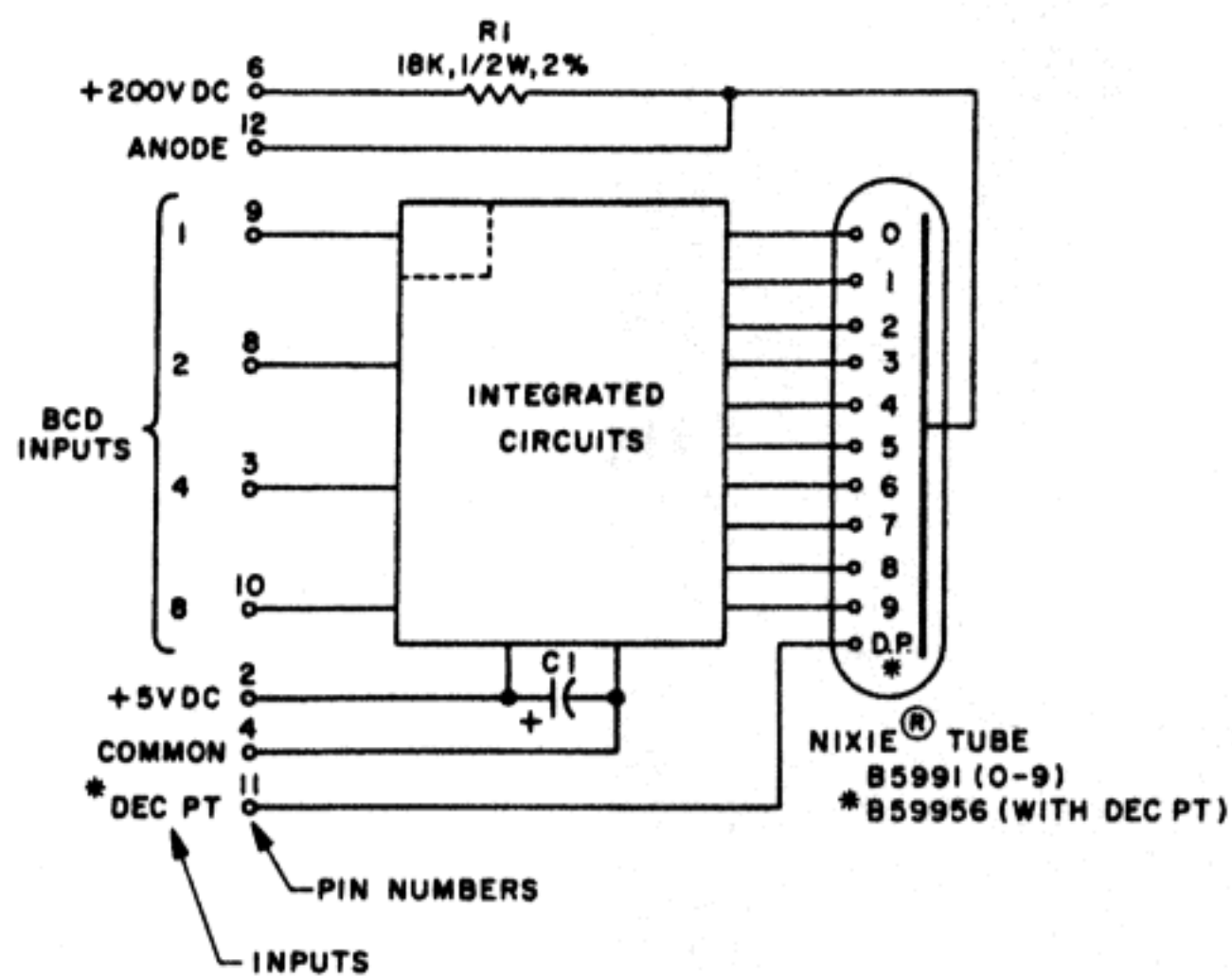


Figure 2. BLOCK DIAGRAM

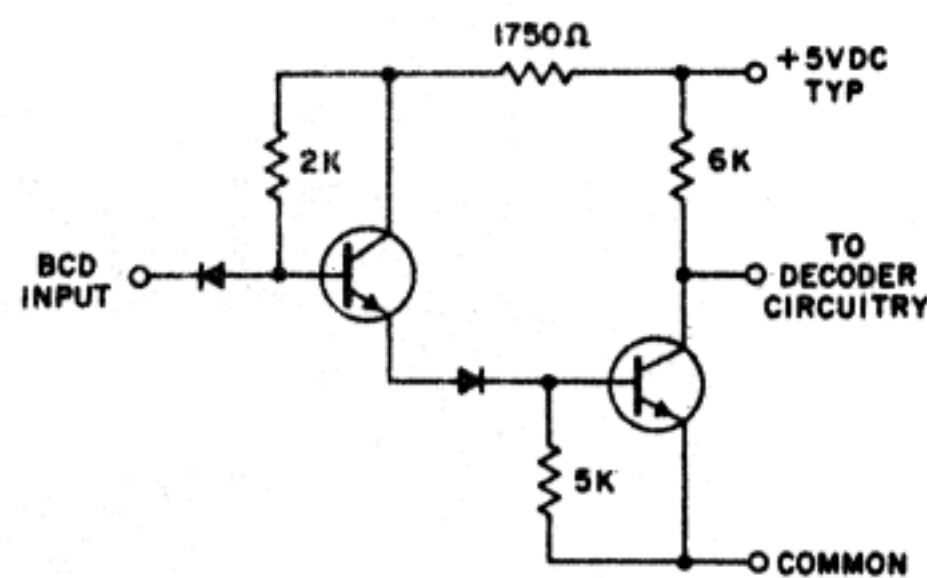


Figure 3. MODULE INPUT CIRCUIT

TERMINAL	INPUT
1	N.C.
2	+ 5V dc
3	BCD 4
4	Common
5	N.C.
6	+ 200 Vdc
7	N.C.
8	BCD 2
9	BCD 1
10	BCD 8
11	Decimal Point*
12	Not Normally Used

* When using the BIP-8804-1 (B-5991 NIXIE tube) terminal 11 must be left open.

Table 1. TERMINAL CONNECTIONS

NUMERAL	CODE			
	8	4	2	1
0	0	0	0	0
1	0	0	0	1
2	0	0	1	0
3	0	0	1	1
4	0	1	0	0
5	0	1	0	1
6	0	1	1	0
7	0	1	1	1
8	1	0	0	0
9	1	0	0	1

Table 2a. TRUTH TABLE (BIP-8804-1-2)

	CODE			
	8	4	2	1
+	0	1	1	1
-	0	1	0	0

Table 2b. TRUTH TABLE (BIP-8804-4)

