

ELECTRONIC TUBE REFERENCE

17DQP4

Specialized - Cathode Ray electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION
CONSTRUCTION
CATHODERAY

Seventeen-inch direct-view television picture tube using low-voltage electrostatic focus and magnetic deflection. It is a high-voltage monochrome CRT with published screen, optical, focus, deflection, and operating data for receiver display service.

GENERAL CHARACTERISTICS

BASE DESIGNATION	—	BASE PINS	6
NOMINAL HEATER	6.3 V / 5 A	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	70 V
CRT-specific ratings, operating conditions, capacitances, focus/deflection, cutoff, optical, and screen data are retained in section parameters.	

17DQP4 Picture Tube

The **17DQP4** is a short, rectangular glass picture tube designed primarily for television receiver applications. It is characterized by its cathode-drive design, low-voltage electrostatic focusing system, and a wide 110-degree magnetic deflection angle. Featuring an aluminized screen with a P4-Sulfide Type phosphor, the tube is engineered to deliver bright, high-contrast displays without requiring an external ion-trap magnet.

Physical Construction and Envelope

The 17DQP4 is constructed with a rectangular glass envelope and a filterglass faceplate that provides approximately 77% light transmission to improve picture contrast under ambient light. The tube has a projected screen area of 155 square inches.

Key physical dimensions and mechanical characteristics include:

- **Overall Length:** 12-1/8 inches $\pm$ 1/4 inch
- **Neck Length:** 5 inches $\pm$ 1/8 inch
- **Weight:** Approximately 10 lbs
- **Operating Position:** Any
- **External Conductive Coating:** Regular Band type, featuring a grounding contact area located near the Reference Line.
- **Anode Connection:** Recessed Small Cavity cap (JEDEC No. J1-21)
- **Base:** Special 6-Pin base (JEDEC No. B6-214)

The external conductive coating, when grounded, forms a capacitor with the internal ultor electrode, which helps filter the high-voltage anode supply.

Heater and Basing Configuration

The 17DQP4 features a heater designed for series-string or parallel operation with a controlled warm-up time, making it suitable for use in receivers with series-connected heater strings.

- **Heater Voltage:** 6.3 V (nominal)
- **Heater Current:** 450 $\pm$ 5% mA
- **Average Heater Warm-Up Time:** 11 seconds

The tube uses the **7FA** basing designation, viewed from the bottom of the base. The electrical connections are assigned as follows:

Pin / Cap	Connection
Pin 2	Cathode
Pin 3	Heater
Pin 4	Heater
Pin 5	Grid No. 1 (Control Grid)
Pin 6	Grid No. 4 (Focusing Grid)
Pin 7	Grid No. 2
Cap	Ultor (Grid No. 3, Grid No. 5, Collector)
C	External Conductive Coating

Interelectrode Capacitances

The direct interelectrode capacitances of the 17DQP4 are relatively low, ensuring stable operation in cathode-drive configurations:

- **Grid No. 1 to all other electrodes:** 6 μF
- **Cathode to all other electrodes:** 5 μF
- **External conductive coating to ultor:** 1200 μF (minimum) to 1700 μF (maximum)

Maximum Ratings (Design-Maximum Values)

The following design-maximum ratings represent the limiting values of operating and environmental conditions under which the 17DQP4 can safely operate. These ratings must not be exceeded under any condition of supply voltage variation, signal variation, or component tolerances.

- **Ultor-to-Grid-No. 1 Voltage:** 17,600 max. V
- **Grid-No. 4-to-Grid-No. 1 (Focusing) Voltage:**
 - Positive value: 1100 max. V
 - Negative value: 550 max. V
- **Grid-No. 2-to-Grid-No. 1 Voltage:** 70 max. V
- **Cathode-to-Grid-No. 1 Voltage:**
 - Positive bias value: 150 max. V
 - Negative peak value: 2 max. V
- **Peak Heater-Cathode Voltage:**
 - Heater negative with respect to cathode during equipment warm-up (≤ 15 seconds): 450 max. V
 - Heater negative with respect to cathode after equipment warm-up: 200 max. V
 - Heater positive with respect to cathode: 200 max. V

Typical Operating Conditions (Cathode-Drive)

