



## ELECTRONIC TUBE REFERENCE

## 21DLP4

Specialized - Cathode Ray electronic tube

CONSOLIDATED TECHNICAL DATA

**1 SECTION**  
CONSTRUCTION  
**CATHODERAY**

Twenty-one-inch direct-view monochrome television picture tube with magnetic deflection and a P4 display screen. Manufacturer documentation places it in the high-voltage receiver CRT family, with construction optimized for bright rectangular picture presentation.

## 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

|                                                                                                                                                                                                                      |         |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| <b>SECTION1</b> Cathode Ray                                                                                                                                                                                          |         |
| MAXIMUM PLATE VOLTAGE                                                                                                                                                                                                | 20000 V |
| <i>CRT maximum accelerating/anode/ultor voltage is promoted to MaxPlateVoltage; additional electrode ratings, capacitances, operating conditions, focus/deflection and optical data are preserved as parameters.</i> |         |

The Westinghouse 21DLP4 is a 21-inch 90-degree aluminized P4 CRT with gray filter glass and no ion trap.

## SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

# 1965 Westinghouse Data Book

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

## 1965 WESTINGHOUSE DATA BOOK

## Section 1 · Cathode Ray

| CHARACTERISTICS                               |                                |                  |
|-----------------------------------------------|--------------------------------|------------------|
| PARAMETER                                     | PUBLISHED VALUE                | CONDITION / NOTE |
| Heater Voltage                                | 6.3 V                          | —                |
| Heater Current                                | 600 mA                         | —                |
| Heater Warm-up Time                           | 11 s                           | —                |
| Focusing Method                               | Low Voltage Electrostatic text | —                |
| Deflection Method                             | Magnetic text                  | —                |
| Horizontal Deflection Angle                   | 85 deg                         | Approximate      |
| Vertical Deflection Angle                     | 68 deg                         | Approximate      |
| Diagonal Deflection Angle                     | 90 deg                         | Approximate      |
| Phosphor                                      | Aluminized P4 text             | —                |
| Fluorescence                                  | White text                     | —                |
| Persistence                                   | Short to Medium text           | —                |
| Light Transmittance                           | 73 percent                     | Approximate      |
| Cathode-to-All Capacitance                    | 5 pF                           | Approximate      |
| Grid1-to-All Capacitance                      | 6 pF                           | Approximate      |
| External Coating-to-Anode Capacitance Minimum | 2000 pF                        | —                |
| External Coating-to-Anode Capacitance Maximum | 2500 pF                        | —                |

| OTHER                 |                 |                  |
|-----------------------|-----------------|------------------|
| PARAMETER             | PUBLISHED VALUE | CONDITION / NOTE |
| Maximum Anode Voltage | 20000 V         | —                |
| Minimum Anode Voltage | 11000 V         | —                |
|                       |                 |                  |

| PARAMETER                                    | PUBLISHED VALUE | CONDITION / NOTE |
|----------------------------------------------|-----------------|------------------|
| Maximum Focus Electrode Voltage Positive     | <b>1100 V</b>   | Grid4            |
| Maximum Focus Electrode Voltage Negative     | <b>-550 V</b>   | Grid4            |
| Maximum Grid2 Voltage                        | <b>500 V</b>    | —                |
| Minimum Grid2 Voltage                        | <b>200 V</b>    | —                |
| Maximum Heater-Cathode Voltage During Warmup | <b>450 V</b>    | Duration<=15s    |
| Maximum Heater-Cathode Voltage After Warmup  | <b>180 V</b>    | —                |
| Typical Anode Voltage                        | <b>16000 V</b>  | CathodeDrive     |
| Typical Focus Voltage Minimum                | <b>0 V</b>      | Grid4            |
| Typical Focus Voltage Maximum                | <b>400 V</b>    | Grid4            |
| Typical Grid2 Voltage                        | <b>450 V</b>    | CathodeDrive     |
| Cathode Voltage for Raster Cutoff Minimum    | <b>45 V</b>     | CathodeDrive     |
| Cathode Voltage for Raster Cutoff Maximum    | <b>105 V</b>    | CathodeDrive     |
| Maximum Grid1 Circuit Resistance             | <b>1.5 Mohm</b> | —                |



## SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

# 1971 RCA HB3 Binder 1 of 7

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

1971 RCA HB3 BINDER 1 OF 7

## Section 1 · Cathode Ray

| CAPACITANCE                     |                 |                  |
|---------------------------------|-----------------|------------------|
| PARAMETER                       | PUBLISHED VALUE | CONDITION / NOTE |
| Grid 1 to all other electrodes  | <b>6 pF</b>     | —                |
| Cathode to all other electrodes | <b>5 pF</b>     | —                |

| PARAMETER                                        | PUBLISHED VALUE | CONDITION / NOTE |
|--------------------------------------------------|-----------------|------------------|
| External conductive coating to anode capacitance | —2500 pF        | —                |

| OTHER                                |                     |                         |
|--------------------------------------|---------------------|-------------------------|
| PARAMETER                            | PUBLISHED VALUE     | CONDITION / NOTE        |
| Maximum grid 2 voltage               | 500 V               | —                       |
| Maximum grid 1 voltage               | 640 V               | —                       |
| Maximum grid 1 negative-bias voltage | 140 V               | NegativeBias            |
| Maximum grid 1 positive-bias voltage | 0 V                 | PositiveBias            |
| Maximum grid 1 positive-peak voltage | 200 V               | PositivePeak            |
| Maximum grid 1 negative-peak voltage | 200 V               | NegativePeak            |
| Peak heater-cathode voltage          | 180 V               | HeaterNegativeOperating |
| Peak heater-cathode voltage          | 180 V               | HeaterPositive          |
| Projected screen area                | 262 in <sup>2</sup> | —                       |

| CHARACTERISTIC               |                 |                  |
|------------------------------|-----------------|------------------|
| PARAMETER                    | PUBLISHED VALUE | CONDITION / NOTE |
| Grid 2 current               | -15–15 µa       | —                |
| Diagonal deflection angle    | 90 deg          | Approximate      |
| Horizontal deflection angle  | 85 deg          | Approximate      |
| Vertical deflection angle    | 68 deg          | Approximate      |
| Faceplate light transmission | 74 %            | Approximate      |

## TUBE TINKER

An independent reference for electronic tubes, vacuum tubes, and their source documents.

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