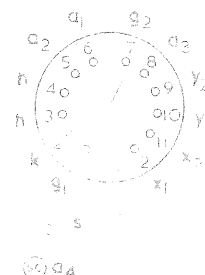


OSCILLOSCOPE
TUBE



Base B12F Cap CT8

GENERAL

This short general purpose 5 in. diameter tube has a large screen area coupled with good performance and the added facility of beam blanking at anode potential. The standard phosphor for this tube is P31, but P2, P7 and P11 can be supplied to special order.

| | | | |
|----------------|-------|-----|---|
| Heater Voltage | V_h | 6.3 | V |
| Heater Current | I_h | 0.3 | A |

ABSOLUTE RATINGS

| | | | |
|--|------------------|-----|----|
| Maximum Fourth Anode Voltage | $V_{a4(max)}$ | 5.0 | kV |
| Minimum Fourth Anode Voltage | $V_{a4(min)}$ | 1.5 | kV |
| Maximum First Anode Voltage | $V_{a1(max)}$ | 2.5 | kV |
| Maximum Second Anode Voltage | $V_{a2(max)}$ | 500 | V |
| Maximum Third Anode Voltage | $V_{a3(max)}$ | 2.5 | kV |
| Minimum Negative Control Grid Voltage | $-V_{g1(min)}$ | 1.0 | V |
| Maximum Negative Control Grid Voltage | $-V_{g1(max)}$ | 300 | V |
| Maximum x plate to Third Anode Voltage | $V_{x-a3(max)}$ | 500 | V |
| Maximum y plate to Third Anode Voltage | $V_{y-a3(max)}$ | 500 | V |
| Maximum Peak Heater to Cathode Voltage | $V_{h-k(pk)max}$ | 250 | V |
| Maximum x plate to Third Anode Resistance | $R_{x-a3(max)}$ | 5.0 | MΩ |
| Maximum y plate to Third Anode Resistance | $R_{y-a3(max)}$ | 100 | kΩ |
| Maximum Control Grid to Cathode Resistance | $R_{g1-k(max)}$ | 1.5 | MΩ |
| Minimum Spiral Resistance | | 15 | MΩ |
| Maximum P.D.A. Ratio | | 2:1 | |

All voltages referred to cathode unless otherwise stated.

INTER-ELECTRODE CAPACITANCES

| | | | |
|--|-----------------------|------|----|
| Grid 1 to all | C_{g1-all} | 8.0 | pF |
| Cathode to all | C_k-all | 4.75 | pF |
| x_1 plate to x_2 plate | C_{x1-x2} | 2.75 | pF |
| y_1 plate to y_2 plate | C_{y1-y2} | 1.5 | pF |
| x_1 and x_2 plates to y_1 and y_2 plates | $C_{x1,x2-y1,y2}$ | 0.75 | pF |
| x_1 plate to all, less x_2 plate | $C_{x1-all, less x2}$ | 6.0 | pF |
| x_2 plate to all, less x_1 plate | $C_{x2-all, less x1}$ | 6.0 | pF |
| y_1 plate to all, less y_2 plate | $C_{y1-all, less y2}$ | 6.5 | pF |
| y_2 plate to all, less y_1 plate | $C_{y2-all, less y1}$ | 6.5 | pF |
| Grid 1 and Cathode to x_1 and x_2 plates | $C_{g1,k-x1,x2}$ | 0.9 | pF |
| Grid 1 and Cathode to y_1 and y_2 plates | $C_{g1,k-y1,y2}$ | 0.5 | pF |
| Grid 2 to all | C_{g2-all} | 10 | pF |

Net Tube Weight (approx)—2½ lb (1.02 kg)

| TYPICAL OPERATION—Voltages with respect to cathode | | | | | |
|--|---------------|--------------|------------|-------------|-----------------|
| Fourth Anode Voltage | V_{a4} | 2.0 | 3.0 | 4.0 | kV |
| Mean Deflector Plate Potential | | 1000 | 1500 | 2000 | V |
| Third Anode Voltage for astigmatism correction | V_{a3} | 1000* | 1500* | 2000* | V |
| Second Anode Voltage for focus | V_{a2} | 50 to 200 | 75 to 250 | 80 to 360 | V |
| First Anode Voltage | V_{a1} | 1000 | 1500 | 2000 | V |
| Interplate Shield Voltage for optimum raster shape | V_s | 1000* | 1500* | 2000* | V |
| Beam Blanking Voltage for cut-off | V_{g2} | 950† | 1430† | 1900† | V |
| Control Grid Voltage for cut-off of raster | V_{g1} | -30 to -55 | -45 to -80 | -56 to -100 | V |
| x plate Sensitivity | S_x | 18.6 to 23.5 | 28 to 35 | 37 to 47 | V/cm |
| y plate Sensitivity | S_y | 7.4 to 10.0 | 11 to 15 | 14.5 to 20 | V/cm |
| Maximum Second Anode Current | $I_{a2(max)}$ | 10 | 10 | 10 | μA |
| Maximum Fourth Anode Current | $I_{a4(max)}$ | 150 | 200 | 300 | μA |
| Minimum Screen Area (y · x) | | 8 · 10 | 8 · 10 | 8 · 10 | cm ² |
| Line Width | | 0.6 | 0.5 | 0.4 | mm |

* The required voltage will not differ from the quoted value by more than $\pm 50V$.

