



ELECTRONIC TUBE REFERENCE

17JN6A

Power - TV Horizontal Output (sweep) electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION
CONSTRUCTION
BEAMPOWER

Beam-power pentode designed for television horizontal-deflection service, electrically related to 6JN6A except for heater characteristics.

GENERAL CHARACTERISTICS

BASE DESIGNATION	—	BASE PINS	12
NOMINAL HEATER	16.8 V / 450 mA	PARALLEL HEATER	— / —
HEATING	Indirect	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION 1 Beam Power

No fixed ratings recorded.

Horizontal-deflection beam-power section; supplied sheet defers non-heater electrical data to 6JN6A.

17JN6A

The **17JN6A** (also written as **17JN6-A**) is a Compactron beam-power pentode designed primarily for use as a horizontal-deflection amplifier in color television receivers. It is part of a family of tubes that includes the [6JN6A](#) and [12JN6A](#), sharing identical electrical characteristics with the 6JN6-A except for its heater ratings. The 17JN6A is unilaterally interchangeable with the prototype [17JN6](#), with the "A" revision featuring a lower plate knee.

Mechanical Design, Base, and Pinout

The tube is constructed in a T-12 glass envelope (outline 12-56) utilizing a 12-pin button Compactron base (E12-74). The physical dimensions of the envelope are specified with a maximum overall height of 2.875 inches, a maximum seated height of 2.500 inches, and a maximum diameter of 1.563 inches.

To minimize the high-frequency oscillation phenomenon known as "snivets," the 17JN6A provides separate external pin connections for the beam plates (Grid No. 3). The tube utilizes the **12FK** basing diagram, which maps the internal electrodes to the 12-pin base as follows:

Pin Number	Connection
Pin 1	Heater
Pin 2	Grid No. 2 (Screen Grid)
Pin 3	Grid No. 3 (Beam Plates)
Pin 4	Cathode
Pin 5	No Connection
Pin 6	Plate
Pin 7	No Connection
Pin 8	Grid No. 3 (Beam Plates)
Pin 9	No Connection
Pin 10	Grid No. 3 (Beam Plates)
Pin 11	Grid No. 1 (Control Grid)
Pin 12	Heater

Heater and Cathode Ratings

The 17JN6A features a coated unipotential cathode. The heater is designed for series-string or parallel operation with the following nominal ratings and limits:

- **Heater Voltage (AC or DC):** 16.8 V (bogey value at 0.45 A)
- **Heater Current:** 0.45 ± 0.03 A (450 mA)
- **Average Heater Warm-up Time:** 11 seconds

The heater warm-up time is determined under a specific test condition: the time required for the voltage across the heater to reach 80% of its bogey value (13.44 V) when a voltage equal to four times the bogey value (67.2 V) is applied to a circuit consisting of the heater in series with a resistance equal to three times the bogey heater voltage divided by the bogey heater current (112 ohms).

Heater-Cathode Voltage Limits

- **Heater Negative with Respect to Cathode:** 200 V maximum (Total DC and Peak)
- **Heater Positive with Respect to Cathode:**
 - **DC:** 100 V maximum
 - **Total DC and Peak:** 200 V maximum

Electrical Characteristics and Typical Operation

Direct interelectrode capacitances, measured without an external shield, are as follows:

- **Grid No. 1 to Plate:** 0.34 pF
- **Input (Grid No. 1 to Cathode, Heater, Grid No. 2, and Grid No. 3):** 16 pF
- **Output (Plate to Cathode, Heater, Grid No. 2, and Grid No. 3):** 7 pF

Typical operating characteristics under Class A conditions are outlined below:

Parameter	Value
Plate Voltage	250 V
Grid No. 2 Voltage	150 V
Grid No. 1 Voltage	-22.5 V
Plate Current	70 mA
Grid No. 2 Current	2.4 mA
Transconductance	7300 umhos
Plate Resistance (Approx.)	150,000 ohms
Amplification Factor (Triode Connected)*	4.4

**Note: Triode-connected amplification factor is measured with 150 V applied to both the plate and Grid No. 2, and -22.5 V applied to Grid No. 1.*

Grid No. 1 Cutoff Characteristics

- At a plate voltage of 250 V and Grid No. 2 voltage of 150 V, the approximate Grid No. 1 voltage required to reduce the plate current to 1.0 mA is **-42 V**.
- At a plate voltage of 5000 V and Grid No. 2 voltage of 150 V, the approximate Grid No. 1 voltage required to reduce the plate current to 1.0 mA is **-100 V**.

Instantaneous Plate Knee Values

To evaluate performance at the knee of the plate characteristic curve, the following instantaneous values are specified under the conditions of plate voltage (E_b) = 55 V, Grid No. 2 voltage (E_{c2}) = 150 V, and Grid No. 1 voltage (E_{c1})(/tubes/C1) = 0 V:

- **Instantaneous Plate Current (I_b):** 345 mA
- **Instantaneous Grid No. 2 Current (I_{c2}):** 30 mA

Design Maximum Ratings

The ratings below are established under the Design Maximum Rating System for horizontal-deflection service. Operating the tube beyond these limits may impair reliability or cause permanent damage.

Parameter	Maximum Rating
DC Plate Supply Voltage (Boost + DC Power Supply)	770 V
Peak Positive Pulse Plate Voltage	6500 V
Peak Negative Pulse Plate Voltage	1500 V
Positive DC Beam Plate (Grid No. 3) Voltage	70 V
Plate Dissipation	17.5 W
Grid No. 2 (Screen Grid) Voltage	220 V
Grid No. 2 Dissipation	3.5 W
Negative DC Grid No. 1 Voltage	55 V
Peak Negative Grid No. 1 Voltage	330 V
Average Cathode Current	175 mA
Peak Cathode Current	550 mA
Grid No. 1 Circuit Resistance	1.0 M ohms
Bulb Temperature (at hottest point)	220 degrees C

Circuit Design and Operating Considerations

When designing horizontal-deflection circuits utilizing the 17JN6A, specific operating conditions must be maintained:

- **Pulse Duty Cycle:** For operation in standard 525-line, 30-frame television scanning systems, the duty cycle of the peak positive plate voltage pulse must not exceed 15% of one horizontal scanning cycle.
- **Grid Leak Bias Protection:** In stages that rely on grid leak bias for normal operation, the tube is vulnerable to excessive current if the drive signal is lost. Designers must incorporate an adequate cathode bias resistor or other protective circuitry to limit plate and screen dissipation to safe levels in the absence of excitation.

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1964 RMA EIA

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

1964 RMA EIA

Section 1 · Beam Power

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater Voltage	16.8 V	—
Heater Current	450 mA	—
Heater Warm-up Time	11 s	—
Electrical Characteristics Reference	6JN6A text	SuppliedSheetStatesIdenticalExceptHeaterCharacteristics