

ELECTRONIC TUBE REFERENCE

17LP4B

Specialized - Cathode Ray electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION
CONSTRUCTION
CATHODERAY

Seventeen-inch monochrome P4 picture tube with low-voltage electrostatic focus and approximately 70-degree magnetic deflection. Its high-voltage direct-view construction is intended for television receiver display and includes an X-ray radiation warning.

GENERAL CHARACTERISTICS

BASE DESIGNATION	—	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	17500 V
MAXIMUM SCREEN VOLTAGE	550 V
P4 television picture tube.	

17LP4B Television Picture Tube

The **17LP4B** is a rectangular glass picture tube designed for television display applications. It features an aluminized screen, low-voltage electrostatic focusing, and 70-degree magnetic deflection. The electron gun design is self-contained and requires no ion-trap magnet.

Physical and Mechanical Design

The 17LP4B is constructed with a cylindrical filterglass faceplate that provides approximately 66% light transmission. The screen utilizes a P4-sulfide type aluminized phosphor to optimize brightness and contrast.

The physical dimensions and mechanical specifications of the tube include:

- **Weight:** Approximately 19 lbs
- **Overall Length:** 19-3/16" $\pm$ 3/8"
- **Neck Length:** 7-1/2" $\pm$ 3/16"
- **Projected Screen Area:** 149 sq. in.
- **External Conductive Coating:** Regular-Band type, with the grounding contact located near the reference line.
- **Anode Cap:** Recessed Small Cavity (JEDEC No. J1-21)
- **Base:** Small-Shell Duodecal 6-Pin (JEDEC Group 4, No. B6-63) utilizing the 12L basing designation.

Heater Ratings and Electrical Connections

The 17LP4B is equipped with an indirectly heated cathode. The heater is designed to operate under the following specifications:

Parameter	Value
Nominal Heater Voltage	6.3 V
Heater Current	600 $\pm$ 30 mA
Design-Maximum Heater Voltage Range	5.7 to 6.9 V

Pinout Configuration (Basing 12L)

The electrical connections are accessed via the 6-pin Small-Shell Duodecal base, viewed from the bottom:

Pin / Cap	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 (Grid No. 3, Grid No. 5, Screen, Collector)
C	External Conductive Coating

Interelectrode Capacitances

The direct 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:** 750 pF minimum, 1500 pF maximum

Design-Maximum Ratings

The following design-maximum ratings represent the absolute limits within which the 17LP4B must be operated. All voltages are positive with respect to the cathode unless otherwise specified.

- **Anode Voltage:** 17500 max V
- **Grid No. 4 (Focusing) Voltage:** -550 to +1100 max V
- **Grid No. 2 Voltage:** 550 max V
- **Grid No. 1 Voltage:**
 - Negative peak value: 220 max V
 - Negative bias value: 155 max V
 - Positive bias value: 0 max V
 - Positive peak value: 2 max V
- **Peak Heater-Cathode Voltage:**
 - *Heater negative to cathode:* 450 max V during warm-up (less than or equal to 15 seconds); 200 max V after warm-up.
 - *Heater positive to cathode:* 200 max V (combined AC/DC); 100 max V (DC component).

Typical Operating Conditions (Grid-Drive Service)

Under typical grid-drive operating conditions, the electrode potentials are configured as follows:

- **Anode Voltage:** 14000 V
- **Grid No. 4 (Focusing) Voltage:** -56 to +310 V
- **Grid No. 2 Voltage:** 300 V
- **Grid No. 1 Voltage (for visual extinction of focused raster):** -28 to -72 V

Maximum Circuit Values

To ensure stable operation, the maximum resistance in the Grid No. 1 circuit must be restricted:

- **Grid-No. 1-Circuit Resistance:** 1.5 max megohms

Technical Summary

The **17LP4B** is a 70-degree magnetic deflection, low-voltage electrostatic focus rectangular picture tube. Weighing approximately 19 lbs and featuring a 149 sq. in. projected screen area, it operates with a 6.3 V,

600 mA heater. The tube is characterized by its aluminized P4-sulfide screen, a maximum anode rating of 17500 V, and a design that eliminates the need for an external ion-trap magnet.

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

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

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Section 1 · Cathode Ray

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater voltage	6.3 V	—
Heater current	600 mA	—
Maximum anode/ultor voltage	17500 V	—
Typical anode/ultor voltage	14000 V	PictureTubeService
Maximum grid No.2 voltage	550 V	—
Typical grid No.2 voltage	300 V	PictureTubeService
Focus-voltage range minimum	-56 V	OptimumFocus
Focus-voltage range maximum	310 V	OptimumFocus
Visual-extinction voltage range minimum	-72 V	FocusedRasterExtinction
Visual-extinction voltage range maximum	-28 V	FocusedRasterExtinction
Maximum grid No.1 circuit resistance	1.5 megohm	—
X-ray shielding warning	Present	HighAnodeVoltage
Maximum negative grid No.1 peak voltage	220 V	—
Maximum negative grid No.1 bias magnitude	155 V	—
Maximum positive grid No.1 peak voltage	2 V	—
Peak heater-cathode voltage during warm-up	450 V	HeaterNegative;Warmup<=15s
Peak heater-cathode voltage after warm-up	200 V	HeaterNegative

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Peak heater-cathode voltage heater positive	200 V	HeaterPositive

CONSTRUCTION		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Focusing method	LowVoltageElectrostatic	—
Deflection method	Magnetic	—
Phosphor	P4	—
Screen type	White	P4

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Deflection angle	70 deg	Approximate

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Cathode to all other electrodes capacitance	5 pF	Approximate