



ELECTRONIC TUBE REFERENCE

12GT5A

Power - TV Horizontal Output (sweep) electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION

CONSTRUCTION

BEAMPOWER

Improved television horizontal-output beam-power tube with controlled heater warm-up, approximately 17.5 W plate dissipation, and 6.5 kV positive pulse capability.

GENERAL CHARACTERISTICS

BASE DESIGNATION	—	BASE PINS	9
NOMINAL HEATER	12.6 V / 600 mA	PARALLEL HEATER	— / —
HEATING	Indirect	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION 1 Beam Power	
PLATE RESISTANCE	15000 Ω
TRANSCONDUCTANCE	0.0071 S
AMPLIFICATION FACTOR	4.4
MAXIMUM PLATE VOLTAGE	770 V
MAXIMUM SCREEN VOLTAGE	220 V
MAXIMUM PLATE DISSIPATION	17.5 W
MAXIMUM SCREEN DISSIPATION	3.5 W
MAXIMUM CATHODE CURRENT	175 mA

12GT5A — Beam Power Pentode

The 12GT5A is a Novar-type beam power pentode designed primarily for horizontal deflection amplifier service in television receivers. It features a 12.6-volt heater with controlled warm-up time and is characterized by its compact Novar T-12 envelope construction.

Physical Construction and Dimensions

The 12GT5A is constructed using the Novar T-12 glass envelope configuration. It utilizes a Novar Button 9-pin base, designated as the E9-88 base type, which features an exhaust tip located at the bottom of the base. The physical outline of the tube is designated as 12-95.

The physical dimensions of the 12GT5A are specified as follows:

- **Maximum Diameter:** 1.562 inches
- **Maximum Seated Height:** 2.500 inches
- **Maximum Overall Height:** 2.880 inches

The "A" revision of this tube series (which includes the 12GT5A, [6GT5A](#), and [17GT5A](#)) represents a physical redesign compared to the original non-A versions ([12GT5](#), [6GT5](#), and [17GT5](#)). The 12GT5A is identical to the older [12GT5](#) except for this physical construction, which incorporates a shorter glass bulb and a base design with the exhaust tip located at the bottom.

Heater Specifications and Pinout Configuration

The 12GT5A is designed for series or parallel heater circuits, featuring a controlled warm-up time. The heater characteristics and ratings are:

Parameter	Value
Heater Voltage (AC or DC)	12.6 V
Heater Current	0.600 ± 0.040 A
Average Warm-up Time	11 seconds

The tube uses the **9NZ** basing arrangement, which provides the following pin connections when viewed from the underside of the base:

Pin Number	Electrode Connection
Pin 1	Cathode (K)
Pin 2	Grid No. 1 (G1)
Pin 3	Grid No. 2 (G2 / Screen Grid)
Pin 4	Heater (H)
Pin 5	Heater (H)
Pin 6	Grid No. 1 (G1)
Pin 7	Grid No. 2 (G2 / Screen Grid)
Pin 8	Internal Connection (IC) — Do Not Use

Pin Number	Electrode Connection
Pin 9	Plate (P)

The duplicate connections for Grid No. 1 (Pins 2 and 6) and Grid No. 2 (Pins 3 and 7) are typical of high-performance beam power tubes, allowing for flexible circuit layout and improved heat dissipation or reduced lead inductance. Pin 8 is designated as an internal connection and should not be used for external circuit tie points.

Related Designations and Family Variations

The 12GT5A belongs to a closely related family of beam power tubes designed for horizontal deflection amplifier service. These tubes share identical internal structures and electrical characteristics, differing primarily in their heater configurations or physical envelope designs:

- **6GT5A:** The 12GT5A is electrically and physically identical to the [6GT5A](#), with the sole exception of the heater ratings. The [6GT5A](#) is designed for a different heater supply voltage and current.
- **17GT5A:** This is another family member sharing the same construction and characteristics, differing only in its heater requirements.
- **12GT5:** The [12GT5](#) is the predecessor to the 12GT5A. The 12GT5A is identical to the [12GT5](#) except for the base construction (which features the bottom exhaust tip) and the shorter bulb height of the "A" version.
- **6GT5 and 17GT5:** These represent the non-A versions of the corresponding 6-volt and 17-volt family members, which also feature the taller bulb and lack the bottom exhaust tip design of the "A" suffix variants.

Technical Summary

The **12GT5A** is a **Novar-type beam power pentode** housed in a compact **T-12 glass envelope** with a **9-pin E9-88 button base**. Specifically engineered for **horizontal deflection amplifier** service, the tube features a **12.6 V, 0.600 A heater** with an average **11-second warm-up time**. It utilizes the **9NZ basing diagram**, providing dual connections for both the control grid (Grid No. 1) and screen grid (Grid No. 2) to facilitate circuit layout. As an "A" suffix variant, it is distinguished from the original [12GT5](#) by its shorter bulb and bottom-positioned exhaust tip, while remaining electrically identical to the [6GT5A](#) except for its heater ratings.

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

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

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Section 1 · Beam Power

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater voltage	12.6 V	—
Heater current	600 mA	—
Maximum DC plate voltage	770 V	HorizontalDeflection
Peak positive-pulse plate voltage	6500 V	HorizontalDeflection
Maximum screen voltage	220 V	HorizontalDeflection
Average cathode current	175 mA	HorizontalDeflection
Plate dissipation	17.5 W	—
Heater warm-up time	11 s	ControlledWarmup

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage	250 V	ClassA
Screen voltage	150 V	ClassA
Plate current	70 mA	ClassA
Plate resistance	15000 ohm	ClassA
Transconductance	7100 uS	ClassA

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid-to-plate capacitance	0.26 pF	—

TUBE TINKER

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

