

ELECTRONIC TUBE REFERENCE

17DJP4

Specialized - Cathode Ray electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION
CONSTRUCTION
CATHODERAY

Seventeen-inch direct-view monochrome picture/monitor CRT with magnetic deflection and high-voltage anode operation. Sylvania specifies picture-tube operating data and an X-ray radiation warning for this large-screen display tube.

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.	

17DJP4 — Electrostatic-Focus Television Picture Tube

Overview

The **17DJP4** is a 17-inch, direct-viewed, rectangular glass television picture tube. It features electrostatic focusing, magnetic deflection, and an aluminized P4 phosphor screen. The tube incorporates a spherical gray filter glass faceplate with approximately 74% light transmittance, designed to improve contrast

under ambient light. It requires an external single-field ion trap magnet and features an external conductive coating that must be grounded.

Mechanical Design and Physical Dimensions

The 17DJP4 is constructed using a J133F or J133G glass bulb. The screen has a minimum useful diagonal dimension of 17 inches, with minimum useful rectangular dimensions of 14-5/16 inches by 11-1/8 inches, providing a minimum useful screen area of 149 square inches. The tube weighs approximately 13 lbs.

The tube's faceplate is made of spherical gray filter glass with an approximate light transmittance of 74%. The phosphor screen is an aluminized P4 type, which exhibits white fluorescence and short-to-medium persistence.

To prevent electrical charge buildup and assist in filtering, the tube is equipped with an external conductive coating. This coating must be grounded. The designated grounding contact area is 2 inches by 2 inches, located 90 degrees counterclockwise from the anode contact. The anode connection itself is made via a Recessed Small Cavity Cap (J1-21).

Heater and Electrical Characteristics

The 17DJP4 is designed with an indirectly heated cathode. The heater is rated for series or parallel operation with a nominal voltage of 6.3 V and a current of 0.3 A $\pm$ 5%. The heater warm-up time is 11 seconds, defined as the time required to reach 80% of the rated voltage under specific series resistance conditions.

Interelectrode Capacitances

The approximate interelectrode capacitances of the tube 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 serves as a high-voltage filter capacitor when the coating is properly grounded.

Base and Pinout Configuration

The 17DJP4 uses a Small Shell Duodecal 6-Pin base (designation B6-63) with a 12L basing arrangement. The high-voltage anode connection is made via the recessed small cavity cap on the bulb, which aligns with pin position No. 6 within $\pm$ 30 degrees.

The pin connections, viewed from the bottom of the base, are assigned as follows:

Pin Number	Connection	Description
Pin 1	H	Heater

Pin Number	Connection	Description
Pin 2	G1	Grid No. 1 (Control Grid)
Pin 6	G4	Grid No. 4 (Focusing Electrode)
Pin 10	<u>G2</u>	Grid No. 2 (Screen Grid)
Pin 11	K	Cathode
Pin 12	H	Heater
Cap	Anode	Anode / Grid No. 3 / Grid No. 5

Absolute Maximum Ratings

The following absolute maximum values must not be exceeded under any operating conditions:

Parameter	Absolute Maximum Value
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 Negative Bias Value	155 V dc
Grid No. 1 Negative Peak Value	220 V
Grid No. 1 Positive Bias Value	0 V dc
Grid No. 1 Positive Peak Value	2 V
Peak Heater-Cathode Voltage (Heater negative, warm-up ≤ 15s)	450 V
Peak Heater-Cathode Voltage (Heater negative, after warm-up)	200 V
Peak Heater-Cathode Voltage (Heater positive)	200 V

The maximum Grid No. 1 circuit resistance is restricted to 1.5 Megohms.

Typical Operating Conditions

Under typical operating conditions, the tube is operated with an anode voltage of 14,000 V dc. The electrostatic focusing electrode (Grid No. 4) is adjusted within a range of -50 to +300 V dc to achieve sharp focus.

Parameter	Typical Value
Anode Voltage	14,000 V dc
Grid No. 4 Voltage	-50 to +300 V dc
Grid No. 2 Voltage	300 V dc
Grid No. 1 Cutoff Voltage	-35 to -72 V dc

The Grid No. 1 voltage required for visual extinction of the focused raster ranges from -35 to -72 V dc. Visual extinction of a stationary spot requires approximately 5 V more negative bias than the raster extinction value.

Deflection and Ion Trap Alignment

The 17DJP4 utilizes magnetic deflection with a horizontal deflection angle of 85° and a diagonal deflection angle of 90°.

An external, single-field ion trap magnet is required to prevent ion burn on the phosphor screen. When using an electromagnetic ion trap (such as the JETEC No. 117 magnet), the average required current is 28 mA dc, with the pole pieces centered over Grid No. 2. If a permanent magnet (PM) ion trap is used, it must have a minimum field strength of 31 Gauss (for a typical PM magnet with a ± 3 gauss tolerance).

X-ray Radiation Warning

When operating the 17DJP4, safety precautions regarding X-ray radiation must be observed. If the tube is operated at anode voltages exceeding 16,000 V, or the maximum rated anode voltage of 17,600 V (whichever is less), appropriate shielding may be necessary to protect users from exposure to soft X-rays generated by high-voltage electron bombardment of the screen.

Technical Summary

The **17DJP4** is a 17-inch rectangular glass television picture tube featuring electrostatic focusing and magnetic deflection (85° horizontal, 90° diagonal). It utilizes an aluminized P4 phosphor screen behind a 74% transmittance gray filter glass faceplate. Operating at a typical anode voltage of 14,000 V dc (with an absolute maximum of 17,600 V dc), the tube provides a minimum useful screen area of 149 square inches. It is equipped with a 6.3 V, 0.3 A heater with a controlled 11-second warm-up time, a Small Shell Duodecal 6-pin base, and requires an external single-field ion trap magnet for proper operation.



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	—

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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