

ELECTRONIC TUBE REFERENCE

# 17CMP4

Specialized - Cathode Ray electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION  
CONSTRUCTION  
CATHODERAY

Seventeen-inch direct-view picture and monitor CRT with electrostatic focusing, magnetic deflection, and high-voltage anode operation. Sylvania documentation includes interelectrode capacitances and an explicit 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. |         |

17CMP4 Television Picture Tube

The **17CMP4** is a 17-inch, direct-viewed, rectangular glass television picture tube designed for cathode-drive service. It features electrostatic focusing, magnetic deflection, a short neck, and a low Grid No. 2 operating voltage. The tube incorporates an aluminized P4 phosphor screen and does not require an ion trap.

## Physical and Mechanical Construction

The 17CMP4 is constructed with a rectangular glass envelope utilizing either a J133F or J133G bulb. The faceplate is spherical and made of gray filter glass with approximately 74% light transmittance, which improves picture contrast under ambient light.

The screen features an aluminized P4 phosphor that produces a white fluorescence with short to medium persistence. The tube's mechanical design includes a short neck to minimize the overall depth of the television receiver.

The minimum useful screen dimensions are 14 5/16 inches by 11 1/8 inches, providing a minimum useful screen area of 149 square inches. The tube uses a Small Shell Duodecal 6-Pin base (B6-63) and a Recessed Small Cavity Cap (J1-21) for the anode connection. The external conductive coating on the bulb must be grounded during operation.

## Heater and Electrical Characteristics

The 17CMP4 is equipped with an indirectly heated cathode. The heater is designed to operate at a nominal voltage of 6.3 V with a current of  $0.6 \pm 5\%$  A.

The heater has a controlled warm-up time of 11 seconds. This warm-up time is defined as the time required to reach 5.0 V across the heater terminals when tested in a standard JETEC test circuit with an applied heater voltage of 25 V and a series resistance of 31.5 ohms.

## Interelectrode Capacitances

The approximate interelectrode capacitances of the tube are as follows:

- **Cathode to all other electrodes:** 5  $\mu\text{f}$
- **Grid No. 1 to all other electrodes:** 6  $\mu\text{f}$
- **External conductive coating to anode:** 1000  $\mu\text{f}$  minimum / 1500  $\mu\text{f}$  maximum

## Basing and Pin Connections

The 17CMP4 uses the 12L basing configuration. The anode contact (recessed small cavity cap) is aligned with pin position No. 6 within a tolerance of  $\pm 30$  degrees. The pin connections on the Small Shell Duodecal 6-Pin base are assigned as follows:

| Pin Number | 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 Number | Connection |
|------------|------------|
| Pin 12     | Heater     |
| Cap        | Anode      |

## Operating Conditions and Cathode-Drive Service

The 17CMP4 is specifically designed for cathode-drive service, where the video signal is applied to the cathode. Under typical operating conditions, all voltages are specified as positive with respect to Grid No. 1:

- **Anode Voltage:** 14,000 V dc
- **Grid No. 4 (Focusing Electrode) Voltage:** 0 to +400 V dc
- **Grid No. 2 Voltage:** 50 V dc
- **Cathode Voltage for Cutoff:** 35 to 50 V dc (required for visual extinction of a focused raster; visual extinction of a stationary focused spot requires an additional increase of approximately 5 V)

The maximum allowable resistance in the Grid No. 1 circuit is 1.5 MΩ.

## Absolute Maximum Ratings and Safety

To ensure reliable operation and prevent damage to the tube, the operating parameters must be kept within the absolute maximum ratings. All voltages are positive with respect to Grid No. 1 unless otherwise indicated:

- **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
  - Negative peak value: 0 V
- **Peak Heater-Cathode Voltage:**
  - Heater negative with respect to cathode during warm-up (first 15 seconds or less): 450 V
  - Heater negative with respect to cathode after warm-up: 200 V
  - Heater positive with respect to cathode: 200 V

## X-ray Radiation Shielding

When operating the 17CMP4, safety precautions regarding X-ray radiation must be observed. Shielding may be necessary if the tube is operated at voltages higher than 16,000 V or the maximum rated anode voltage of 17,600 V, whichever is less.

## Technical Summary

The **17CMP4** is a 17-inch rectangular television picture tube utilizing electrostatic focusing and magnetic deflection (85° horizontal, 90° diagonal). It features a short neck, an aluminized P4 phosphor screen with white fluorescence, and a gray filter glass faceplate with 74% light transmittance. Operating with a 6.3 V, 0.6 A heater, the tube is optimized for cathode-drive applications with a low Grid No. 2 voltage of 50 V typically (70 V absolute maximum) and an anode voltage of up to 17,600 V. It uses a Small Shell Duodecal 6-pin base with a 12L basing arrangement and requires proper grounding of its external conductive coating.

## 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         | —                |