

ELECTRONIC TUBE REFERENCE

17JZ8A

Power - TV Vertical Output electronic tube

CONSOLIDATED TECHNICAL DATA
2 SECTIONS
CONSTRUCTION
BEAMPOWER-TRIODE

Combination triode and beam-power pentode designed specifically for television vertical oscillator and output-amplifier service.

GENERAL CHARACTERISTICS

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

12DZ - TERMINAL PINOUT

TERMINAL	SECTION	ELEMENT	STATUS
PIN1	–	H – Heater	CONNECTED
PIN2	B	P – Plate (Anode)	CONNECTED
PIN4	A	P – Plate (Anode)	CONNECTED
PIN6	A	G1 – Control Grid	CONNECTED
PIN7	A	G1 – Control Grid	CONNECTED
PIN8	A	G2 – Screen Grid	CONNECTED
PIN9	A	G3 – Suppressor Grid	CONNECTED
PIN9	A	K – Cathode	CONNECTED
PIN10	B	G1 – Control Grid	CONNECTED
PIN11	B	K – Cathode	CONNECTED
PIN12	–	H – Heater	CONNECTED

SECTION RATINGS

SECTION1 Triode	
PLATE RESISTANCE	8500 Ω
TRANSCONDUCTANCE	0.00235 S
AMPLIFICATION FACTOR	20
MAXIMUM PLATE VOLTAGE	250 V
MAXIMUM PLATE DISSIPATION	1 W
MAXIMUM CATHODE CURRENT	20 mA
<i>Vertical-deflection oscillator triode.</i>	

SECTION2 Beam Power	
PLATE RESISTANCE	13100 Ω
TRANSCONDUCTANCE	0.0077 S
MAXIMUM PLATE VOLTAGE	250 V
<i>Vertical-deflection amplifier beam-power pentode.</i>	

17JZ8A — Medium-Mu Triode and Beam-Power Pentode

The **17JZ8A** is a multi-unit vacuum tube containing a medium-mu triode and a beam-power pentode in a single envelope. It is designed primarily for use in television receivers, where the triode section serves as a vertical deflection oscillator and the pentode section operates as a vertical deflection amplifier. The 17JZ8A is a higher plate current version of the [17JZ8](#), developed to ensure adequate vertical deflection in television applications.

Mechanical Construction, Base, and Pinout

The 17JZ8A features coated unipotential cathodes and is housed in a T-9 glass bulb with a 9-58 outline. It utilizes a 12-pin button base (JEDEC E12-70) with a **12DZ** basing arrangement. The tube can be mounted in any position.

The pin connections for the 12DZ basing configuration are as follows:

- **Pin 1:** Heater
- **Pin 2:** Triode Plate
- **Pin 3:** No Connection
- **Pin 4:** Pentode Plate
- **Pin 5:** No Connection
- **Pin 6:** Pentode Grid 1
- **Pin 7:** Pentode Grid 1

- **Pin 8:** Pentode Grid 2
- **Pin 9:** Pentode Grid 3 / Pentode Cathode
- **Pin 10:** Triode Grid
- **Pin 11:** Triode Cathode
- **Pin 12:** Heater

Heater Ratings and Warm-up

The heater is designed for series heater circuits and features a controlled warm-up time.

- **Heater Voltage (AC or DC):** 16.8 V
- **Heater Current:** 0.45 ± 0.03 A
- **Warm-up Time:** 11 seconds

Direct Interelectrode Capacitances

The direct interelectrode capacitances of the 17JZ8A are measured without an external shield (unshielded):

Triode Unit

- **Grid 1 to Plate:** 3.6 pF
- **Input (G1 to H, K, G2 & BP):** 2.2 pF
- **Output (P to H, K, G2 & BP):** 0.7 pF

Pentode Unit

- **Grid 1 to Plate:** 0.34 pF
- **Input (G1 to H, K, G2 & BP):** 11 pF
- **Output (P to H, K, G2 & BP):** 7.0 pF

Electrical Characteristics and Typical Operation

The typical operating parameters for each section of the 17JZ8A are specified under distinct voltage and bias conditions.

