

# National Video Corporation

4300 W. 47TH STREET CHICAGO 32, ILLINOIS  
CLIFFSIDE 4-5600

The 23GJP4 is a 23"-110° banded tube with a 4 1/2" neck length, this has a straight gun which requires no ion trap. A 450 milliampere 6.3 volt filament and 50 volt G<sub>2</sub> for cathode drive design.

## ELECTRICAL DATA

|   |                                  |
|---|----------------------------------|
| Focusing Method   | Electrostatic                    |
| Deflection Method   | Magnetic                         |
| Deflection Angles (Approximate)   |                                  |
| Diagonal  | 110 Degrees                      |
| Horizontal  | 99 Degrees                       |
| Vertical  | 82 Degrees                       |
| Direct Interelectrode Capacitances  |                                  |
| Cathode to all other electrodes (approx.)   | 5 uuf                            |
| Grid No. 1 to all other electrodes (approx.)  | 6 uuf                            |
| External conductive coating to anode (Note 1)                                       | 2,500 max. uuf<br>1,700 min. uuf |
| Resistance Between External Conductive Coating and<br>Implosion Protection Hardware | 50 min. megohms                  |
| Heater Current at 6.3 Volts   | 450 +20 ma                       |
| Heater Warm-up Time   | 11 seconds                       |
| Electron Gun  |                                  |
| Ion Trap  | None                             |
| Focus Lens  | Unipotential                     |

## OPTICAL DATA

|   |               |
|---|---------------|
| Phosphor Number                             | P4 Aluminized |
| Light Transmittance at Center (approximate) | 42 Percent    |
| Antireflection Treatment                    | None          |

## MECHANICAL DATA

|  |                    |
|--|--------------------|
| Overall Length                               | 14 1/4 +1/4 Inches |
| Neck Length                                  | 4 1/2 +1/8 Inches  |
| Greatest Dimensions of Tube                  |                    |
| Diagonal                                     | 23 1/2 +1/8 Inches |
| Width  | 20 5/8 +1/8 Inches |
| Height                                       | 16 5/8 +1/8 Inches |
| Minimum Useful Screen Dimensions (Projected) |                    |
| Diagonal                                     | 22 5/16 Inches     |
| Horizontal Axis                              | 19 1/4 Inches      |
| Vertical Axis                                | 15 1/8 Inches      |
| Area   | 282 Sq. Inches     |

MECHANICAL DATA (Cont.)

|                        |   |                        |
|------------------------|---|------------------------|
| Implosion Protection   |   | Banded - Without Cloth |
| Bulb                   | JEDEC Designation   | J-187-K1               |
| Bulb Contact           | JEDEC Designation   | J1-21                  |
| Base                   | JEDEC Designation   | B7-208                 |
| Basing                 | JEDEC Designation   | 8HR                    |
| Bulb Contact Alignment | J1-21 contact aligns with Pin Position No. 4 $\pm 30^\circ$ . |                        |

RATINGS (Design Maximum System)

Unless otherwise specified, voltage values are positive and measured with respect to Grid No. 1.

|   |                   |
|---|-------------------|
| Maximum Anode Voltage                           | 22,000 volts      |
| Minimum Anode Voltage                           | 11,000 volts      |
| Maximum Grid No. 4 (Focusing Electrode) Voltage | +1,250 -400 volts |
| Maximum Grid No. 2 Voltage                      | 70 volts          |
| Minimum Grid No. 2 Voltage                      | 40 volts          |
| Cathode Voltage                                 |                   |
| Maximum negative value                          | 0 volts dc        |
| Maximum negative peak value                     | 2 volts           |
| Maximum positive value                          | 154 volts dc      |
| Maximum positive peak value                     | 220 volts         |
| Maximum Heater Voltage                          | 6.9 volts         |
| Minimum Heater Voltage                          | 5.7 volts         |
| Maximum Heater-Cathode Voltage                  |                   |
| Heater negative with respect to cathode         |                   |
| During warm-up period not to exceed 15 seconds  | 450 volts         |
| After equipment warm-up period                  | 200 volts         |
| Heater positive with respect to cathode         | 200 volts         |

TYPICAL OPERATING CONDITIONSCATHODE DRIVE SERVICE

Unless otherwise specified, all voltage values are positive with respect to Grid No. 1.

|   |                   |
|---|-------------------|
| Anode Voltage                           | 18,000 volts dc   |
| Grid No. 4 Voltage (Focusing Electrode) | 200 volts dc      |
| (note 3 & 4)                            |                   |
| Grid No. 2 Voltage                      | 50 volts dc       |
| Cathode Voltage (Note 2)                | 32 to 50 volts dc |

