SYLVANIA engineering data service

SYLVANIA
# 5BGP1
# 5BGP*

## CHARACTERISTICS

### GENERAL DATA

| | |
|---|---|
| Focusing Method | Electrostatic |
| Deflection Method | Electrostatic |
| Phosphors | Aluminized |

| Types* | Fluorescence | Phosphorescence | Persistence |
|---|---|---|---|
| 5BGP1 | Green | ..... | Medium |
| 5BGP2 | Blue-Green | Green | Long |
| 5BGP5 | Blue | ..... | Very Short |
| 5BGP7 | Blue-White | Yellow | Long |
| 5BGP11 | Blue | ..... | Short |
| 5BGP15 | Blue-Green | ..... | Extremely Short |

Faceplate . . . . . Clear

**In addition to the types shown, the 5BGP- can be supplied with several other screen phosphors.*

### ELECTRICAL DATA

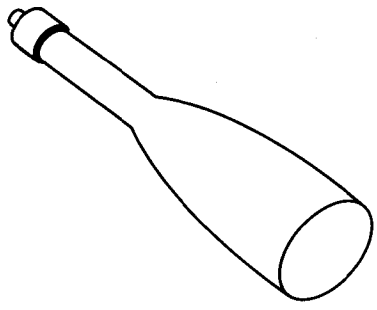
| | |
|---|---|
| Heater Voltage | 6.3 Volts |
| Heater Current | 0.6 ± 10% Amperes |
| Direct Interelectrode Capacitances (approx.) | |
| Cathode to All Other Electrodes | 4.8 μμf |
| Grid No. 1 to All Other Electrodes | 6.7 μμf |
| D1 to D2 | 1.8 μμf |
| D3 to D4 | 1.3 μμf |
| D1 to All Other Electrodes Except D2 | 3.3 μμf |
| D2 to All Other Electrodes Except D1 | 3.3 μμf |
| D3 to All Other Electrodes Except D4 | 2.7 μμf |
| D4 to All Other Electrodes Except D3 | 2.7 μμf |
| Post Accelerator Helix Resistance | 200 to 600 Megohms |

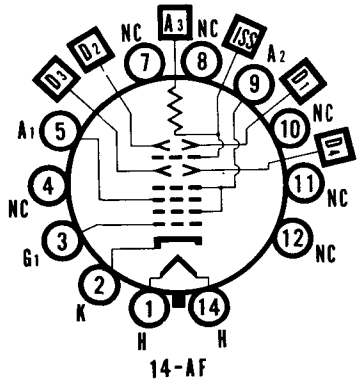
### MECHANICAL DATA

| | |
|---|---|
| Minimum Useful Screen Diameter | 4½ Inches |
| Anode No. 3 Contact (Recessed Small Cavity Cap) | J1-21 |
| Bulb (Modified) | J42K |
| Base (Medium Shell Diheptal 12-Pin) | B12-37 |
| Basing | 14AF |
| Base Alignment | |
| D3-D4 trace aligns with Pin No. 1 | ±10 Degrees |
| Positive Voltage on D1 deflects beam approx. toward Pin No. 4 | |
| Positive Voltage on D3 deflects beam approx. toward Pin No. 1 | |
| Angle Between traces D1-D2 and D3-D4 | 90 ± 1 Degrees |
| Bulb Contact Alignment | |
| J1-21 contact aligns with D1-D2 trace | ±10 Degrees |
| J1-21 contact on same side as Pin No. 4 | |

## QUICK REFERENCE DATA

**5" Direct Viewed**
**Flat Faceplate**
**Round Glass Type**
**Electrostatic Deflection**
**Electrostatic Focus**
**Helical Resistor Post Deflection Acceleration**
**High Deflection Sensitivity**
**High Deflection Accuracy**
**Aluminized Screen**







SYLVANIA
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## MAXIMUM RATINGS (Absolute Maximum Values)

| | | | |
|---|---|---|---|
| Anode No. 2 Input | 6 | Watts | Max. |
| Anode No. 3 Voltage | 13,200 | Volts dc | |
| Isolation Shield Voltage | 2300 | Volts dc | |
| Anode No. 2 Voltage | 2200 | Volts dc | |
| Ratio of Anode No. 3 Voltage to Anode No. 2 Voltage | 6 : 1 | Maximum | |
| Anode No. 1 (Focus Electrode) Voltage | 880 | Volts dc | |
| Grid No. 1 Voltage | | | |
| Negative Bias Value | 220 | Volts dc | |
| Positive Bias Value | 0 | Volts dc | |
| Positive Peak Plate | 2 | Volts | |
| Peak Heater-Cathode Voltage | | | |
| Heater Negative with Respect to Cathode | | | |
| During Warm-up Period Not to Exceed 15 Seconds | 200 | Volts | |
| After Equipment Warm-up Period | 140 | Volts | |
| Heater Positive with Respect to Cathode | 140 | Volts | |
| Peak Voltage Between Anode No. 2 and Any Deflection Plate | 550 | Volts | |

## TYPICAL OPERATING CONDITIONS

| | | | |
|---|---|---|---|
| Anode No. 3 Voltage[1] | 10,000 | Volts dc | |
| Isolation Shield Voltage[2] | 1575 to 1700 | Volts dc | |
| Anode No. 2 Voltage[3] | 1670 | Volts dc | |
| Anode No. 1 Voltage for Focus | 180 to 590 | Volts dc | |
| Grid No. 1 Voltage Required for Cutoff[4] | −50 to −80 | Volts dc | |
| Deflection Factor[5] | | | |
| Deflection Plates 1-2 | 70 to 86 | Volts dc/Inch | |
| Deflection Plates 3-4 | 28.4 to 34.8 | Volts dc/Inch | |
| Pattern Distortion at 100% Useful Scan[6] | 1% | Maximum | |
| Undeflected Spot Position[7] (Deviation from Center) | 5 | MM. | Max. |
| Useful Scan | | | |
| D1-D2 | 10 | cm. | |
| D3-D4 | 6 | cm. | |

