



ELECTRONIC TUBE REFERENCE

17DLP4

Specialized - Cathode Ray electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION
CONSTRUCTION
CATHODERAY

Seventeen-inch cathode-ray picture tube documented by General Electric for direct-view display service. The available source identifies it as a picture CRT; documentation reviewed here does not support a more specialized functional distinction beyond television-style display use.

GENERAL CHARACTERISTICS

BASE DESIGNATION	8JS	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*No fixed ratings recorded.*

17DLP4 Cathode Ray Tube

The **17DLP4** is a 17-inch rectangular glass cathode ray tube designed for television display applications. It features a lightweight construction, electrostatic focusing, and a 110-degree diagonal magnetic deflection angle. The tube is built with a non-ion-trap electron gun and an aluminized fluorescent screen to maximize light output while minimizing screen charging.

Physical Construction and Envelope

The 17DLP4 utilizes a J132-1/2A1 bulb envelope with a spherical gray glass faceplate. This faceplate provides approximately 76% light transmission at its center, enhancing contrast under ambient light. The external surface of the bulb is treated with a conductive coating that, when grounded, acts as a filter capacitor in conjunction with the internal anode coating.

The physical dimensions of the tube are highly compact for its screen size:

- **Overall Length:** $11\text{-}1/16 \pm 5/16$ inches
- **Neck Length:** $3\text{-}15/16 + 3/16 - 1/8$ inches
- **Greatest Bulb Diagonal:** $16\text{-}9/16 \pm 1/8$ inches
- **Greatest Bulb Width:** $15\text{-}5/8 \pm 1/8$ inches
- **Greatest Bulb Height:** $12\text{-}3/4 \pm 1/8$ inches
- **Net Weight:** Approximately 10-1/3 lbs

The minimum useful screen dimensions are:

- **Diagonal:** 15-3/4 inches
- **Width:** 14-3/4 inches
- **Height:** 11-11/16 inches
- **Total Useful Area:** 155 square inches

The anode connection is made via a recessed small-cavity cap (JETEC No. J1-21) located on the bulb cone. This contact is aligned with Pin No. 4 within a tolerance of ± 30 degrees.

Heater, Base, and Pinout

The 17DLP4 is equipped with an indirectly heated cathode. The heater is designed to operate under the following nominal conditions:

- **Heater Voltage:** 6.3 V
- **Heater Current:** $0.6 \pm 10\%$ A
- **Heater Warm-Up Time:** 11 seconds (defined as the time required to reach 5.0 V in a JETEC test circuit with a 25 V supply and a 31.5Ω series resistor)

The tube uses a small-button Eightar 6-pin base (JEDEC No. B6-212 or B7-183) with an 8JS basing designation. It can be mounted in any position.

Pin Number	Connection
Pin 1	Heater
Pin 3	Grid No. 2
Pin 4	Focusing Electrode
Pin 6	Grid No. 1
Pin 7	Cathode
Pin 8	Heater
Cap	Anode (Internal connection of Anode, Grid No. 3, and Grid No. 5)

Electrical Characteristics and Typical Operating Conditions

Under typical operating conditions, the 17DLP4 operates with a high anode voltage to ensure adequate brightness and focus. The typical electrical parameters are:

- **Anode Voltage:** 17,000 V DC
- **Focusing-Electrode Voltage:** 0 to 500 V DC
- **Focusing-Electrode Current:** -15 to +25 μ A DC
- **Grid No. 2 Voltage:** 450 V DC
- **Grid No. 1 Voltage (for visual extinction of focused raster):** -28 to -72 V DC

Interelectrode Capacitances

- **Cathode to all other electrodes:** 5 pF
- **Grid No. 1 to all other electrodes:** 6 pF
- **External conductive coating to anode:** 1000 pF (minimum) to 1500 pF (maximum)

Absolute Maximum Ratings and Circuit Constraints

The ratings for the 17DLP4 are established under the Design-Center System. Operating the tube beyond these limits may cause permanent damage or degrade performance.

Parameter	Absolute Maximum Rating
Anode Voltage	18,000 max V DC
Focusing-Electrode Voltage	-500 to +1000 max V DC
Grid No. 2 Voltage	700 max V DC
Grid No. 1 Negative-Bias Value	140 max V DC
Grid No. 1 Positive-Bias Value	0 max V DC
Grid No. 1 Positive-Peak Value	2 max V
Grid No. 1 Negative-Peak Value	200 max V
Peak Heater-Cathode Voltage (Heater negative to cathode during warm-up ≤ 15 s)	410 max V
Peak Heater-Cathode Voltage (Heater negative to cathode after warm-up)	180 max V
Peak Heater-Cathode Voltage (Heater positive to cathode)	180 max V

Circuit Resistance Limits

To protect the tube from internal arcing and damage, specific resistance limits must be observed in the electrode circuits:

- **Grid No. 1 Circuit Resistance:** 1.5 max MΩ
- **Grid No. 2 Circuit Resistance:** 0.1 min MΩ
- **Focusing-Electrode Circuit Resistance:** 0.1 min MΩ

It is recommended to include protective resistance in the Grid No. 2 and focusing-electrode circuits. A single common resistor may be utilized for this purpose.

Operational and Safety Considerations

Anode Voltage Limits

The 17DLP4 should not be operated with an anode voltage below 15,000 V. Operating below this threshold results in a significant degradation of both picture brightness and focus quality.

X-Ray Radiation Shielding

When the tube is operated at anode voltages exceeding 16,000 V, it may produce X-ray radiation. Appropriate shielding must be used to protect users. A protective face-viewing window that limits radiation levels to 6.25 mR/hr or less is normally sufficient to ensure safe operation.

Socketing and Mounting

Due to the physical alignment requirements of the base and neck, a non-rigidly mounted socket with flexible leads must be used. The bottom circumference of the base wafer must fall within a 1-3/4 inch diameter circle concentric with the bulb axis to prevent mechanical stress on the glass neck.

Technical Summary

The **17DLP4** is a lightweight, 17-inch rectangular glass cathode ray tube featuring electrostatic focus and 110-degree magnetic deflection. Operating at a typical anode voltage of 17,000 V, it provides a high-contrast display on a 155-square-inch useful screen area. The tube is characterized by its 6.3 V heater, 11-second warm-up time, and the integration of an external conductive coating that serves as a filter capacitor. Proper circuit design requires adhering to strict voltage limits, implementing protective series resistors in the grid and focus circuits, and ensuring adequate X-ray shielding when operated above 16,000 V.



SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1968 General Electric Co

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

1968 GENERAL ELECTRIC CO

Section 1 · Cathode Ray

OTHER

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
AnodeVoltageMaximum	18000 V	—

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