

ELECTRONIC TUBE REFERENCE

17CUP4

Specialized - Cathode Ray electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION
CONSTRUCTION
CATHODERAY

Seventeen-inch direct-view picture and monitor cathode-ray tube with magnetic deflection and high-voltage anode operation. Sylvania documents its electrical characteristics and includes an explicit X-ray radiation warning.

GENERAL CHARACTERISTICS

BASE DESIGNATION	12L	BASE PINS	–
NOMINAL HEATER	6.3 V / 300 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.	

17CUP4 Television Picture Tube

The **17CUP4** is a 17-inch direct-viewed, rectangular glass television picture tube. It features a lightweight construction, a spherical faceplate made of gray filter glass, and an aluminized screen. The tube utilizes electrostatic focusing and magnetic deflection, and does not require an ion trap. It is equipped with an external conductive coating that must be grounded during operation.

Mechanical and Physical Characteristics

The 17CUP4 is housed in a J132 1/2 C bulb (or equivalent) and weighs approximately 10 1/2 pounds. The screen has a minimum useful area of 155 square inches, with minimum useful dimensions of 14 3/4 by 11 11/16 inches. The faceplate's gray filter glass provides a light transmittance of approximately 77%.

The tube's screen uses an aluminized P4 phosphor, which exhibits white fluorescence with short to medium persistence. Deflection is achieved magnetically, with approximate deflection angles of 85° horizontally and 90° diagonally.

Base and Pinout Connections

The 17CUP4 uses either a B6-63 or B6-203 base with a 12L basing configuration. The electrical connections are assigned as follows:

Pin	Connection
Pin 1	Heater
Pin 2	Grid No. 1
Pin 6	Grid No. 4 (Focusing Electrode)
Pin 10	Grid No. 2
Pin 11	Cathode
Pin 12	Heater
Cap	Anode

Pin position No. 6 aligns within 30° of the tube's horizontal centerline and is located on the same side as the anode contact. The anode connection is made via a recessed small cavity cap (J1-21).

Heater and Electrical Characteristics

The heater is designed for a nominal operating voltage of 6.3 Volts with a current of $0.3 \pm 5\%$ Ampere. The heater warm-up time is 11 seconds. This warm-up time is defined as the time required to reach 80% of the rated heater voltage when four times the rated voltage is applied in series with a resistance equal to three times the rated voltage divided by the rated current.

Direct Interelectrode Capacitances

The approximate direct interelectrode capacitances of the 17CUP4 are:

- **Cathode to all other electrodes:** 5 μpf
- **Grid No. 1 to all other electrodes:** 6 μpf
- **External conductive coating to anode:** 1500 μpf (Maximum), 1200 μpf (Minimum)

Operating Conditions and Ratings

The 17CUP4 has specific absolute maximum ratings and typical operating conditions that must be observed to ensure proper performance and safety.

Absolute Maximum Ratings

These ratings represent the absolute limits within which the tube must be operated:

- **Anode Voltage:** 17,600 Volts dc
- **Grid No. 4 Voltage (Focusing Electrode):** -550 to +1100 Volts dc
- **Grid No. 2 Voltage:** 550 Volts dc
- **Grid No. 1 Voltage:**
 - Negative bias value: 155 Volts dc
 - Negative peak value: 220 Volts
 - Positive bias value: 0 Volts dc
 - Positive peak value: 2 Volts
- **Peak Heater-Cathode Voltage:**
 - Heater negative with respect to cathode (during warm-up period ≤ 15 seconds): 450 Volts
 - Heater negative with respect to cathode (after equipment warm-up): 200 Volts
 - Heater positive with respect to cathode: 200 Volts

Typical Operating Conditions

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

- **Anode Voltage:** 14,000 Volts dc
- **Grid No. 4 Voltage for Focus:** -50 to +350 Volts dc
- **Grid No. 2 Voltage:** 300 Volts dc
- **Grid No. 1 Voltage Required for Cutoff:** -35 to -72 Volts dc (for visual extinction of the focused raster; visual extinction of a stationary focused spot requires approximately 5 Volts more negative bias)

Circuit Values

The maximum grid No. 1 circuit resistance must not exceed 1.5 Megohms.

Installation and Safety Requirements

When installing and operating the 17CUP4, specific grounding and shielding requirements must be met:

- **Grounding:** The external conductive coating must be grounded. The designated contact area is 2 inches by 2 inches, located 90° counter-clockwise from the anode contact when viewed from the base end of the tube.

- **X-ray Shielding:** X-ray shielding may be necessary if the tube is operated at anode voltages higher than the maximum rated value or 16,000 Volts, whichever is less.

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	300 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	—