

ELECTRONIC TUBE REFERENCE

CONSOLIDATED TECHNICAL DATA

16JP4

Specialized - Cathode Ray electronic tube

1 SECTION
CONSTRUCTION
CATHODERAY

Direct-view cathode-ray picture tube documented by manufacturer data for type 16JP4; available extracted technical detail is limited, so the description remains conservative.

GENERAL CHARACTERISTICS

BASE DESIGNATION	12N	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

SECTION1 Cathode Ray	
MAXIMUM SCREEN VOLTAGE	41 V
CRT-specific anode/focus/deflection ratings retained as parameters rather than mapped to ordinary plate/screen fields.	

16JP4 — Cathode Ray Picture Tube

The **16JP4** and **16JP4A** are direct-view, round glass cathode ray picture tubes designed primarily for television receiver applications. These tubes feature magnetic focus and deflection, a unipotential cathode, an external conductive coating, and require an external double-field ion trap magnet.

The two designations are electrically and mechanically identical, with the sole distinction being the faceplate treatment: the **16JP4A** incorporates a grey filter faceplate to enhance picture contrast under ambient light conditions, whereas the standard **16JP4** utilizes a clear faceplate.

Mechanical and Physical Construction

The 16JP4 and [16JP4A](#) are built using a round glass bulb construction. The physical envelope and mechanical dimensions are specified as follows:

- **Overall Length:** 20 3/4 ± 3/8 inches
- **Greatest Bulb Diameter:** 16 1/8 ± 1/4 inches
- **Minimum Useful Screen Diameter:** 15 inches
- **Neck Diameter:** 1 7/16 ± 1/16 inches
- **Deflection Angle (Approximate):** 60 degrees
- **Bulb Contact:** Recessed small cavity cap (J1-21)
- **Base:** Small shell duodecal 5-pin (B5-57)
- **Basing Configuration:** 12N
- **Anode Contact Alignment:** The J1-21 recessed cavity cap aligns with pin position #3 within a tolerance of ± 10 degrees.

Electrostatic and Interelectrode Capacitances

The tube structure includes an external conductive coating. When grounded, this coating forms a capacitor with the internal anode, which can be utilized for high-voltage ripple filtering. The approximate capacitances are:

Parameter	Value
Cathode to all other electrodes	5 µµF
Grid No. 1 to all other electrodes	6.5 µµF
Maximum external conductive coating to anode	2,000 µµF
Minimum external conductive coating to anode	750 µµF

Optical Characteristics

The screen utilizes a sulfide-type phosphor designated as Phosphor No. 4. Its optical performance parameters include:

- **Fluorescent Color:** White
- **Phosphorescent Color:** White
- **Persistence:** Medium
- **Faceplate Light Transmission:** Approximately 66% at the center (applicable to the grey filter faceplate of the [16JP4A](#)).

Electrical Connections and Basing

The 16JP4 and 16JP4A utilize a small shell duodecal 5-pin base with a **12N** basing arrangement. The pin connections, viewed from the bottom of the tube base, are allocated as follows:

- **Pin 1:** Heater
- **Pin 2:** Grid No. 1
- **Pin 10:** Grid No. 2
- **Pin 11:** Cathode
- **Pin 12:** Heater
- **Anode Cap:** Recessed small cavity cap (J1-21) provides the high-voltage connection to the anode.

Maximum Ratings (Design Center Values)

The operating limits of the 16JP4 and 16JP4A are established under the Design Center rating system. Operating the tubes beyond these limits may impair performance or cause permanent damage.

- **Heater Voltage:** 6.3 Volts
- **Heater Current:** 0.6 Ampere
- **Maximum DC Anode Voltage:** 14,000 Volts
- **Maximum DC Grid No. 2 Voltage:** 410 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 period (not to exceed 15 seconds):* 410 Volts
 - *After equipment warm-up period:* 125 Volts
 - **Heater Positive with respect to Cathode:** 125 Volts

Typical Operating Conditions and Characteristics

For standard television receiver operation, the typical electrical operating points and associated magnetic component requirements are defined as follows:

- **DC Anode Voltage:** 11,000 Volts
- **DC Grid No. 2 Voltage:** 250 Volts
- **DC Grid No. 1 Voltage:** -33 to -77 Volts (This range represents the bias voltage required to achieve visual extinction of the undeflected, focused spot)
- **DC Focusing Coil Current (Approximate):** 115 mA
- **DC Ion Trap Current (Approximate):** 120 mA (measured using a standard double-field ion trap coil #108)

Circuit Values

- **Maximum Grid No. 1 Circuit Resistance:** 1.5 Megohms

Technical Summary

The **16JP4** and **16JP4A** are 16-inch round glass, direct-view television picture tubes featuring magnetic focus, magnetic deflection (60-degree deflection angle), and a unipotential cathode. They operate with a standard 6.3 V, 0.6 A heater and require an external double-field ion trap. The tubes are identical except for the grey filter faceplate on the **16JP4A**, which provides approximately 66% light transmission at the center to improve contrast. Under typical operating conditions, the anode is operated at 11,000 V, Grid No. 2 at 250 V, and Grid No. 1 bias is adjusted between -33 V and -77 V for spot extinction. The design center maximum anode voltage is rated at 14,000 V, and the maximum Grid No. 1 circuit resistance is limited to 1.5 Megohms.



SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

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	14000 V	—
Typical Anode Voltage	11000 V	—
Maximum Grid2 Voltage	410 V	—
Typical Grid2 Voltage	250 V	—

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
DeflectionAngleApproximate	60 degree	—
FocusingMethod	Magnetic	—
DeflectingMethod	Magnetic	—
PhosphorNumber	4	—
FluorescentColor	White	—
Persistence	Medium	—



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

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
MAGNETIC FOCUS 8 DEFLECTION	8 mA	Published CRT datasheet value; multiple values on a row represent the source table's separate conditions/limits.
DEFLECTION	6 degrees	Published CRT datasheet value; multiple values on a row represent the source table's separate conditions/limits.
DC ANODE	11000 V	Published CRT datasheet value; multiple values on a row represent the source table's separate conditions/limits.
DC GRID #2 VOLTAGE – value 1	2 V	Published CRT datasheet value; multiple values on a row represent the source table's separate conditions/limits.
DC GRID #2 VOLTAGE – value 2	250 V	Published CRT datasheet value; multiple values on a row represent the source table's separate conditions/limits.
DC FOCUSING COIL CURRENT (APPROX.)	115 mA	Published CRT datasheet value; multiple values on a row represent the source table's separate conditions/limits.
DC ION TRAP CURRENT STANDARD CULL #108 (APPROX.) – value 1	108 mA	Published CRT datasheet value; multiple values on a row represent the source table's separate conditions/limits.
DC ION TRAP CURRENT STANDARD CULL #108 (APPROX.) – value 2	120 mA	Published CRT datasheet value; multiple values on a row represent the source table's separate conditions/limits.

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
MAXIMUM DC GRID #2 VOLTAGE – value 1	2 V	Published CRT datasheet value; multiple values on a row represent the source table's separate conditions/limits.
MAXIMUM DC GRID #2 VOLTAGE – value 2	41 V	Published CRT datasheet value; multiple values on a row represent the source table's separate conditions/limits.
MAXIMUM GRID #1 VOLTAGE	1 V	Published CRT datasheet value; multiple values on a row represent the source table's separate conditions/limits.
MAXIMUM GRID #1 CIRCUIT RESISTANCE	1 mA	Published CRT datasheet value; multiple values on a row represent the source table's separate conditions/limits.

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