## CIRCUIT VALUES

| | | | |
|---|---|---|---|
| Grid No. 1 Circuit Resistance | 1.5 | Megohms | Max. |

## NOTES:

1. *It is recommended that the Anode No. 3 voltage be no less than 6000 volts for suitable light output.*

2. *The isolation shield and the lower end of the Post Accelerator helix are connected together within the tube. With the proper potential on this electrode combination, barrel and pin-cushion distortions are minimized.*

3. *Under the typical operating conditions listed the Anode No. 2 voltage is made variable from 1575 volts to 1850 volts to provide for astigmatism control. In order to maintain proper astigmatism adjustment as total cathode current is varied, it is recommended that the resistance in the Anode No. 2 circuit be limited to 12,500 ohms.*

## NOTES: (Cont'd)

4. *Visual extinction of undeflected focused spot.*

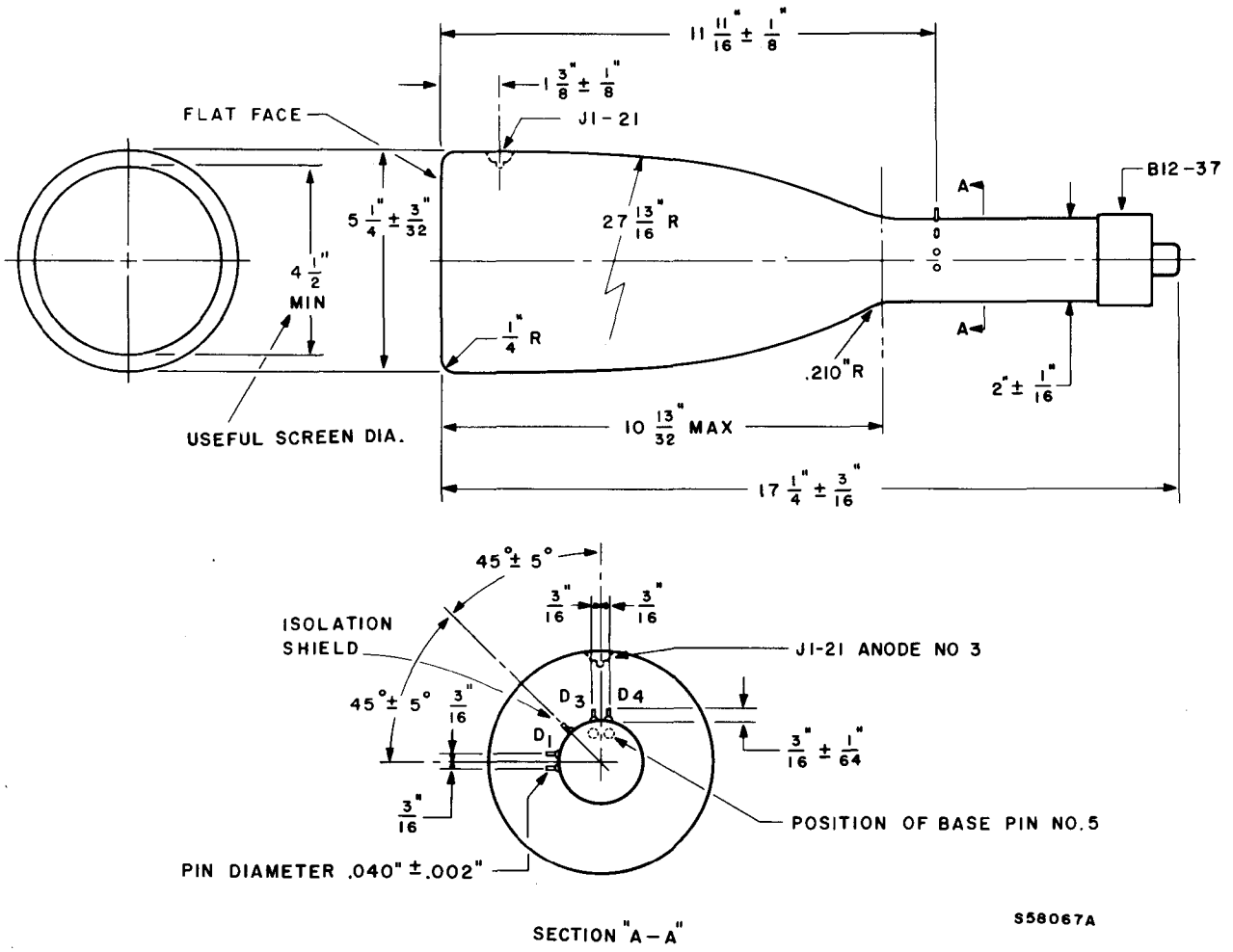
5. *If use is made of the full deflection capabilities of the tube, the deflection plates will intercept part of the electron beam near the edge of the scan; hence a low impedance deflection plate drive is desirable.*

6. *With a 6 x 10 cm rectangular raster centered on the face of the tube, the raster edges will not deviate from straight parallel lines by more than 1 mm total on the left and right edges, nor by more than 0.5 mm total at the top and bottom.*

7. *Connect deflection plates to Anode No. 2.*

## WARNING:

*X-ray radiation shielding may be necessary to protect against possible danger of personal injury from prolonged exposure at close range if this tube is operated at higher than the manufacturer's Maximum Rated Anode Voltage or 16,000 volts, whichever is less.*



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