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## TWIN PANEL TELEVISION PICTURE TUBE TYPE 23BEP4

110° Magnetic Deflection  
Rectangular Glass  
Aluminized  
Gray Filter Glass

Twin Face Panel, Integral Safety Glass  
Electrostatic Focus  
5-1/8" Neck Length

External Conductive Coating  
Spherical Faceplate  
No Ion Trap  
19-5/16" × 15-1/4" Screen Size

### GENERAL:

Deflection Method . . . . . Magnetic  
Focusing Method . . . . . Electrostatic  
Deflection Angles (Approx.):  
Diagonal . . . . . 110°  
Horizontal . . . . . 99°  
Vertical . . . . . 82°  
Screen:  
Phosphor . . . . . Aluminized P4  
Fluorescence . . . . . White  
Persistence . . . . . Short  
Faceplate . . . . . Spherical Gray Filter Glass  
Laminated Panel . . . . . FP 198A1  
Light Transmission (Approx.) . . . . . 40%  
Weight . . . . . 33 Pounds

### ELECTRICAL:

Heater:  
Voltage . . . . . 6.3 Volts  
Current . . . . . 300 ± 5% Ma.  
Warm-up Time □ . . . . . 18 Seconds  
Direct Interelectrode Capacitances:  
Grid 1 to all other electrodes . . . . . 6 μμf  
Cathode to all other electrodes . . . . . 5 μμf  
External Conductive Coating:  
Maximum . . . . . 2500 μμf  
Minimum . . . . . 2000 μμf

### MECHANICAL:

Mounting Position . . . . . Any  
Screen Dimensions:  
Screen Area . . . . . 282 Sq. In. Min.  
Height . . . . . 15-1/4" Min.  
Width . . . . . 19-5/16" Min.  
Diagonal . . . . . 22-5/16" Min.  
Bulb Dimensions:  
Bulb . . . . . J187A1  
Height . . . . . 17-13/32" + 3/32" - 1/8"  
Width . . . . . 21-5/16" + 1/8"  
Diagonal . . . . . 25-45/64" + 3/32" - 1/16"  
Overall Length . . . . . 15-3/16" ± 3/8"  
Neck Length . . . . . 5-1/8" ± 1/8"  
Anode Terminal . . . . . Recessed Small Cavity Cap (JEDEC J1-21)  
Base . . . . . Small Button 7-Pin (JEDEC B7-208)  
Basing . . . . . 8HR

### MAXIMUM RATINGS:

#### Design Maximum Values

Unless otherwise specified, voltage values are positive and measured with respect to G<sub>1</sub>.

|                                                   |       |      |       |
|---------------------------------------------------|-------|------|-------|
| Max. Anode Voltage . . . . .                      | 22000 | max. | Volts |
| Min. Anode Voltage . . . . .                      | 12000 | min. | Volts |
| Grid 4 Voltage:                                   |       |      |       |
| Positive Value . . . . .                          | 1100  | max. | Volts |
| Negative Value . . . . .                          | 550   | max. | Volts |
| Grid 2 Voltage . . . . .                          | 700   | max. | Volts |
| Cathode Voltage:                                  |       |      |       |
| Negative Peak Value . . . . .                     | 2     | max. | Volts |
| Negative Bias Value . . . . .                     | 0     | max. | Volts |
| Positive Bias Value . . . . .                     | 154   | max. | Volts |
| Positive Peak Value . . . . .                     | 220   | max. | Volts |
| Peak Heater-Cathode Voltage                       |       |      |       |
| Heater Negative with Respect to Cathode           |       |      |       |
| During Warm-up Period of 45 Sec. Max. . . . .     | 450   | max. | Volts |
| After Equipment Warm-up Period . . . . .          | 200   | max. | Volts |
| Heater Positive with Respect to Cathode . . . . . | 200   | max. | Volts |

### TYPICAL CATHODE DRIVE OPERATING CONDITIONS:

Unless otherwise specified, all voltage values are positive with respect to Grid 1.

|                                             |            |       |
|---------------------------------------------|------------|-------|
| Anode Voltage . . . . .                     | 16000      | Volts |
| Grid 4 Voltage . . . . .                    | 0 to + 400 | Volts |
| Grid 2 Voltage ⊕ . . . . .                  | 500        | Volts |
| Cathode Voltage for Raster Cutoff . . . . . | +45 to +95 | Volts |

### LIMITING CIRCUIT VALUES:

|                                       |        |      |         |
|---------------------------------------|--------|------|---------|
| Grid 1 Circuit Resistance . . . . .   | 1.5    | max. | Megohms |
| Grid 2 Circuit Resistance ▲ . . . . . | 10,000 | min. | Ohms    |
| Grid 4 Circuit Resistance ▲ . . . . . | 10,000 | min. | Ohms    |

▲ Protective resistance in the G2 and G4 circuits is advisable to prevent damage to the tube.

⊕ It is recommended that not less than 300 volts on Grid 2 be used, as resolution is affected at lower voltages.

□ Heater warm-up time is defined as the time required for the voltage across the heater to reach 80% of its rated value after applying 4 times rated heater voltage to a circuit consisting of the tube heater in series with a resistance equal to 3 times rated heater voltage divided by rated heater current.

X-RAY WARNING: Operation with voltages in excess of 16KV may require shielding to limit radiation of very soft x-rays.

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