In a typical cathode-drive circuit configuration, the control grid (Grid No. 1) is often referenced to a common potential, and the video signal is applied directly to the cathode. Under these conditions, the typical operating parameters are:

- **Ultor-to-Grid-No. 1 Voltage:** 14,500 V
- **Grid-No. 2-to-Grid-No. 1 Voltage:** 50 V
- **Grid-No. 4-to-Grid-No. 1 Voltage for Focus:** -200 to +350 V
- **Cathode-to-Grid-No. 1 Voltage for Visual Extinction of Focused Raster:** 31 to 49 V

Maximum Circuit Values

- **Grid-No. 1-Circuit Resistance:** 1.5 max. $\text{M}\Omega$

The focusing voltage range of -200 to +350 V indicates that the low-voltage electrostatic focus electrode (Grid No. 4) can be adjusted within this span relative to Grid No. 1 to achieve optimum raster sharpness.

The cathode-to-grid voltage required to completely extinguish the focused raster (cutoff) falls between 31 V and 49 V when Grid No. 2 is operated at 50 V relative to Grid No. 1.

Technical Summary

The **17DQP4** is a highly integrated, 110-degree magnetic deflection cathode-ray tube designed for compact television chassis. Its short rectangular glass envelope, weighing approximately 10 lbs, minimizes cabinet depth while providing a generous 155 square inch viewing area. By utilizing a low-voltage electrostatic focusing mechanism (Grid No. 4) and an electron gun that operates without an ion-trap magnet, the tube simplifies receiver design and alignment. The controlled 11-second heater warm-up time and 450 mA current rating make it highly compatible with series-string heater topologies. Operating at a typical ultor voltage of 14,500 V, the 17DQP4 delivers a bright, well-focused image with excellent contrast, supported by its aluminized P4-Sulfide screen and 77% transmission filterglass faceplate.

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

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
LOW-VOLTAGE ELECTROSTATIC FOCUS	10 V	Published CRT datasheet value; multiple numbers on one source row represent its separate limits or operating conditions.
Heater Current at 6.3 volts – published value 1	6.3 V	Published CRT datasheet value; multiple numbers on one source row represent its separate limits or operating conditions.
Heater Current at 6.3 volts – published value 2	450 V	Published CRT datasheet value; multiple numbers on one source row represent its separate limits or operating conditions.
Heater Current at 6.3 volts – published value 3	5 V	Published CRT datasheet value; multiple numbers on one source row represent its separate limits or operating conditions.
Heater Warr~Up Time (Average)	11	Published CRT datasheet value; multiple numbers on one source row represent its separate limits or operating conditions.
Grid No.1 to all other electrodes	6	Published CRT datasheet value; multiple numbers on one source row represent its separate limits or operating conditions.
Light transmission (Approx.)	77	Published CRT datasheet value; multiple numbers on one source row represent its separate limits or operating conditions.
Projected Area of Screen	155	Published CRT datasheet value; multiple numbers on one source row represent its separate limits or operating conditions.
for focus – published value 1	-200 V	Published CRT datasheet value; multiple numbers on one source row represent its separate limits or operating conditions.
for focus – published value 2	350 V	Published CRT datasheet value; multiple numbers on one source row represent its separate limits or operating conditions.

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
visual extinction of focused raster – published value 1	31 V	Published CRT datasheet value; multiple numbers on one source row represent its separate limits or operating conditions.
visual extinction of focused raster – published value 2	49 V	Published CRT datasheet value; multiple numbers on one source row represent its separate limits or operating conditions.

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
External conductive coating to ultor	1700 mA	Published CRT datasheet value; multiple numbers on one source row represent its separate limits or operating conditions.
ULTOR-TORRID-No.1 VOLTAGE	17600 V	Published CRT datasheet value; multiple numbers on one source row represent its separate limits or operating conditions.
GRID-No.2-TORRID-No.1 VOLTAGE	70 V	Published CRT datasheet value; multiple numbers on one source row represent its separate limits or operating conditions.
Grid-No.1-Circuit Resistance	1.5 mA	Published CRT datasheet value; multiple numbers on one source row represent its separate limits or operating conditions.

TUBE TINKER

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

[Catalog](#) [Tube types](#) [Full books](#) [Blog](#) [Feedback & corrections](#)

© 2026 Tube Tinker