



# NIXIE<sup>®</sup> NUMERICAL INDICATOR TUBE (FOR TIME SHARING APPLICATIONS)

TYPES  
**B-5855**  
**B-5855S**

The B-5855 NIXIE tube is an ultra-long life, high quality, cold cathode, numeric indicator tube. The tube can display the numerals 0-9 and has two independently operable decimal points inside the tube (right and left of the numerals). Substantial driver-circuitry cost savings can be obtained because the tube has been designed for high peak current-low duty cycle pulsed operation with time shared driver circuitry. Bright clear characters together with an optimum aspect ratio (height to width) provides excellent readability and viewing distance. The small diameter of the tube (0.510" max.) permits 0.520" center-to-center mounting and its short seated height (1.350" max. including standoff) allows for minimal instrument panel dimensions.

A moveable pin straightener-standoff\*, which is used to align the tube pins for ease of PC layout and insertion, is part of the tube assembly. Also, the standoff is provided with "bumps" to give clearance so flux gas can escape during soldering.

The B-5855S is identical to the B-5855 except the B-5855S leads are cut to 0.175" ± .015 for use with the SK207 socket, Bulletin 1138.

\*Standoff will not be supplied with the tube until after October 1, 1968.

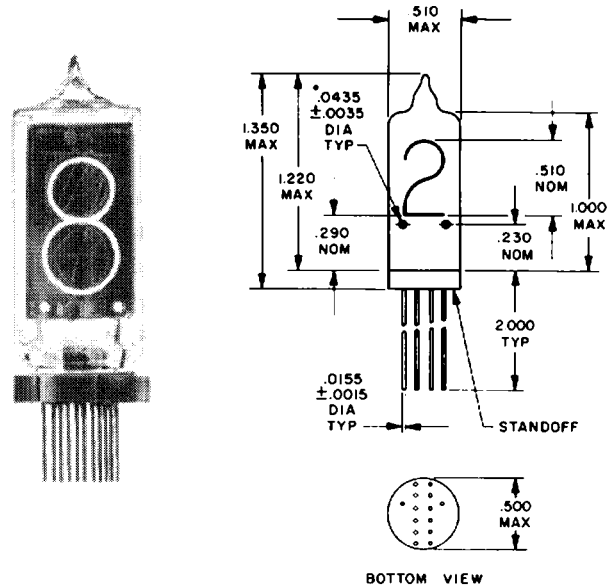


Figure 1. OUTLINE DRAWING  
SEE NOTE 4

## ELECTRICAL SPECIFICATIONS

### Absolute Ratings

Ionization Voltage	+170 Vdc max
Supply Voltage	+180 Vdc min.
Peak Anode Current (Note 3)	17 ma max
Decimal Point Cathode Current	Note 6
Average Total Power Dissipation (Note 5)	0.25 watts

### Typical Operating Conditions (Note 1, Figures 2 & 6)

Supply Voltage	+200 Vdc nom.
Peak Anode Current (Figure 2)	14 ma typ
Pulse Durations	100 μsec
Duty Cycle	2 msec

### Test Conditions (Figures 2 & 6)

Peak Anode Current	11 ma peak
Pulse Duration	100 μsec
Repetition Rate	500 cps
Test Circuit	Figure 6 (Note 7)

### Test Limits

Tube Voltage Drop	180 V peak (Note 8)
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## MECHANICAL CHARACTERISTICS

Outline Drawing	Figure 1
Pin Connection	Table 1
Pin Layout	Figure 4
Basing Diagram	Figure 5
Weight	0.4 oz. max
Lead Finish- B-5855	Hot tin dip from 1.000 in. from tube base
Max. Viewing Distance	24 feet
Mounting	Note 2
Color	Neon red 3650, 4358, 5654, & 5852 Angstroms

## ENVIRONMENTAL SPECIFICATIONS

Shock	250 g's, 1.0 msec., 20 total shocks X1, X2, Y1 and Y2 planes
Thermal Shock	15 sec., 90°C water – immediate transfer to 30°C water, 15 seconds
Ambient temperature	-20 to +55°C -40 to 70°C (reduced life)
Altitude	70,000 ft.
Vibration	10-50-10 cps., 08" total excursion 50-2000 cps 10 g's 15 minutes X1, X2, Y1 planes

## NOTES

1. The tube is normally operated from a constant current source. If a constant voltage source is used, the appropriate current limiting resistor should be used to maintain anode current within specified limits.
2. For proper viewing the tube should be oriented so that pins 7 and 6 are closest to the viewer.
3. In a typical strobed/time sharing application, (Figure 6), "same-numeral" cathodes (i.e., all 1's, all 2's, etc.) of all tubes are connected in parallel and the anodes are strobed sequentially. The rapid strobing is above the flicker rate and visual indication is normal. However, since the "on" duty cycle is not 100%, a higher than normal current is used to compensate for loss of brightness. The (B-5855) NIXIE tubes are constructed and specified for these peak current conditions and no extraneous glow is exhibited during this operation.
4. Lead length on B-5855S is  $0.175'' \pm .015$  (for use with SK-207 Socket).
5. Maximum on time for calculating average power dissipation is 20 msec.
6. The decimal point must never be operated at a potential more negative than the on numeric cathode.
7. Decimal points are disconnected for this test.
8. This measurement is made after the tube has ionized and near the termination of the 100  $\mu$ sec anode pulse.

