



ELECTRONIC TUBE REFERENCE

17BWP4

Specialized - Cathode Ray electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION

CONSTRUCTION

CATHODERAY

Seventeen-inch direct-view picture and monitor CRT with magnetic deflection and high-voltage anode operation. Sylvania publishes interelectrode capacitances and an explicit X-ray radiation warning for this television-style display tube.

GENERAL CHARACTERISTICS

BASE DESIGNATION	—	BASE PINS	—
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	17600 V
MAXIMUM SCREEN VOLTAGE	550 V
<i>Maximum anode/grid ratings and capacitance presence promoted from supplied Sylvania CRT data. X-ray warning is explicitly published.</i>	

17BWP4 — Rectangular Glass Television Picture Tube

The **17BWP4** is a 17-inch direct-viewed, rectangular glass television picture tube designed for monochrome television receivers. It features a lightweight construction, a spherical faceplate made of gray filter glass, an aluminized screen, and does not require an ion trap. The tube utilizes electrostatic focusing and magnetic deflection.

Mechanical Design and Physical Dimensions

The 17BWP4 is constructed using a J132 1/2A1 glass bulb and a B6-185 base. The external conductive coating on the bulb must be grounded during operation.

- **Minimum Useful Screen Dimensions:** 14 3/4 x 11 11/16 inches
- **Minimum Useful Screen Area:** 155 square inches
- **Faceplate:** Spherical gray filter glass with approximately 79% light transmittance.
- **Phosphor:** Aluminized P4, providing white fluorescence with short to medium persistence.
- **Neck Diameter:** 1 1/8 inches (1.125 inches, with a tolerance of +0.043 to -0.025 inches).
- **Weight:** Approximately 10 pounds.
- **Bulb Contact:** Recessed Small Cavity Cap (J1-21).

Deflection and Focusing

The tube uses magnetic deflection and electrostatic focusing. The deflection angles are approximately:

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

Electrical Connections and Pinout

The 17BWP4 uses the **7FA** basing arrangement. The pin connections, viewed from the bottom of the base, are:

Pin Number	Connection
Pin 1	Heater (H)
Pin 2	Cathode (K)
Pin 3	Grid No. 1 (G1)
Pin 4	Grid No. 4 (Focusing Electrode, G4)
Pin 5	Grid No. 1 (G1)
Pin 6	Grid No. 2 (<u>G2</u>)
Pin 7	Heater (H)
Recessed Cap	Anode (J1-21)

The recessed small cavity cap for the anode contact aligns with base pin No. 7 within an angular tolerance of 30°.

Heater and Warm-up Ratings

The heater is designed for operation from a standard low-voltage supply:

- **Heater Voltage:** 6.3 V
- **Heater Current:** $0.6 \pm 5\%$ A
- **Heater Warm-up Time:** 11 seconds

The heater warm-up time is measured in a JETEC test circuit where the applied voltage (E) is 25 V and a series resistance (R) of 31.5 ohms is used to reach 5.0 V across the heater terminals.

Direct Interelectrode Capacitances

The approximate capacitances of the tube's electrodes are:

- **Cathode to all other electrodes:** 5 μ pf
- **Grid No. 1 to all other electrodes:** 6 μ pf
- **External conductive coating to anode:** 1500 μ pf maximum, 1000 μ pf minimum

Operating Conditions and Cutoff Characteristics

Under typical operating conditions, the 17BWP4 is operated with the following parameters:

- **Anode Voltage:** 14,000 V dc
- **Grid No. 4 Voltage (for focus):** -50 to +350 V dc
- **Grid No. 2 Voltage:** 300 V dc
- **Grid No. 1 Voltage Required for Cutoff:** -35 to -72 V dc for visual extinction of a focused raster. (Extinction of a stationary focused spot requires approximately 5 V more negative bias).
- **Grid No. 1 Circuit Resistance:** 1.5 Megohms maximum.

Absolute Maximum Ratings

The following absolute maximum values must not be exceeded:

- **Anode Voltage:** 17,600 V dc
- **Grid No. 4 Voltage (Focusing Electrode):** -550 to +1100 V dc
- **Grid No. 2 Voltage:** 550 V dc
- **Grid No. 1 Voltage:**
 - Negative Bias Value: 154 V dc
 - Negative Peak Value: 220 V
 - Positive Bias Value: 0 V dc
 - Positive Peak Value: 2 V
- **Peak 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

Safety Considerations

When operating the 17BWP4, X-ray radiation shielding may be necessary if the tube is operated above its maximum rated anode voltage or above 16,000 Volts, whichever is less.

Technical Summary

The **17BWP4** is a 17-inch rectangular glass television picture tube featuring electrostatic focusing and 110° magnetic deflection. It operates with a nominal anode voltage of 14,000 V dc and a 6.3 V, 0.6 A heater. With its aluminized P4 phosphor screen, lightweight construction, and lack of an ion trap, it provides a reliable display solution for monochrome television receivers, provided that its absolute maximum ratings and X-ray shielding requirements are strictly observed.

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1950 Sylvania

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

1950 SYLVANIA

Section 1 · Cathode Ray

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater Voltage	6.3 V	—
Heater Current	600 mA	—
Cathode To All Other Electrodes Capacitance	5 pF	Approximate

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum Anode Voltage	17600 V	—
Maximum Grid2 Voltage	550 V	—
Typical Anode Voltage	14000 V	—

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