ELECTRONIC TUBE REFERENCE

17CTP4

Specialized - Cathode Ray electronic tube

CONSOLIDATED TECHNICAL DATA
1 SECTION
CONSTRUCTION
CATHODERAY

Seventeen-inch direct-view picture and monitor CRT with electrostatic focusing and magnetic deflection. High-voltage anode ratings, interelectrode capacitances, and an explicit X-ray radiation warning are provided by Sylvania.

General characteristics

BASE DESIGNATION	8HR	**BASE PINS**	—
NOMINAL HEATER	6.3 V / 450 mA	**PARALLEL HEATER**	— / —
HEATING	Indirect	**SERIES OPERATION**	Not specified
CATHODE ARRANGEMENT	Separate cathodes	**SECTION CONSTRUCTION**	Similar

Section ratings

SECTION1 Cathode Ray

MAXIMUM PLATE VOLTAGE	17600 V
MAXIMUM SCREEN VOLTAGE	550 V

Maximum anode/grid ratings and capacitance presence promoted from supplied Sylvania CRT data. X-ray warning is explicitly published.

17CTP4 — Rectangular Television Picture Tube

The **17CTP4** is a 17-inch direct-viewed rectangular glass television picture tube designed for use in television receivers. It features a lightweight construction, electrostatic focusing, and a 110-degree magnetic deflection angle. The tube is designed to operate without an ion trap, simplifying receiver setup and adjustment.

Mechanical and Screen Characteristics

The 17CTP4 is constructed with a rectangular glass envelope utilizing either a J132 1/2-A or J132 1/2-B bulb. It has a neck diameter of 1 1/8 inches and a total weight of approximately 10 lbs. The tube features a spherical faceplate made of gray filter glass with a light transmittance of approximately 77%, which helps improve picture contrast under ambient room lighting.

The screen utilizes an aluminized P4 phosphor that produces white fluorescence with short-to-medium persistence. The minimum useful screen dimensions are 14 3/4 inches by 11 11/16 inches, providing a minimum useful screen area of 155 square inches.

To prevent electrical charge buildup and assist in high-voltage filtering, the tube is equipped with an external conductive coating. This coating must be properly grounded in the receiver chassis.

Electrical Connections and Basing

The 17CTP4 uses a B7-183 base and is wired according to the **8HR** basing diagram. High voltage is applied to the anode via a recessed small cavity cap (J1-21). The pin connections, viewed from the bottom of the base, are as follows:

Pin	Connection
Pin 1	Heater
Pin 2	Grid No. 1 (Control Grid)
Pin 3	Grid No. 2 (Screen Grid)
Pin 4	No Connection (aligned within 10° of the anode contact)
Pin 6	Grid No. 4 (Focusing Electrode)
Pin 7	Cathode
Pin 8	Heater
Cap	Anode (Grid No. 3, Grid No. 5)

Heater and Interelectrode Capacitances

The tube's heater is designed for series or parallel operation with a nominal voltage of 6.3 V and a nominal current of 0.45 A (with a tolerance of ±5%). Under specified series resistance conditions, the heater has a warm-up time of 11 seconds.

The interelectrode capacitances of the 17CTP4 are as follows:

- **Cathode to all other electrodes:** 5 pF
- **Grid No. 1 to all other electrodes:** 6 pF

- **External conductive coating to anode:** 1000 pF minimum, 1500 pF maximum

The capacitance between the external conductive coating and the internal anode acts as a high-voltage filter capacitor when the coating is grounded.

Operating Conditions and Maximum Ratings

The 17CTP4 operates with high anode voltages and electrostatic focusing. The focusing electrode (Grid No. 4) requires a voltage that can be adjusted to obtain the sharpest raster focus. The control grid (Grid No. 1) voltage is adjusted to control beam intensity and achieve raster cutoff.

Absolute Maximum Ratings

These ratings represent the limiting values above which the serviceability and safety of the tube may be impaired:

- **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: 154 V dc
  - Negative Peak: 220 V
  - Positive Bias: 0 V dc
  - Positive Peak: 2 V
- **Peak Heater-Cathode Voltage:**
  - Heater negative to cathode during warm-up (≤ 15 seconds): 450 V
  - Heater negative to cathode after warm-up: 200 V
  - Heater positive to cathode: 200 V
- **Grid No. 1 Circuit Resistance:** 1.5 Megohms maximum

Typical Operating Conditions

Under typical operating conditions, the tube is set up with the following parameters:

- **Anode Voltage:** 14,000 V dc
- **Grid No. 4 Voltage for Focus:** 0 to 400 V dc
- **Grid No. 2 Voltage:** 300 V dc
- **Grid No. 1 Voltage for Cutoff:** -35 to -72 V dc (This range is specified for visual extinction of the focused raster. Complete spot extinction typically requires approximately 5 V of additional negative bias.)

Technical Summary

The **17CTP4** is a lightweight, 17-inch rectangular glass television picture tube featuring a 110-degree magnetic deflection angle and electrostatic focusing. It operates with a nominal 6.3 V, 0.45 A heater and

does not require an ion trap. With an aluminized P4 phosphor screen providing white fluorescence, a gray filter glass faceplate with 77% transmittance, and a minimum useful screen area of 155 square inches, it is designed for direct-view television applications. The tube's electrical design supports anode voltages up to 17,600 V dc, with typical operation at 14,000 V dc, and utilizes an external conductive coating to provide high-voltage filtering capacitance when grounded.

SOURCE OPERATING CONDITIONS

1950 Sylvania

SOURCE PDF

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	**450 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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