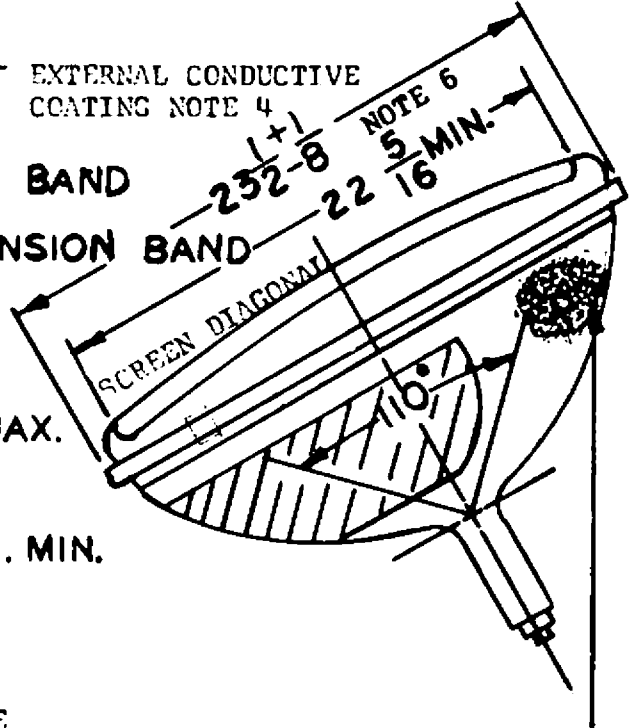
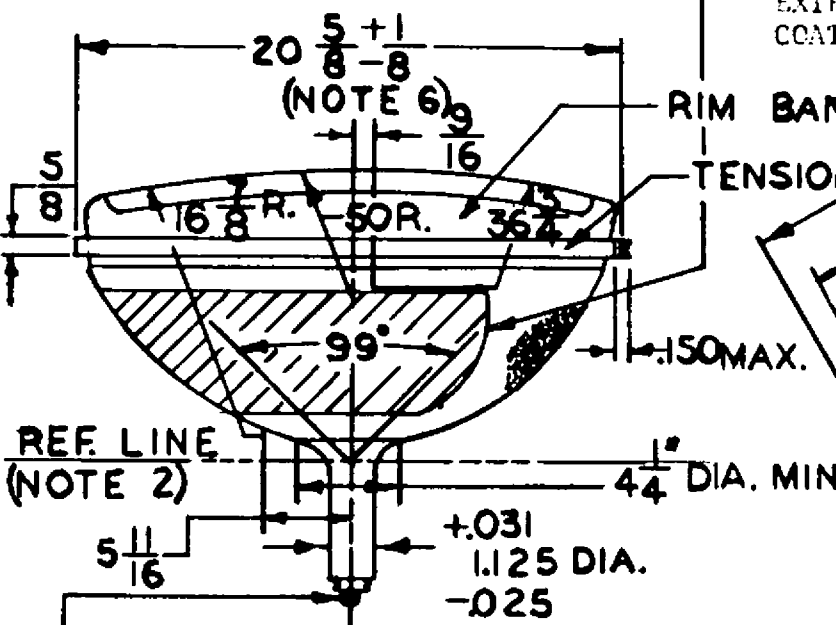
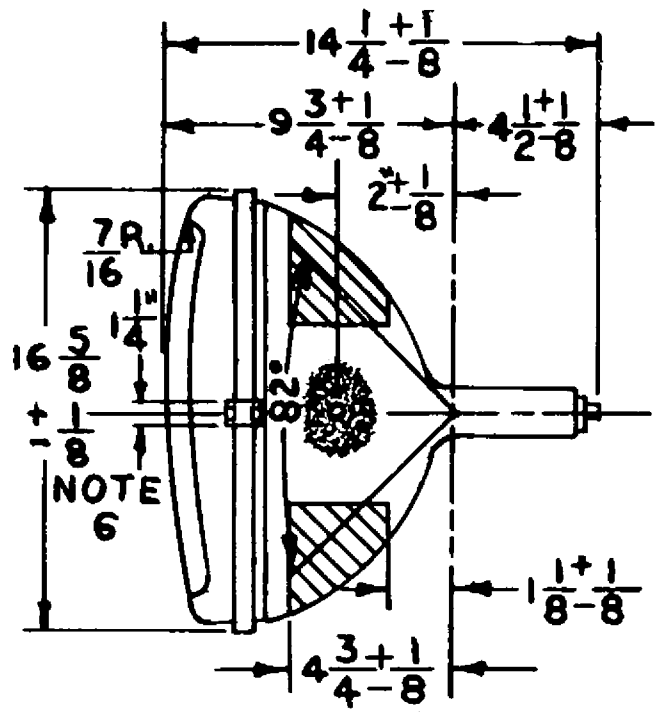
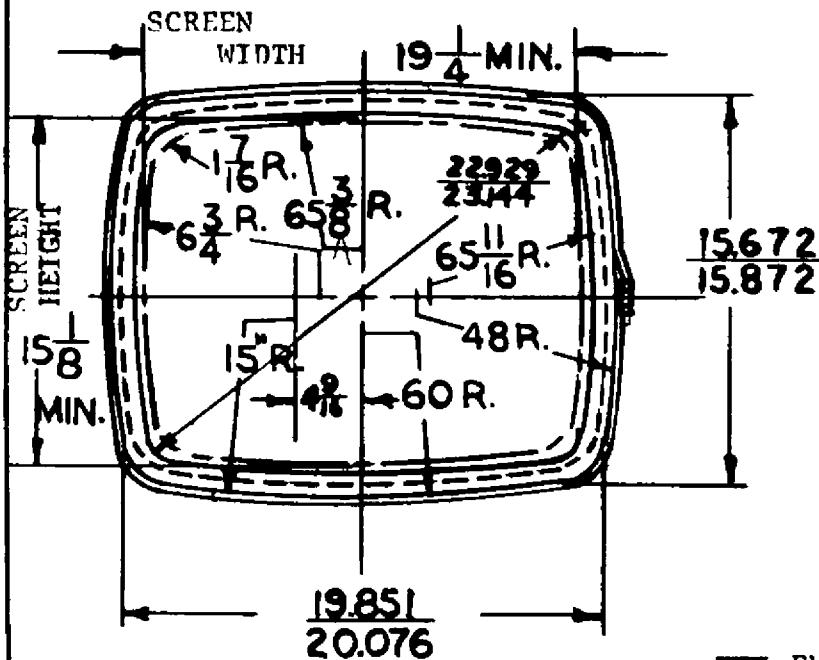
MAXIMUM CIRCUIT VALUES

