

## MECHANICAL DATA

|                   |                                                      |
|-------------------|------------------------------------------------------|
| Bulb              | T-9                                                  |
| Base              | Small Button Novar 9-Pin E9-75<br>(B7-233 or B8-142) |
| Outline           | 9-85                                                 |
| Basing            | 9NZ                                                  |
| Cathode           | Coated Unipotential                                  |
| Mounting Position | Any                                                  |

## ELECTRICAL DATA

### HEATER CHARACTERISTICS AND RATINGS

#### Average Characteristics

##### Heater Operation

##### Parallel

|                             |           |
|-----------------------------|-----------|
| Heater Voltage <sup>1</sup> | 6.3 Volts |
| Heater Current              | 800 Ma    |

#### Ratings (Design Maximum Values)<sup>3</sup>

##### Min-Max

|                                         |                 |
|-----------------------------------------|-----------------|
| Heater Voltage <sup>2</sup>             | 5.7 - 6.9 Volts |
| Maximum Heater-Cathode Voltage          |                 |
| Heater Negative with Respect to Cathode |                 |
| Total DC and Peak                       | 200 Volts       |
| Heater Positive with Respect to Cathode |                 |
| DC                                      | 100 Volts       |
| Total DC and Peak                       | 200 Volts       |

### DIRECT INTERELECTRODE CAPACITANCES (Unshielded)

|                     |         |
|---------------------|---------|
| Grid No. 1 to Plate | 0.15 pf |
| Input               | 11 pf   |
| Output              | 4.4 pf  |

### RATINGS (Design Maximum Values)<sup>3</sup>

|                                     |             |
|-------------------------------------|-------------|
| Plate Voltage                       | 550 Volts   |
| Grid No. 2 Voltage                  | 440 Volts   |
| Plate Dissipation                   | 19 Watts    |
| Grid No. 2 Dissipation <sup>4</sup> | 3.3 Watts   |
| Cathode Current                     | 90 Ma       |
| Grid No. 1 Circuit Resistance       |             |
| Fixed Bias                          | 0.3 Megohms |
| Self Bias                           | 1.0 Megohms |

### CHARACTERISTICS AND TYPICAL OPERATION

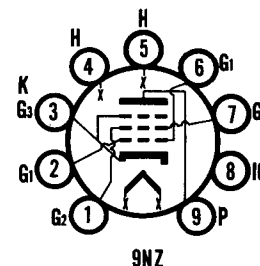
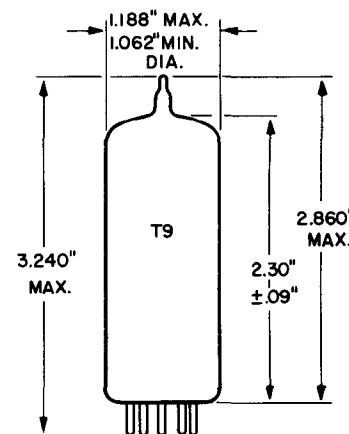
#### Pentode Operation Ultra-Linear Operation S.T.—Class A1 Amp Class AB1—Push-Pull

|                                |       |        |              |
|--------------------------------|-------|--------|--------------|
| Plate Voltage                  | 300   | 400    | 425 Volts    |
| Grid No. 2 Voltage             | 300   | Note 5 | Note 5       |
| Grid No. 1 Voltage             | -10   | -20.5  | — Volts      |
| Cathode Resistor               | —     | —      | 185 Ohms     |
| Peak AF Grid Voltage           | 10    | 41     | 42 Volts     |
| Zero Signal Plate Current      | 60    | 60     | 88 Ma        |
| Max. Signal Plate Current      | 75    | 115    | 100 Ma       |
| Zero Signal Grid No. 2 Current | 8     | 8      | 12 Ma        |
| Max. Signal Grid No. 2 Current | 15    | 18     | 16 Ma        |
| Transconductance               | 10.2K | —      | — $\mu$ mhos |
| Plate Resistance (Approx.)     | 29K   | —      | — Ohms       |
| Load Resistance                | 3K    | —      | — Ohms       |
| Load Resistance (PL to PL)     | —     | 6600   | 6600 Ohms    |
| Power Output                   | 11    | 23     | 21 Watts     |
| Total Harmonic Distortion      | 13    | 2.5    | 3.5 Percent  |

## QUICK REFERENCE DATA

The 7868 is a power pentode contained in a T-9 bulb with a 9-pin Novar base. It is designed for output stages in high fidelity audio amplifiers and can furnish relatively high power output, with low distortion.

In Push-Pull Class AB1 applications, two 7868's can deliver a maximum signal power of 44 watts, with 5 % total harmonic distortion.



## SYLVANIA ELECTRONIC TUBES

A Division of  
Sylvania Electric Products Inc.

### RECEIVING TUBE OPERATIONS

#### EMPORIUM, PA.

Prepared and Released By The  
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## CHARACTERISTICS AND TYPICAL OPERATION (Continued)