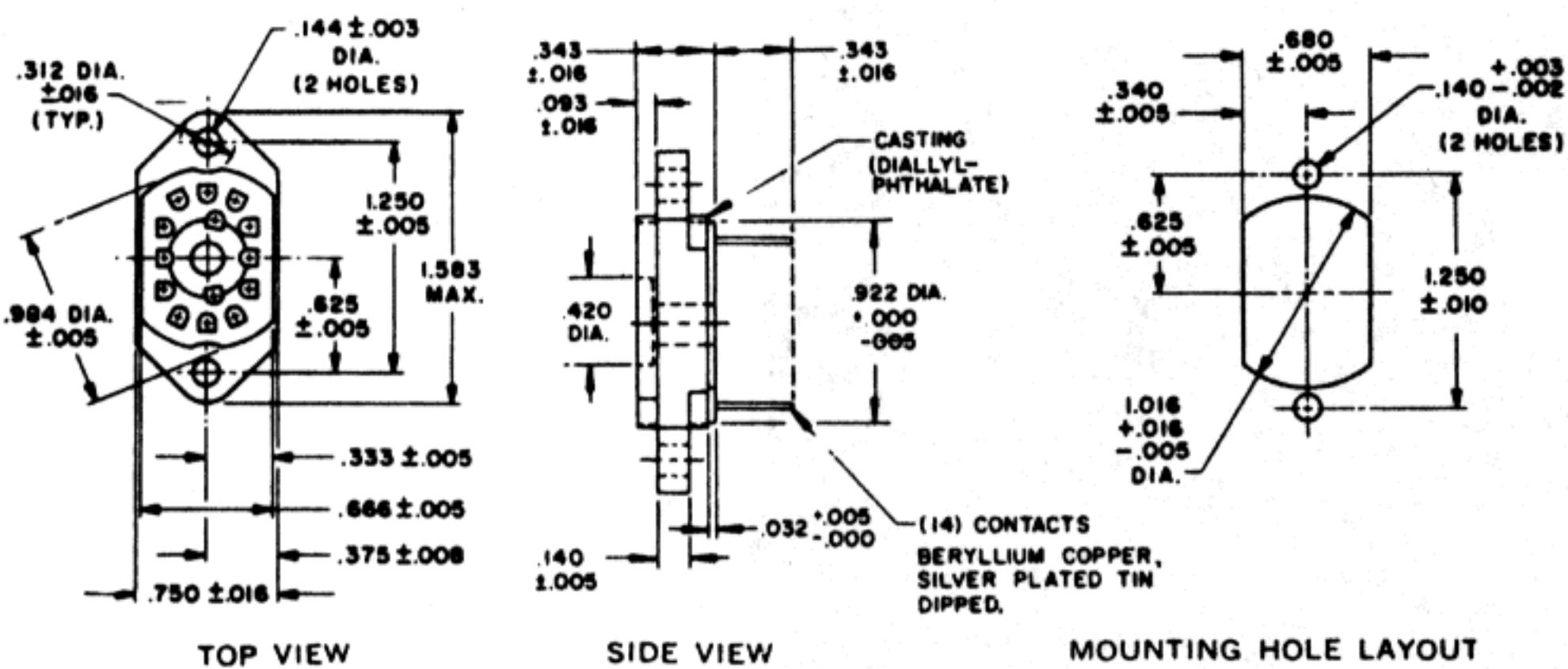


Figure 4. RECEPTACLE SK-169 (Note 7)

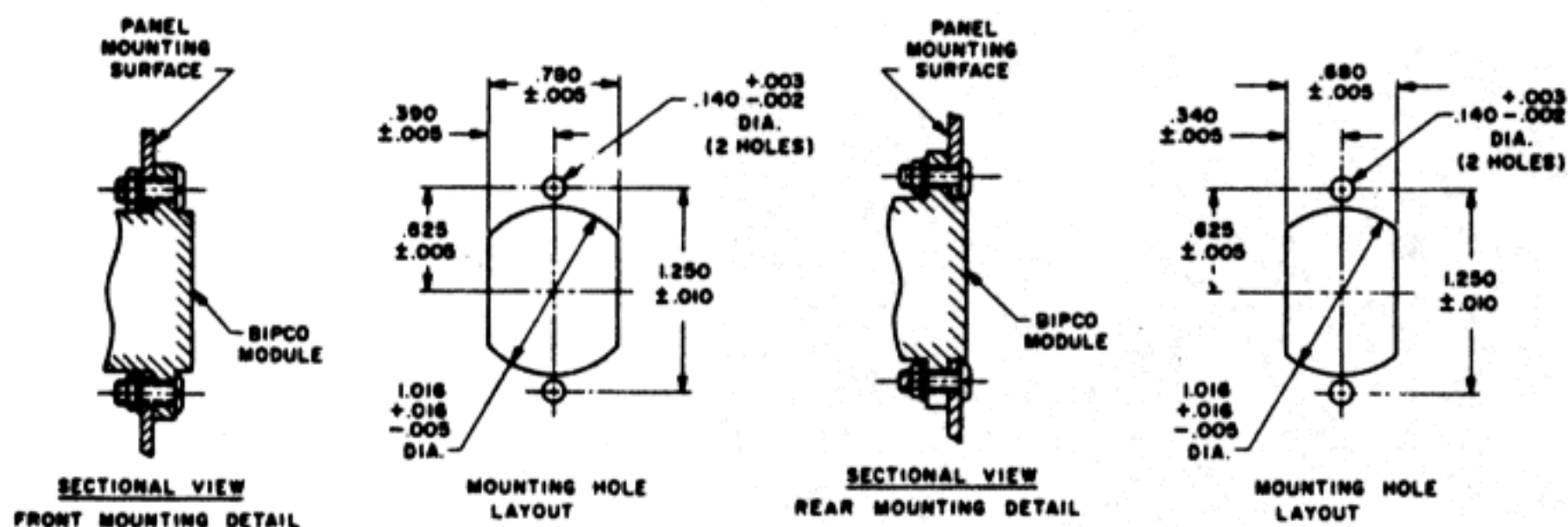


Figure 5. MOUNTING DIAGRAM (Note 8)

NOTES

1. All voltages given are referenced to terminal 4.
2. This is the current out of the module when E_o is 0.45V.
3. This is the current into the module when E_i is 4.0V.
4. This is the current measured at pin 11 of the module when V_{on} is 60V.
5. When using the BIP-8804-2, the decimal point input is directly connected to the decimal point (See Figure 2). Appropriate high voltage driver circuits must be externally provided.
6. The absolute maximum rating for the positive high voltage is 300V. This rating applies for a maximum pulse width of 100 mS at a maximum duty cycle of 10%.
7. The SK-169 receptacle is not included as part of the module and must be ordered separately.
8. Modules may be mounted either in front of, or behind panel (Figure 5). Front mounting should be employed only when there is no back lighting. Rear mounting may be used whether or not back lighting is present. Following this rule will eliminate light showing through the panel.
9. This is current measured at pin 11 of the module.
10. A polarizing pin is added to the connector. This pin is not internally connected and mates with pin 14 of receptacle SK-169.
11. It is recommended that a $47k\Omega \pm 2\%$, $\frac{1}{2}w$ resistor be used externally in series with anode pin 12 and that pin 6 be left open. Voltage is $200V \pm 10V$.