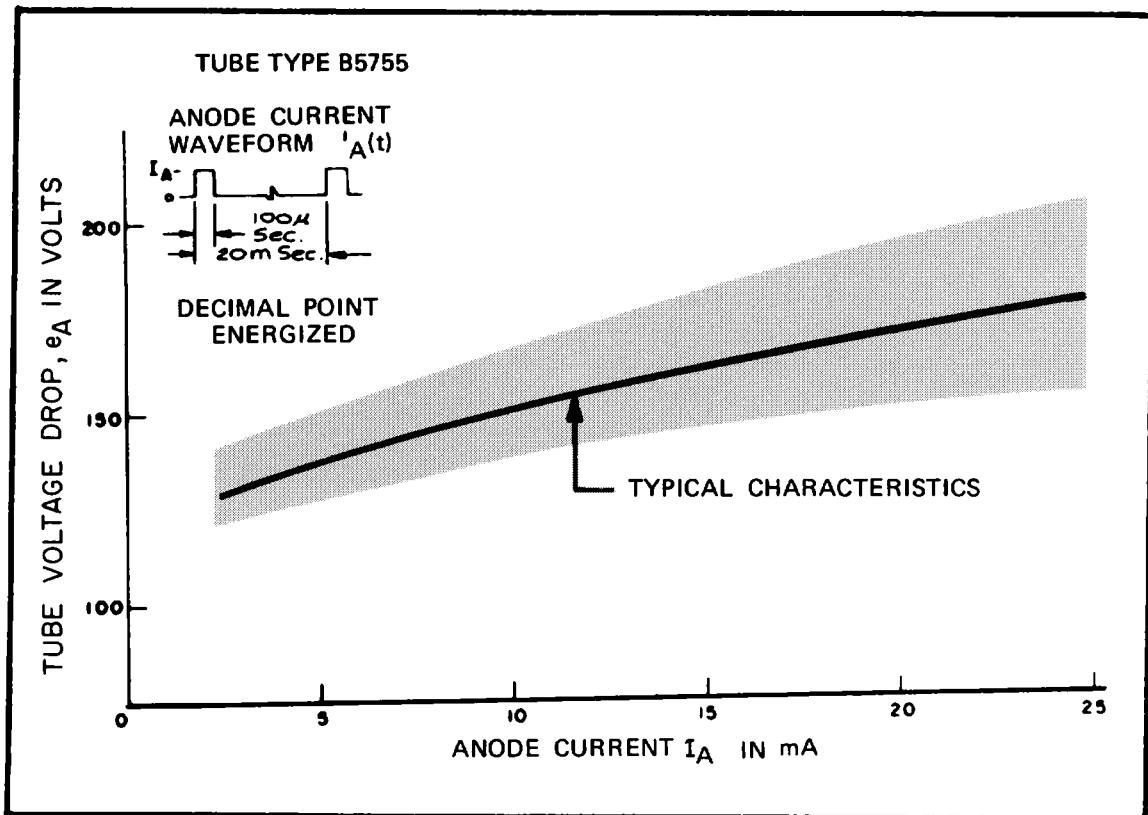


Figure 2 NIXIE TUBE, V-I CHARACTERISTICS

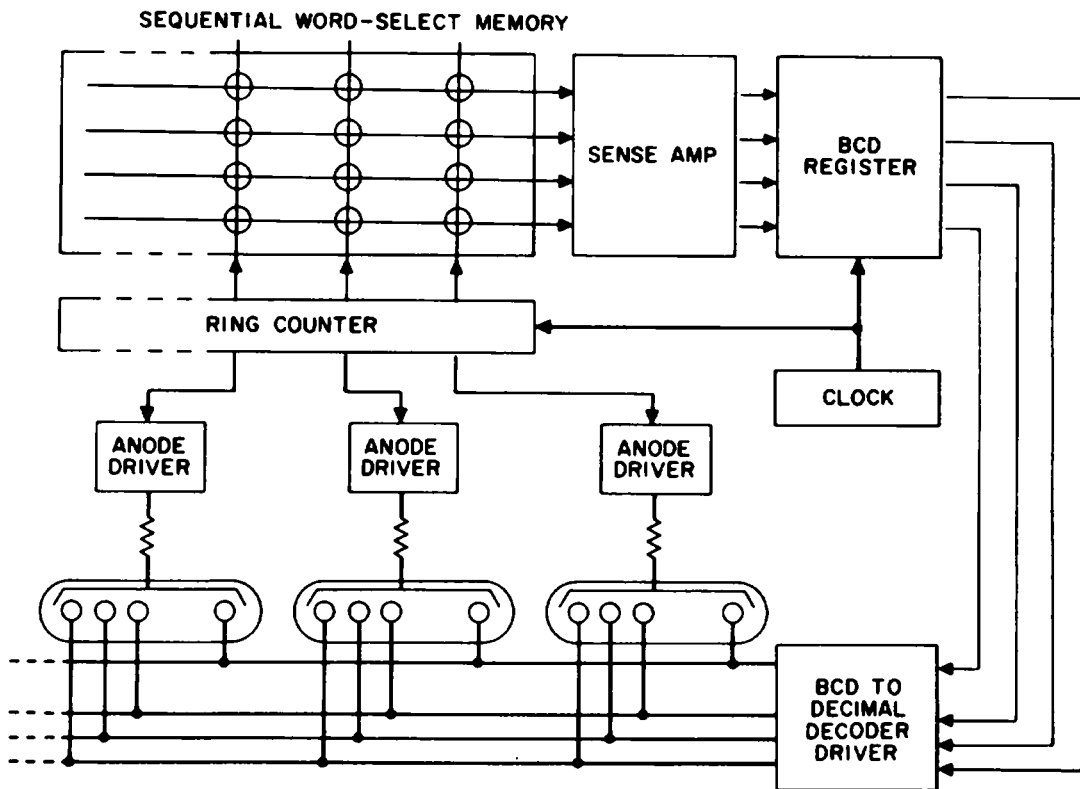


Figure 3 BLOCK DIAGRAM TYPICAL TIME SHARING APPLICATION (Note 3)

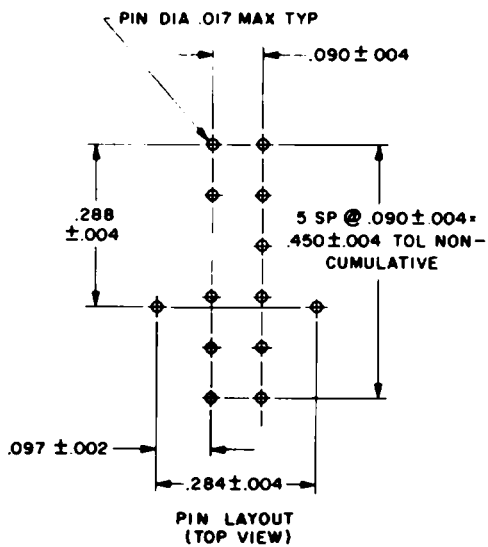


Figure 4. PIN LAYOUT (Top View)

PIN	CONNECTIONS
1	NUMERAL 1
2	NUMERAL 2
3	NUMERAL 3
4	NUMERAL 4
5	NUMERAL 5
