

# 19ENP4A

## Picture Tube

PAN-O-PLY—INTEGRAL IMPLOSION PROTECTION  
 LOW-VOLTAGE ELECTROSTATIC FOCUS 114° MAGNETIC DEFLECTION  
 LOW-GRID-No.2 VOLTAGE CATHODE-DRIVE TYPE

### ELECTRICAL

#### Direct Interelectrode Capacitances .

|                                                             |                                   |          |
|-------------------------------------------------------------|-----------------------------------|----------|
| Cathode to all other electrodes. . . . .                    | 5                                 | pF       |
| Grid No.1 to all other electrodes. . . . .                  | 6                                 | pF       |
| External conductive coating to anode <sup>a</sup> . . . . . | { 1500 max<br>1000 min            | pF<br>pF |
| Heater Current at 6.3 V. . . . .                            | 450 ± 20                          | mA       |
| Heater Warm-Up Time (Average). . . . .                      | 11                                | s        |
| Electron Gun . . . . .                                      | Type Requiring No Ion-Trap Magnet |          |

### OPTICAL

|                                                  |                             |
|--------------------------------------------------|-----------------------------|
| Phosphor . . . . .                               | P4—Sulfide Type, Aluminized |
| For curves, see front of this section            |                             |
| Faceplate. . . . .                               | Filterglass                 |
| Light transmission at center (approx.) . . . . . | 48%                         |

### MECHANICAL

|                                    |                   |
|------------------------------------|-------------------|
| Weight (Approx.) . . . . .         | 15 lb             |
| Overall Length . . . . .           | 11.625 ± 0.250 in |
| Neck Length. . . . .               | 4.375 ± 0.125 in  |
| Projected Area of Screen . . . . . | 172 sq in         |
| External Conductive Coating        |                   |

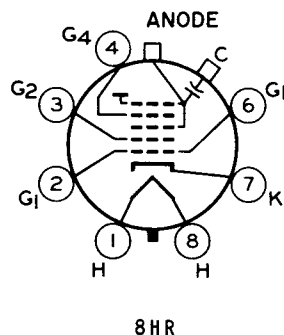
Type . . . . . Modified-Band  
 Contact area for grounding . . . . . Near Reference Line  
 For Additional Information on Coatings and Dimensions

See *Picture-Tube Dimensional-Outlines and Bulb J149 F* sheets  
 at front of this section

Cap. . . . . Recessed Small Cavity (JEDEC No.J1-21)  
 Base . . . . . Small-Button Neoeightar 7-Pin,  
 Arrangement 1, (JEDEC No.B7-208)

### TERMINAL DIAGRAM (Bottom View)

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—Anode (Grid No.3,  
 Grid No.5, Screen,  
 Collector)  
 C—External Conductive  
 Coating



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## MAXIMUM AND MINIMUM RATINGS, DESIGN-MAXIMUM VALUES

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

|                                                                      |                          |        |
|----------------------------------------------------------------------|--------------------------|--------|
| Anode Voltage. . . . .                                               | { 21000 max<br>12000 min | V<br>V |
| Grid-No.4 (Focusing) Voltage                                         |                          |        |
| Positive value . . . . .                                             | 1250 max                 | V      |
| Negative value . . . . .                                             | 400 max                  | V      |
| Grid-No.2 Voltage. . . . .                                           | { 60 max<br>25 min       | V<br>V |
| Cathode Voltage                                                      |                          |        |
| Negative peak value. . . . .                                         | 2 max                    | V      |
| Negative bias value. . . . .                                         | 0 max                    | V      |
| Positive bias value. . . . .                                         | 100 max                  | V      |
| Positive peak value. . . . .                                         | 150 max                  | V      |
| Heater Voltage . . . . .                                             | { 6.9 max<br>5.7 min     | V<br>V |
| Peak Heater-Cathode Voltage                                          |                          |        |
| Heater negative with respect to cathode:                             |                          |        |
| During equipment warm-up period not exceeding<br>15 seconds. . . . . | 450 max                  | V      |
| After equipment warm-up period . . . . .                             | 300 max                  | V      |
| Heater positive with respect to cathode:                             |                          |        |
| Combined AC and DC voltage . . . . .                                 | 200 max                  | V      |
| DC component . . . . .                                               | 100 max                  | V      |

## TYPICAL OPERATING CONDITIONS FOR CATHODE-DRIVE SERVICE

*Unless otherwise specified, voltage values  
are positive with respect to grid No.1*

|                                         |          |   |
|-----------------------------------------|----------|---|
| Anode Voltage. . . . .                  | 16000    | V |
| Grid-No.4 Voltage. . . . .              | 250      | V |
| Grid-No.2 Voltage. . . . .              | 50       | V |
| Cathode Voltage. . . . .                | 32 to 50 | V |
| For visual extinction of focused raster |          |   |

## MAXIMUM CIRCUIT VALUE

|                                        |         |    |
|----------------------------------------|---------|----|
| Grid-No.1-Circuit Resistance . . . . . | 1.5 max | MΩ |
|----------------------------------------|---------|----|

- <sup>a</sup> External conductive coating and implosion protection hardware must be grounded.
- <sup>b</sup> The grid-No.4 voltage required for optimum focus of any individual tube will have a value anywhere between 0 to + 400 volts with the combined grid-No.1 voltage and video-signal voltage adjusted to give an anode current of 100 microamperes on a 10-1/2 inch by 14-inch pattern from an RCA-2F21 monoscope, or equivalent.

For X-radiation shielding considerations, see sheet  
*X-RADIATION PRECAUTIONS FOR CATHODE-RAY TUBES*  
at front of this section