Triode Unit (Class A)

- **Plate Voltage:** 150 V
- **Grid Voltage:** -5 V
- **Plate Current:** 5.5 mA
- **Plate Resistance:** 8,500 Ω
- **Transconductance:** 2,350 μmhos
- **Amplification Factor:** 20

- **Grid Cutoff Voltage** (for plate current of 10 μ A): -11 V

Pentode Unit

- **Plate Voltage:** 120 V
- **Grid 2 (Screen Grid) Voltage:** 110 V
- **Grid 1 (Control Grid) Voltage:** -8 V
- **Plate Current:** 56 mA
- **Grid 2 Current:** 3.5 mA
- **Plate Resistance:** 13,100 Ω
- **Transconductance:** 7,700 μ mhos
- **Grid Cutoff Voltage** (for plate current of 100 μ A): -25 V

Note on Operation: Pentode zero-bias values must only be applied for a short interval (2 seconds maximum) to prevent damage to the tube.

Maximum Ratings (Design Maximum Values)

The maximum ratings for the 17JZ8A are specified separately for each unit based on its intended service.

Triode Unit (as Vertical Deflection Oscillator)

- **Plate Voltage:** 250 max. V
- **Peak Negative Pulse Grid Voltage:** 400 max. V
- **Plate Dissipation:** 1.0 max. W
- **Cathode Current:** 20 max. mA
- **Peak Cathode Current:** 70 max. mA

Pentode Unit (as Vertical Deflection Amplifier)

- **Plate Voltage:** 250 max. V
- **Peak Positive Pulse Plate Voltage (Absolute Maximum):** 2,000 max. V
- **Grid 2 Voltage:** 200 max. V
- **Peak Negative Pulse Grid Voltage:** 150 max. V
- **Plate Dissipation:** 8 max. W
- **Grid 2 Dissipation:** 2 max. W
- **Cathode Current:** 70 max. mA
- **Peak Cathode Current:** 245 max. mA

Heater-Cathode Voltage Limits (Both Units)

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

- **Total DC and Peak:** 200 max. V

Grid 1 Circuit Resistance (Both Units)

- **Fixed Bias:** 1.0 max. MΩ
- **Cathode Resistor Bias:** 2.2 max. MΩ

Qualitative Curve Observations

The electrical behavior of the 17JZ8A is characterized by several sets of curves:

- **Triode Plate Characteristics:** These curves display plate current versus plate voltage for grid voltages ranging from 0 V down to -20 V in 2.5 V steps, illustrating the triode's linear region and cutoff behavior.
- **Pentode Plate Characteristics:** These curves show plate current and grid 2 current versus plate voltage with grid 1 voltages from 0 V to -12 V in 2 V steps (at a constant Grid 2 voltage of 110 V), demonstrating the knee characteristics typical of a beam-power pentode.
- **Triode Transfer Characteristics:** These curves plot plate current against grid voltage for plate voltages from 50 V to 250 V.
- **Pentode Transfer Characteristics:** These curves plot plate current, transconductance, and grid 2 current against grid 1 voltage for plate voltages of 120 V and 200 V (with Grid 2 held at 110 V).

Technical Summary

The **17JZ8A** is a specialized dual-unit vacuum tube combining a medium-mu triode and a beam-power pentode in a single T-9 envelope with a 12-pin button base. Designed for television vertical deflection circuits, it features a 16.8 V heater with an 11-second controlled warm-up time for series-string applications. The triode section, rated for vertical oscillator service, provides an amplification factor of 20 and a transconductance of 2,350 μmhos . The pentode section, optimized for vertical deflection amplifier service, delivers high plate current capability with a transconductance of 7,700 μmhos and can withstand peak positive plate pulses up to 2,000 V.

SOURCE OPERATING CONDITIONS

1965 Sylvania Electronic Tubes Vol3

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

1965 SYLVANIA ELECTRONIC TUBES VOL3

Section 1 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater voltage	16.8 V	—
Heater current	450 mA	—
Typical plate voltage	150 V	VerticalDeflection
Typical grid voltage	-5 V	VerticalDeflection
Typical plate current	5.5 mA	VerticalDeflection

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate resistance	8500 ohm	—
Transconductance	2350 uS	—
Amplification factor	20	—

1965 SYLVANIA ELECTRONIC TUBES VOL3

Section 2 · Beam Power

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater voltage	16.8 V	—
Heater current	450 mA	—
Typical plate voltage	120 V	VerticalDeflection
Typical screen-grid voltage	110 V	VerticalDeflection
Typical grid voltage	-8 V	VerticalDeflection
Typical plate current	56 mA	VerticalDeflection

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate resistance	13100 ohm	—
Transconductance	7700 uS	—

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