



ELECTRONIC TUBE REFERENCE

16A6

Power - Pentode Single (NOT beam) (under 10W) electronic tube

CONSOLIDATED TECHNICAL
DATA

1 SECTION
CONSTRUCTION
PENTODE

Power-amplifier pentode with a 16.5 V heater designed for Class-A audio-output service. Its primary function is low-frequency power delivery to an output load.

GENERAL CHARACTERISTICS

BASE DESIGNATION	9BL	BASE PINS	9
NOMINAL HEATER	16.5 V / 300 mA	PARALLEL HEATER	– / –
HEATING	Indirect	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION1 Pentode	
PLATE RESISTANCE	20000 Ω
TRANSCONDUCTANCE	0.009 S
MAXIMUM PLATE VOLTAGE	250 V
MAXIMUM SCREEN VOLTAGE	250 V
MAXIMUM PLATE DISSIPATION	9 W
<i>Promoted from printed maximum-rating/characteristic columns; additional published values retained in TUBE_SECTION_PARAMETER.</i>	

16A6 — Power Amplifier Pentode

An indirectly heated power amplifier pentode designed for audio-frequency and power amplification applications.

Overview

The **16A6** is a power amplifier pentode designed for Class A amplifier service. It features an indirectly heated cathode with a nominal heater rating of **16.5 V** and **0.3 A**. The tube is constructed with a **9BL** base connection configuration and is housed in an envelope designated by the **6-4** outline drawing. It is capable of delivering a rated power output of **4.0 W** under typical operating conditions.

Physical and Heater Characteristics

The 16A6 utilizes an indirectly heated cathode structure. The heater is designed for operation at a nominal voltage of 16.5 V and a current of 0.3 A.

- **Heater Voltage:** 16.5 V
- **Heater Current:** 0.3 A
- **Calculated Heater Power:** 4.95 W (calculated as 16.5 V multiplied by 0.3 A)
- **Cathode Type:** Indirectly heated (heater-cathode construction)
- **Base Connection:** 9BL
- **Outline Drawing:** 6-4

Interelectrode Capacitances

The electrostatic capacitances of the 16A6 are specified without the use of an external shield. The direct interelectrode capacitances are as follows:

Capacitance Parameter	Value
Input Capacitance	11 pF
Output Capacitance	5.9 pF
Grid-to-Plate Capacitance	1.0 pF

The relatively low grid-to-plate capacitance of 1.0 pF is typical of pentode construction, helping to minimize feedback between the plate and the control grid.

Maximum Ratings

To ensure reliable operation and prevent premature failure, the operating potentials of the 16A6 must be maintained within the following maximum limits:

- **Maximum Plate Voltage:** 250 V
- **Maximum Screen (Grid No. 2) Voltage:** 250 V

Class A Amplifier Operating Conditions

Under typical Class A amplifier service, the 16A6 operates with equal plate and screen potentials. The typical operating parameters and performance characteristics are detailed below:

Parameter	Value
Plate Voltage	170 V
Screen Voltage	170 V
Negative Grid (Grid No. 1) Voltage	10.4 V
Plate Current	53 mA
Screen Current	10 mA
Plate Resistance (Approximate)	20,000 Ω
Transconductance (gm)	9,000 μmhos
Load Resistance	3,000 Ω
Rated Power Output	4.0 W

Operating Analysis and Calculations

At the specified operating point, the total cathode current is the sum of the plate and screen currents:

- **Total Cathode Current:** $53 \text{ mA} + 10 \text{ mA} = 63 \text{ mA}$

The static plate dissipation under these conditions is calculated as:

- **Plate Dissipation:** $170 \text{ V} * 0.053 \text{ A} = 9.01 \text{ W}$

The static screen dissipation is calculated as:

- **Screen Dissipation:** $170 \text{ V} * 0.010 \text{ A} = 1.70 \text{ W}$

With a load resistance of 3,000 Ω , the tube achieves a power output of 4.0 W. The high transconductance of 9,000 μmhos indicates that the tube has high sensitivity, requiring a relatively small input signal voltage to drive it to full rated output.

Technical Summary

The **16A6** is a high-sensitivity **power amplifier pentode** featuring a **16.5 V, 0.3 A** heater, a **9BL** base, and a **6-4** outline. It is rated for a maximum plate and screen voltage of **250 V**. In typical Class A amplifier service at **170 V** on both plate and screen, it exhibits a transconductance of **9,000 μmhos** , an approximate plate resistance of **20,000 Ω** , and delivers **4.0 W** of power output into a **3,000 Ω** load.

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 · Pentode

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Input capacitance	11 pF	Section1
Output capacitance	5.9 pF	Section1
Grid-to-plate capacitance	3 pF	Section1

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage	170 V	ClassA
Screen voltage	170 V	ClassA
Control-grid voltage	-10.4 V	ClassA
Plate current	53 mA	ClassA
Screen current	10 mA	ClassA
Load resistance	3000 Ω	ClassA
Power output	4 W	ClassA

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate resistance	20000 Ω	ClassA
Transconductance	9000 μS	ClassA

TUBE TINKER

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