6	NUMERAL 6
7	ANODE
8	NUMERAL 7
9	NUMERAL 8
10	NO STEM LEAD
11	NUMERAL 9
12	NUMERAL 0
13	RT DEC PT
14	LFT DEC PT

Table 1. PIN CONNECTIONS

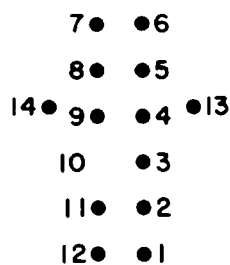


Figure 5. BASING DIAGRAM (Bottom View)

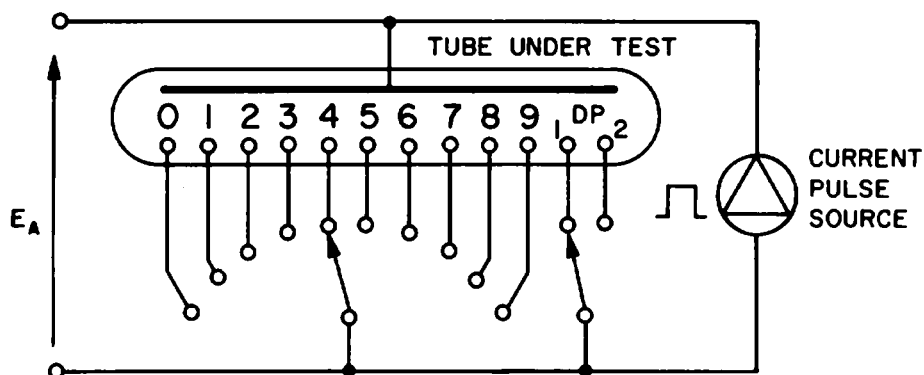


Figure 6. TEST CIRCUIT

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