



ELECTRONIC TUBE REFERENCE

12SF5GT

Voltage - Triode (single) electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION

CONSTRUCTION

TRIODE

GT-envelope high-mu triode for Class-A voltage-amplifier service in receiving and general electronic equipment.

GENERAL CHARACTERISTICS

BASE DESIGNATION	6AB	BASE PINS	8
NOMINAL HEATER	12.6 V / 150 mA	PARALLEL HEATER	– / –
HEATING	Indirect	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION1 Triode	
PLATE RESISTANCE	66000 Ω
TRANSCONDUCTANCE	0.0015 S
AMPLIFICATION FACTOR	100
MAXIMUM PLATE VOLTAGE	300 V
<i>Promoted from printed maximum/characteristic columns; additional published values retained in TUBE_SECTION_PARAMETER.</i>	

12SF5GT — High-Mu Triode Vacuum Tube

The **12SF5GT** (including the **12SF5** designation) is an octal-based, indirectly heated high-mu triode designed for voltage amplification in Class A amplifier circuits.

Construction and Pinout

The 12SF5 and 12SF5GT are constructed with an indirectly heated cathode (heater-cathode type) and utilize an octal base. The physical dimensions and envelope configurations correspond to outline drawings 8-1 and 9-11.

The tube uses the **6AB** base connection diagram. Viewed from the bottom of the base, the pin assignments are as follows:

- **Pin 1:** Shell (S) / Metal envelope shield
- **Pin 2:** Heater (H)
- **Pin 3:** Grid (G)
- **Pin 6:** Plate (P)
- **Pin 7:** Heater (H)
- **Pin 8:** Cathode (K)

Pins 4 and 5 have no internal connections. The heater is designed to operate with a nominal supply of 12.6 V at a current of 0.15 A.

Electrical Ratings and Capacitances

The maximum electrical limits and interelectrode capacitances for the 12SF5 and 12SF5GT are specified as follows:

- **Maximum Plate Voltage:** 300 V
- **Input Capacitance:** 4.0 pF
- **Output Capacitance:** 3.6 pF
- **Grid-to-Plate Capacitance:** 2.4 pF

These capacitance values are specified without an external shield.

Class A Operating Points

Under typical Class A amplifier operating conditions, the tube is operated with the following parameters:

- **Plate Voltage:** 250 V
- **Grid Voltage:** -2.0 V (specified as 2.0 Neg Grid Volts)
- **Plate Current:** 0.9 mA
- **Plate Resistance (r_p):** 66,000 Ω
- **Transconductance (g_m):** 1,500 μmhos
- **Amplification Factor (μ):** 100

The high amplification factor of 100 indicates that the tube is optimized for high-gain voltage preamplification, where a small input signal at the grid produces a significantly larger voltage swing at the plate.

Technical Summary

The **12SF5GT** and **12SF5** are high-mu triode vacuum tubes featuring a 12.6 V, 0.15 A heater and an octal base with a 6AB pinout configuration. With a maximum plate voltage rating of 300 V, the tube is typically operated in Class A amplifier service at a plate voltage of 250 V and a grid bias of -2.0 V. Under these conditions, it provides an amplification factor of 100, a transconductance of 1,500 μmhos , and a plate current of 0.9 mA, making it highly effective for low-current, high-gain voltage amplification.

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

195X General Electric Essential Characteristics

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

195X GENERAL ELECTRIC ESSENTIAL CHARACTERISTICS

Section 1 · Triode

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Input capacitance	4 pF	Section1
Output capacitance	3.6 pF	Section1
Grid-to-plate capacitance	2.4 pF	Section1

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage	250 V	ClassA
Control-grid voltage	-2 V	ClassA
Plate current	0.9 mA	ClassA

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate resistance	66000 Ω	Section1
Transconductance	1500 μS	Section1
Amplification factor	100	Section1