|                                       |             |
|---------------------------------------|-------------|
| Maximum Grid No. 1 Circuit Resistance | 1.5 megohms |
|---------------------------------------|-------------|

GRAPHS AND DRAWINGS

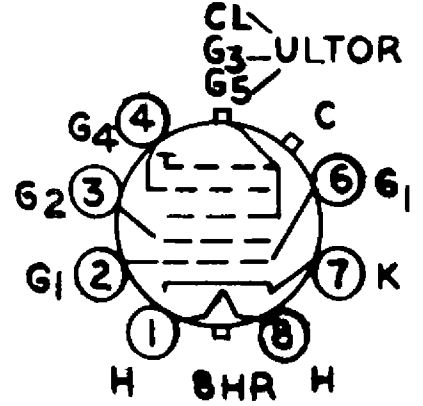
Tube Outline with Essential Dimensions and Tolerances

ULTOR RECESSED SMALL  
CAVITY CAP JEDEC J1-21  
NOTE 1



REF. LINE (NOTE 2)  
SMALL BUTTON NINEIGHTAR 7 PIN BASE  
ARRANGEMENT 1 JEDEC #B7-208 Note 3

TRANSPARENT  
INSULATING  
COATING  
NOTE 5



- PIN 1: HEATER
- PIN 2: GRID NO. 1
- PIN 3: GRID NO. 2
- PIN 4: GRID NO. 4
- PIN 6: GRID NO. 1
- PIN 7: CATHODE
- PIN 8: HEATER
- CAP: ULTOR (GRID NO. 3 GRID NO. 5 COLLECTOR)
- C: EXTERNAL CONDUCTIVE COATING

|                       |            |                      |              |                        |
|-----------------------|------------|----------------------|--------------|------------------------|
| DRAWN BY<br>W.C. GRAF | SCALE<br>C | EFFECTIVE<br>3-20-64 | DISTRIBUTION | DRAWING NO.<br>23 GJP4 |
|-----------------------|------------|----------------------|--------------|------------------------|

GRAPHS AND DRAWINGS (CONT.)

## Pin Connections:

|       |            |       |            |
|-------|------------|-------|------------|
| Pin 1 | Heater     | Pin 6 | Grid No. 1 |
| Pin 2 | Grid No. 1 | Pin 7 | Cathode    |
| Pin 3 | Grid No. 2 | Pin 8 | Heater     |
| Pin 4 | Grid No. 4 |       |            |

NOTES:

1. Measured with implosion protection hardware connected to external coating.
2. Visual extinction of focused raster.
3. With the combined Grid No. 1 bias voltage and video-signal voltage adjusted to give an anode current of 100 microamperes on a 19 1/4" by 15 1/8" pattern from RCA 2F21 monoscope or equivalent.
4. Individual tubes will have satisfactory focus at some value between 0 and +400 volts.

NOTES FOR DIMENSIONAL OUTLINE

1. The plane through the tube axis and Pin No. 4 may vary from the plane through the tube axis and ultor terminal by angular tolerance (measured about the tube axis) of  $\pm 30^\circ$ . Ultor terminal is on same side as Pin No. 4.
2. With tube neck inserted through flared end of reference-line gauge JEDEC No. G-126 and with tube seated in gauge, the reference-line is determined by the intersection of the Plane CC' of the gauge with the glass funnel.
3. Socket for this base should not be rigidly mounted; it should have flexible leads and be allowed to move freely. The design of the socket should be such that the circuit wiring cannot impress lateral strains through the socket contacts on the base pins. Bottom circumference of base wafer will fall within a circle concentric with bulb axis and having a diameter of 1 3/4".
4. External conductive coating must be grounded.
5. To clean this area, wipe only with soft dry lint-less cloth.
6. Measured to include a rimband and tension strap.