



ELECTRONIC TUBE REFERENCE

17EHP4

Specialized - Cathode Ray electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION
CONSTRUCTION
CATHODERAY

Seventeen-inch electrostatically focused, magnetically deflected monochrome picture tube with a P4 screen. Intended for high-voltage direct-view television service, the manufacturer documentation includes an X-ray shielding warning.

GENERAL CHARACTERISTICS

BASE DESIGNATION	8HR	BASE PINS	8
NOMINAL HEATER	6.3 V / 600 mA	PARALLEL HEATER	– / –
HEATING	Indirect	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION 1 Cathode Ray	
MAXIMUM PLATE VOLTAGE	20000 V
MAXIMUM SCREEN VOLTAGE	60 V
MAXIMUM HEATER-CATHODE VOLTAGE	180 V
<i>CRT anode and grid-2 maximum ratings are promoted from the printed ratings block; other CRT-specific focus/drive/deflection values are preserved in parameters.</i>	

17EHP4 Cathode Ray Tube

The **17EHP4** is a 17-inch, 110-degree cathode ray tube (CRT) designed for cathode-drive television display applications. It features a straight electron gun design requiring no ion trap, electrostatic focusing, and an aluminized P4 phosphor screen. The tube utilizes a short-neck envelope design to minimize overall cabinet depth.

Mechanical and Physical Characteristics

The 17EHP4 is constructed with a glass envelope designated as EIA Bulb J-132 1/2-A1. It features a compact physical profile with a short neck to facilitate space-saving cabinet designs. The physical dimensions and screen specifications are as follows:

Overall Dimensions

- **Overall Length:** 11 1/2 ± 3/16 inches
- **Neck Length:** 4 3/8 ± 1/8 inches
- **Greatest Diagonal:** 16 9/16 ± 1/8 inches
- **Greatest Width:** 15 5/8 ± 1/8 inches
- **Greatest Height:** 12 3/4 ± 1/8 inches

Minimum Useful Screen Dimensions (Projected)

- **Diagonal:** 15 3/4 inches
- **Horizontal Axis:** 14 3/4 inches
- **Vertical Axis:** 11 11/16 inches
- **Total Useful Area:** 155 square inches

Deflection Angles (Approximate)

- **Diagonal:** 110°
- **Horizontal:** 105°
- **Vertical:** 87°

The tube is equipped with a JEDEC B7-208 Small Button Neoeightar 7-pin base and uses the JEDEC 8HR basing arrangement. The high-voltage anode connection is made via a recessed small cavity cap (JEDEC J1-21) located on the bulb cone. This ultor contact is aligned with pin position #4 within an angular tolerance of ±30°.

Optical Characteristics

The faceplate of the 17EHP4 is treated with an aluminized P4 phosphor, which provides a white display with high brightness and contrast. The light transmittance at the center of the faceplate is approximately 78%.

Electrical and Heater Ratings

The 17EHP4 is equipped with an indirectly heated cathode. The heater is designed for a nominal operating voltage of 6.3 V.

Heater Specifications

- **Nominal Heater Voltage:** 6.3 V

- **Heater Current:** 600 ± 30 mA
- **Heater Warm-up Time:** 11 seconds
- **Minimum Heater Voltage (Design-Maximum):** 5.8 V
- **Maximum Heater Voltage (Design-Maximum):** 6.9 V

Direct Interelectrode Capacitances

- **Cathode to all other electrodes:** 5 uuf (approximate)
- **Grid No. 1 to all other electrodes:** 6 uuf (approximate)
- **External conductive coating to anode:** 1000 uuf (minimum) to 1500 uuf (maximum)

The external conductive coating must be connected to a reliable system ground, as it forms a high-voltage filter capacitor in conjunction with the internal anode coating.

Pinout and Electrode Connections

The JEDEC 8HR basing configuration provides the following pin connections, viewed from the bottom of the base:

Pin Number	Connection
Pin 1	Heater
Pin 2	Grid No. 1
Pin 3	Grid No. 2
Pin 4	Grid No. 4 (Focusing Electrode)
Pin 6	Grid No. 1
Pin 7	Cathode
Pin 8	Heater
Recessed Cap	Ultor (Grid No. 3, Grid No. 5, Collector)

Note that Grid No. 1 is connected to both Pin 2 and Pin 6.

Design-Maximum Ratings

The following ratings are established under the Design Maximum System. All voltages are positive and measured with respect to Grid No. 1 unless otherwise specified.

- **Anode Voltage:** 10,000 V (minimum) to 20,000 V (maximum)
- **Grid No. 4 (Focusing Electrode) Voltage:** -500 V to +1100 V
- **Grid No. 2 Voltage:** 25 V (minimum) to 60 V (maximum)
- **Cathode Voltage:**

- *Maximum Negative DC Value:* 0 V
- *Maximum Negative Peak Value:* 2 V
- *Maximum Positive DC Value:* 100 V
- *Maximum Positive Peak Value:* 150 V
- **Maximum Heater-Cathode Voltage:**
 - *Heater negative with respect to cathode (during warm-up ≤ 15 seconds):* 450 V
 - *Heater negative with respect to cathode (after warm-up):* 200 V
 - *Heater positive with respect to cathode:* 200 V
- **Maximum Grid No. 1 Circuit Resistance:** 1.5 Megohms

Typical Operating Conditions (Cathode Drive Service)

In typical cathode drive service, the input signal is applied to the cathode while Grid No. 1 is kept at a reference potential. Voltages are specified as positive with respect to Grid No. 1:

- **Anode Voltage:** 16,000 V DC
- **Grid No. 4 Voltage:** 250 V DC (with a satisfactory focus range of 0 to 400 V DC)
- **Grid No. 2 Voltage:** 50 V DC
- **Cathode Voltage (for visual extinction of focused raster):** 35 V to 55 V DC

Operating Considerations

Because of the high voltages and vacuum levels involved in operating the 17EHP4, certain safety precautions are necessary. The external conductive coating must be properly grounded to prevent electrostatic charge buildup. Additionally, it is recommended that the equipment design include a shatter-proof glass cover over the tube face. This cover serves to protect users against accidental impact, potential implosion damage, and provides X-ray shielding when required by the operating anode voltage.



SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1956 National Video

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1956 NATIONAL VIDEO

Section 1 · Cathode Ray

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Typical Anode Voltage	16000 V	—
Phosphor	P4	—

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater Voltage Nominal	6.3 V	—
Heater Current Nominal	600 mA	—

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Cathode to All Other Electrodes Capacitance	5 pF	Approximate
Grid 1 to All Other Electrodes Capacitance	6 pF	Approximate

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