

ELECTRONIC TUBE REFERENCE

CONSOLIDATED TECHNICAL DATA

17CNP4

1 SECTION
CONSTRUCTION
CATHODERAY

Specialized - Cathode Ray electronic tube

Seventeen-inch direct-view picture and monitor CRT with electrostatic focusing and magnetic deflection. Its high-voltage anode system is accompanied by published capacitance data and an explicit Sylvania X-ray radiation warning.

GENERAL CHARACTERISTICS

BASE DESIGNATION	12L	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

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.	

17CNP4 — Electrostatic-Focus Television Picture Tube

The **17CNP4** is a 17-inch, direct-viewed, rectangular glass television picture tube designed specifically for use in cathode-drive television receivers. It features a lightweight construction, a short neck, and does not require an ion trap. The tube utilizes magnetic deflection and electrostatic focusing, incorporating an aluminized P4 phosphor screen with white fluorescence and short-to-medium persistence.

Mechanical and Physical Design

The 17CNP4 is housed in a J132 1/2 C bulb (or equivalent) and weighs approximately 10 1/2 lbs. Its physical and optical characteristics include:

- **Faceplate:** Spherical, gray filter glass with approximately 77% light transmittance to improve contrast.
- **Screen:** Aluminized P4 phosphor screen providing white fluorescence. The phosphor exhibits short-to-medium persistence.
- **Screen Dimensions:** Minimum useful screen dimensions are 14 3/4 inches by 11 11/16 inches, yielding a minimum useful screen area of 155 square inches.
- **Deflection Angles:** Approximate deflection angles are 85° horizontally and 90° diagonally.
- **Bulb Connections:** The anode connection is made via a recessed small cavity cap (J1-21), which aligns with pin position No. 6 within a tolerance of $\pm 30^\circ$.
- **Base:** Small shell duodecal 6-pin base (B6-63) with a 12L basing configuration.

Electrical Characteristics and Basing

The 17CNP4 is designed with a controlled heater warm-up time for series-string or parallel operation.

Heater and Warm-up Specifications

- **Heater Voltage:** 6.3 V
- **Heater Current:** $0.6 \pm 5\%$ A
- **Heater Warm-up Time:** 11 seconds. This is defined as the time required to reach 5.0 V in a JETEC test circuit with an applied voltage (E) of 25 V and a series resistance of 31.5 Ω .

Direct Interelectrode Capacitances

- **Cathode to All Other Electrodes:** Approximately 5 μF
- **Grid No. 1 to All Other Electrodes:** Approximately 6 μF
- **External Conductive Coating to Anode:** 1000 μF (minimum) to 1500 μF (maximum). This external coating must be grounded during operation.

Pinout Configuration (Basing 12L)

The 12L basing arrangement provides the following connections, viewed from the bottom of the tube:

Pin	Connection
Pin 1	Heater (H)
Pin 2	Grid No. 1 (G1)
Pin 6	Grid No. 4 (G4 / Focusing Electrode)
Pin 10	Grid No. 2 (G2)

Pin	Connection
Pin 11	Cathode (K)
Pin 12	Heater (H)
Anode Contact	Recessed small cavity cap (J1-21)

Absolute Maximum Ratings

All voltage ratings are specified under the Absolute Maximum System and are positive with respect to Grid No. 1 unless otherwise noted.

- **Anode Voltage:** 17,600 V dc
- **Grid No. 4 Voltage (Focusing Electrode):** -550 to +1100 V dc
- **Grid No. 2 Voltage:** 70 V dc
- **Cathode Voltage (Positive Bias Value):** 150 V dc
- **Cathode Voltage (Negative Peak Value):** 0 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
- **Grid No. 1 Circuit Resistance:** 1.5 M Ω maximum

Typical Operating Conditions (Cathode-Drive Service)

In typical cathode-drive applications, all operating voltages are referenced positive with respect to Grid No. 1:

- **Anode Voltage:** 14,000 V dc
- **Grid No. 4 Voltage for Focus:** 0 to +400 V dc
- **Grid No. 2 Voltage:** 50 V dc
- **Cathode Voltage for Cutoff:** 35 to 50 V dc (for visual extinction of a focused raster). Visual extinction of a stationary focused spot requires an approximate increase of 5 V in cathode voltage.

Safety Considerations

When operating the 17CNP4, appropriate safety precautions must be observed regarding X-ray radiation. Shielding may be necessary if the tube is operated above the Maximum Rated Anode Voltage or 16,000 V, whichever is less. Therefore, if the anode voltage exceeds 16,000 V, shielding should be evaluated to protect users from potential radiation exposure.

Technical Summary

The **17CNP4** is a 17-inch rectangular glass television picture tube featuring electrostatic focus, magnetic deflection, and a lightweight, short-neck design that eliminates the need for an external ion trap. Operating with a 6.3 V, 0.6 A heater, it is optimized for cathode-drive television receivers. The tube provides a minimum useful screen area of 155 square inches on a spherical gray faceplate with 77% light transmittance. Under typical cathode-drive conditions, it operates with an anode voltage of 14,000 V dc, a Grid No. 2 voltage of 50 V dc, and a focusing voltage of 0 to +400 V dc, delivering a sharp, focused raster with a cutoff range of 35 to 50 V dc.



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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