



NIXIE® PLUS-MINUS INDICATOR TUBE

(FOR DC APPLICATIONS)

TYPES

B-5856
B-5856S

PRELIMINARY INFORMATION

The B-5856 NIXIE tube is an ultra-long life, high quality, cold-cathode indicator tube having a common anode with +, - display. The numeral aspect ratio (height to width) has been designed to provide the optimum in 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: The standoff also allows solder gas to escape during soldering.

These tubes have been specifically designed to operate only in DC applications.

The B-5856S is identical to the B-5856 except its leads are cut to $0.175'' \pm .015$ for use with the SK-207 socket, Bulletin 1138.

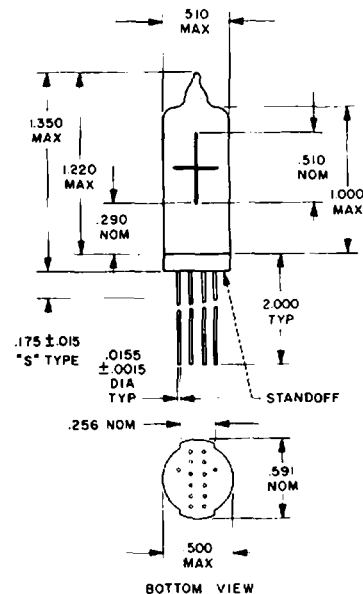
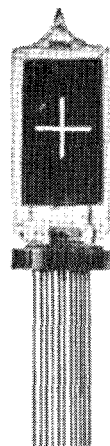


Figure 1. OUTLINE DRAWING

ELECTRICAL SPECIFICATIONS

Absolute Ratings

Ionization Voltage (Note 1, Fig. 4)	+170 Vdc max
Supply Voltage	+170 Vdc min
Anode Current	2.8 ma max
Cathode Pre-bias	+60 Vdc to +110 Vdc

Typical Operating Conditions (Note 1, Figure 4)

Supply Voltage	+170 Vdc
Series Resistor (Table 2)	15 k Ω
Anode Current (Figure 4)	2.0 ma typ
Cathode Pre-bias Voltage	+60 Vdc

Test Conditions (Figure 4)

Test Limits (Figure 4)

MECHANICAL SPECIFICATIONS

Outline Drawing Figure 1
Pin Connection Table 1
Pin Layout Figure 2
Basing Diagram Figure 3
Weight 0.4 oz. max
Lead Finish B-5856 Hot tin dip from 0.600 in. from tube base
Max. Viewing Distance 24 feet

Mounting Note 2
Color Neon red
3650, 4358, 5654 & 5852 angstroms
Brightness 200 ft. lamberts
Soldering Heat B-5856 $260 \pm 5^\circ\text{C}$ for 10 ± 1 sec.
0.250" from tube base

ENVIRONMENTAL DATA

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
Life Expectancy (dynamic)	(200,000 hours) (Note 10)

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

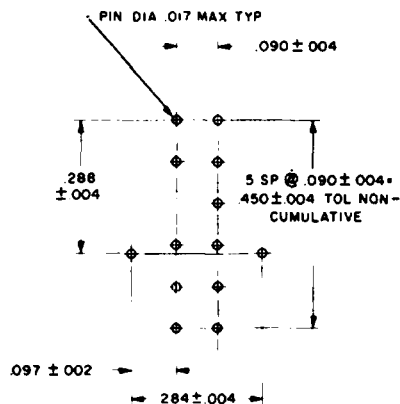
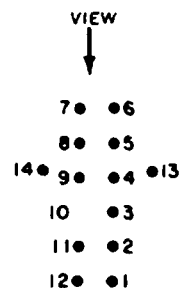


Figure 2. PIN LAYOUT (TOP VIEW)



(BOTTOM VIEW)

Figure 3. BASING DIAGRAM

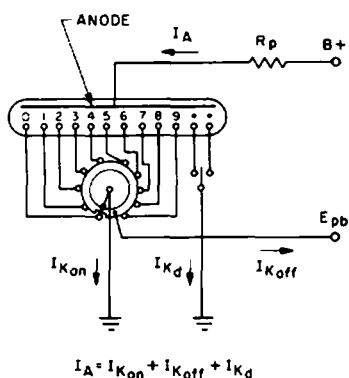


Figure 4. TEST CIRCUIT

PIN	CONNECTIONS
1	—, MINUS
2	
3	
4	
5	
6	+, PLUS
7	ANODE
8	
9	
10	NO PIN
11	
12	
13	
14	

BLANK SPACES REPRESENT
INTERNAL CONNECTIONS

Table 1. PIN CONNECTIONS

NOTES

1. The minimum supply voltage should be +170 Vdc, however, the use of the highest voltage available with an appropriate series resistor is recommended to provide: 1) greater tolerance of B+ & Rp; 2) more uniform brightness; 3) more constant current operation; 4) improved operation with temperature and 5) improved life. (See Table 2)

Supply Voltage (Vdc)	170	200	250	300
Anode Resistor (Rp) (kΩ)	15	30	56	82

Table 2. Anode Resistor Values

2. For proper viewing the tube should be oriented so that pins 7 and 6 are closest to the viewer (Figure 3.)
3. Lead length on B-5856S is 0.175" ± .015 (for use with SK-207 socket).
4. Under normal DC operating conditions.



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