† The beam is unblanked when $V_{g2} = V_{a1}$.

Raster Distortion

At the recommended P.D.A. ratios, over a screen area of 6 cm · 10 cm raster distortion will not be greater than 2%. The raster distortion limit between rectangles 6 cm · 10 cm and 8 cm · 10 cm is 3%. Raster geometry can be adjusted by varying the interplate shield voltage (V_s) with respect to the mean deflector plate potential. The interplate shield voltage (V_s) for optimum raster shape will be within $\pm 50V$ of the mean deflector plate potential, though differing from the third anode voltage (V_{a3}). It is essential to ensure that the correct raster shape has been achieved by this means before adjusting for optimum focus.

Rectangularity of x and y axes is 90 · 1.

The Deflector System

Both x and y plates are designed for symmetrical operation. Should the tube be required to operate asymmetrically, some degradation of focus and trace geometry will result.

If the mean plate potentials for both x and y plates are the same, the third anode voltage for astigmatism correction will be within $\pm 50V$ of the mean plate potential.

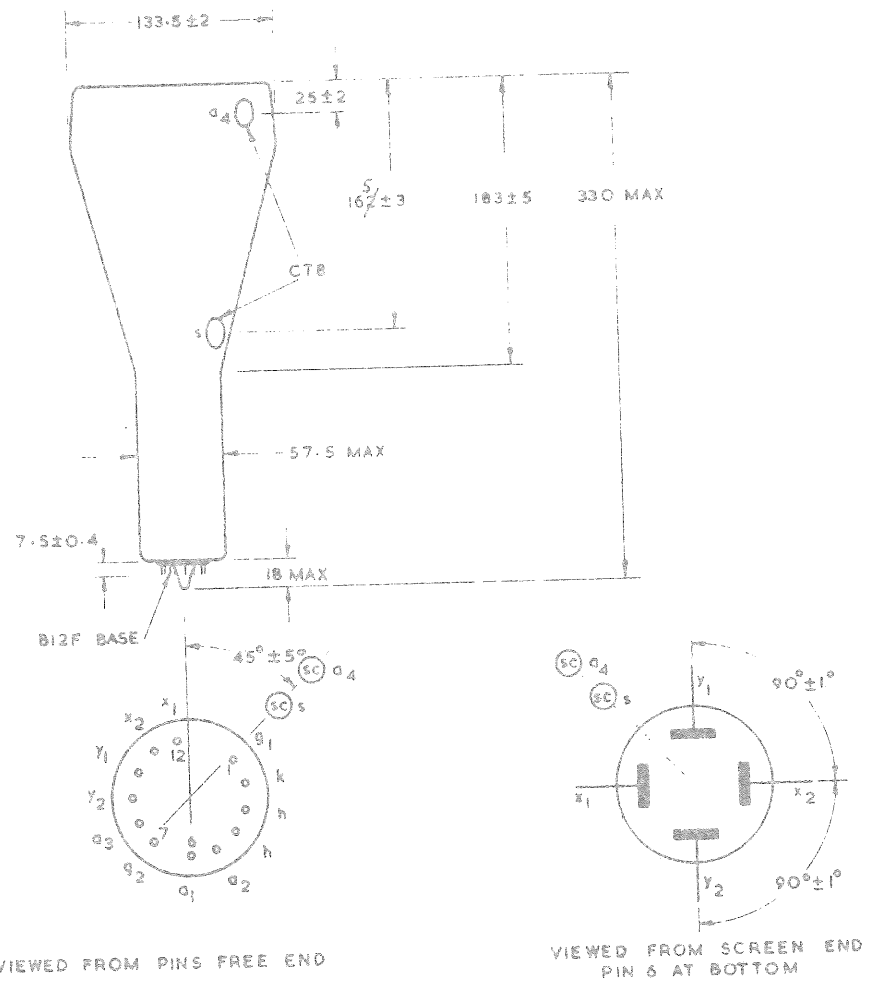
If the x plate mean potential differs considerably from that of the y, greater variation of the third anode voltage (V_{a3}) and the interplate shield voltage (V_s) will be required, and the x and y sensitivities will decrease.

The y plate mean potential should not be allowed to become greater than that of the x or severe deflection defocusing will result.

The deflector system is designed to intercept part of the beam, so that low impedance deflector plate drive is desirable.

Magnetic Shielding

Adequate magnetic shielding is required. In addition due attention should be paid to the position of the tube relative to transformers and chokes.



Mounting Position—Unrestricted

It is advisable to support the tube near the screen and at a second point on the parallel neck near the base. The tube should not be subjected to any stress from the use of clamps and should not be suspended by the base.

Connecting leads should not be soldered directly to the tube pins.

All dimensions in mm. (Not to be scaled).

