



ELECTRONIC TUBE REFERENCE

17QP4A

Specialized - Cathode Ray electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION
CONSTRUCTION
CATHODERAY

High-voltage P4 cathode-ray picture-display tube using magnetic deflection, with manufacturer data supporting wide-angle scanning and typical anode operation in the 12-14 kV range.

GENERAL CHARACTERISTICS

BASE DESIGNATION	BS-57	BASE PINS	5
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.

CRT-specific electrode/focus/deflection data retained as parameter rows.

17QP4A — Direct-View Cathode Ray Picture Tube

The **17QP4A** is a rectangular glass, direct-view cathode ray picture tube designed for television applications. It features an aluminized screen, which is the primary distinguishing feature separating it from the standard 17QP4. The tube incorporates a grey filter cylindrical faceplate with approximately 66% light transmission at the center to improve contrast. It utilizes magnetic focus and magnetic deflection, a unipotential cathode, and requires an external single-field ion trap.

Mechanical Specifications and Physical Dimensions

The 17QP4A is constructed with a rectangular glass envelope. Its physical dimensions and screen characteristics are as follows:

- **Overall Length:** 19 3/16 ± 3/8 inches
- **Greatest Bulb Dimensions:**
 - Diagonal: 16 5/8 ± 1/8 inches
 - Width: 15 3/8 ± 1/8 inches
 - Height: 12 1/4 ± 1/8 inches
- **Minimum Useful Screen Dimensions:**
 - Diagonal: 15 5/16 inches
 - Width: 14 1/4 inches
 - Height: 10 3/4 inches
 - Raster Size: 10 3/4 inches x 14 1/4 inches
- **Deflection Angles (Approximate):**
 - Horizontal: 65°
 - Vertical: 50°
 - Diagonal: 70°

The tube uses a recessed small cavity cap (J1-21) for the high-voltage anode contact, which aligns with the vacant pin position #6 within ± 30 degrees. The base is a small shell duodecal 5-pin base (B5-57) with a 12N basing arrangement.

Electrical Connections and Pinout

The bottom view of the small shell duodecal 5-pin base (B5-57) reveals the following pin connections:

- **Pin 1:** Heater
- **Pin 2:** Grid No. 1
- **Pin 10:** Grid No. 2
- **Pin 11:** Cathode
- **Pin 12:** Heater
- **Anode Cap:** Grid No. 3, Anode

Interelectrode Capacitances

The approximate interelectrode capacitances of the 17QP4A are:

- **Cathode to all other electrodes:** 5 µpf
- **Grid No. 1 to all other electrodes:** 6.5 µpf
- **External conductive coating to anode:** 750 µpf (minimum) to 1500 µpf (maximum)

Optical and Phosphor Characteristics

The 17QP4A utilizes a sulfide-type Phosphor No. 4. Its optical performance is characterized by:

- **Fluorescent Color:** White
- **Phosphorescent Color:** White

- **Persistence:** Medium
- **Faceplate:** Cylindrical grey filter with approximately 66% light transmission at the center.

Maximum Ratings (Design Center Values)

The operating limits for the 17QP4A are established under the Design Center system:

- **Heater Voltage:** 6.3 Volts
- **Heater Current:** 0.6 Ampere
- **Maximum DC Anode & Grid No. 3 Voltage:** 18,000 Volts
- **Maximum DC Grid No. 2 Voltage:** 500 Volts
- **Maximum Grid No. 1 Voltage:**
 - DC Negative-bias value: 125 Volts
 - DC Positive-bias value: 0 Volts
 - Positive-peak value: 2 Volts
- **Maximum DC Peak Heater-Cathode Voltage:**
 - Heater negative with respect to cathode during warm-up (≤ 15 seconds): 410 Volts
 - Heater negative with respect to cathode after warm-up: 150 Volts
 - Heater positive with respect to cathode: 150 Volts
- **Maximum Grid No. 1 Circuit Resistance:** 1.5 Megohms

Typical Operating Conditions and Characteristics

For typical television receiver applications, the 17QP4A is operated under the following conditions:

- **DC Anode & Grid No. 3 Voltage:** 14,000 Volts
- **DC Grid No. 2 Voltage:** 300 Volts
- **DC Grid No. 1 Voltage (for visual extinction of undeflected focused spot):** -28 to -72 Volts
- **DC Focusing Coil Current (Approximate):** 95 mA
 - *Note:* This current is specified using a standard focus coil #109 or equivalent, with the combined Grid No. 1 bias and video signal adjusted to produce a highlight brightness of 30 foot-lamberts on a 14 1/4" x 10 3/4" picture. The focus coil air gap center is positioned 3.0 inches from the reference line.
- **Ion Trap Field Intensity (Approximate):** 30 Gauss (using standard single-field coil #111)

Technical Summary

The **17QP4A** is a rectangular, direct-view television picture tube featuring magnetic focus, magnetic deflection, and an aluminized screen. Operating with a 6.3 V, 0.6 A heater, it provides a white, medium-persistence display using Phosphor No. 4. With a maximum anode rating of 18,000 V and typical operation at 14,000 V, it delivers high-brightness images on its 15 5/16-inch diagonal useful screen area. The tube requires an external single-field ion trap (typically 30 Gauss) and a standard focusing coil (typically 95 mA) to achieve optimal focus and spot extinction.



SOURCE OPERATING CONDITIONS

1961 Tung Sol

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

1961 TUNG SOL

Section 1 · Cathode Ray

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum Anode Voltage	18000 V	—
Typical Anode Voltage	14000 V	—
Maximum Grid2 Voltage	500 V	—
Typical Grid2 Voltage	300 V	—

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
FocusingMethod	Magnetic	—
DeflectingMethod	Magnetic	—
DeflectionAngleApproximate	90 degree	—
PhosphorNumber	4	—
FluorescentColor	White	—
Variant	Published faceplate/screen variant on shared datasheet	—



SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1966 Tung Sol Electronic Tubes 4 of 4

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

1966 TUNG SOL ELECTRONIC TUBES 4 OF 4

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CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
CATHODE TO ALL OTHER ELECTRODES	5 MMF	CATHODE TO ALL OTHER ELECTRODES 5 μ mf
MAXIMUM EkTERNAL CONDUCTIVE COATING TO ANODE	1500 MMF	MAXIMUM EkTERNAL CONDUCTIVE COATING TO ANODE 1 500 μ mf

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
HEATER VOLTAGE	6.3 V	HEATER VOLTAGE 6.3 VOLTS
HEATER CURRENT	600 mA	HEATER CURRENT 0.6 AMP.
HEATER POSITIVE WITH RESPECT TO CATHODE IS	0 V	HEATER POSITIVE WITH RESPECT TO CATHODE ISO VOLTS
DC GRID #2 VOLTAGE	300 V	DC GRID #2 VOLTAGE 300 VOLTS