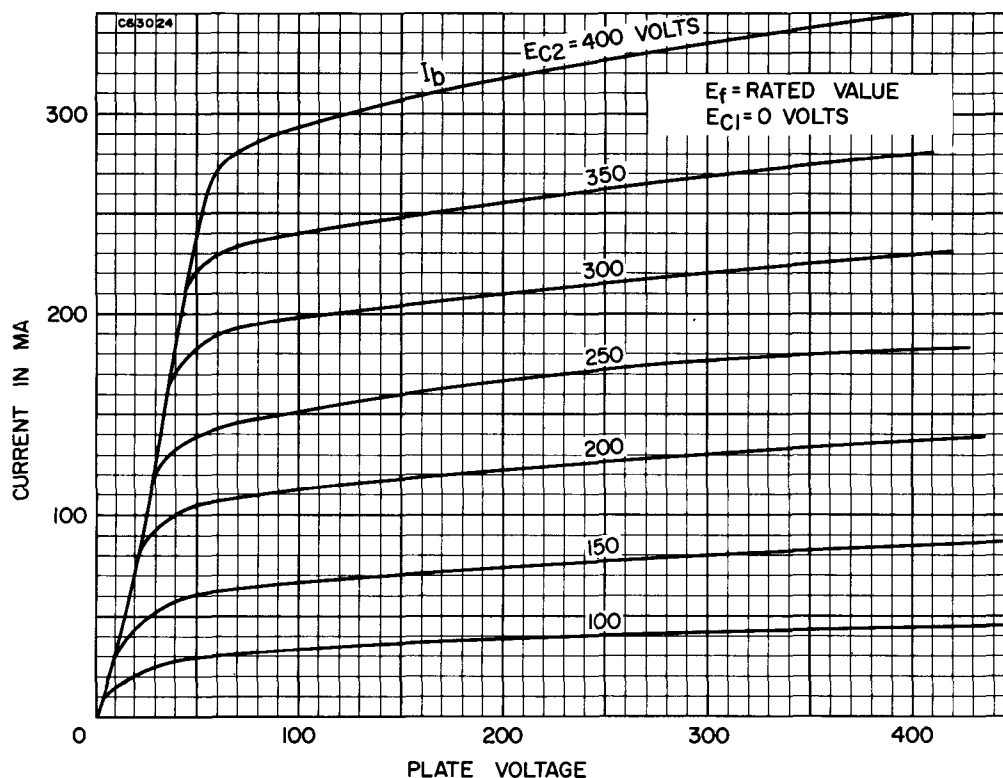
### Pentode Operation (Class AB1 Push-Pull Amp.)

|                                |       |       |      |       |      |             |
|--------------------------------|-------|-------|------|-------|------|-------------|
| Plate Voltage                  | 300   | 350   | 400  | 450   | 450  | 450 Volts   |
| Grid No. 2 Voltage             | 300   | 350   | 350  | 350   | 400  | 400 Volts   |
| Grid No. 1 Voltage             | -12.5 | -15.5 | -16  | -16.5 | -21  | — Volts     |
| Cathode Resistor               | —     | —     | —    | —     | —    | 170 Ohms    |
| Peak AF Grid to Grid Voltage   | 25    | 31    | 32   | 33    | 42   | 31 Volts    |
| Zero Signal Plate Current      | 74    | 72    | 64   | 60    | 40   | 86 Ma       |
| Max. Signal Plate Current      | 116   | 130   | 135  | 142   | 145  | 94 Ma       |
| Zero Signal Grid No. 2 Current | 10    | 9.5   | 8    | 7.2   | 5    | 10 Ma       |
| Max. Signal Grid No. 2 Current | 28    | 32    | 28   | 26    | 30   | 20 Ma       |
| Load Resistance (PL to PL)     | 6600  | 6600  | 6600 | 6600  | 6600 | 10,000 Ohms |
| Power Output                   | 24    | 30    | 34   | 38    | 44   | 28 Watts    |
| Total Harmonic Distortion      | 5     | 2.5   | 2    | 2.5   | 5    | 2 Percent   |

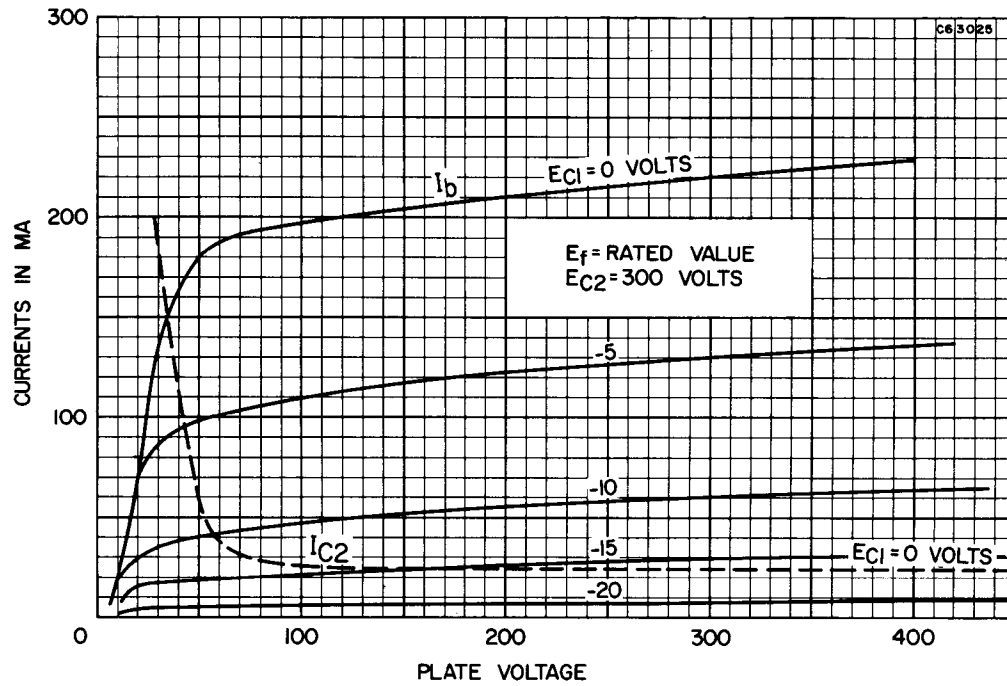
### NOTES:

1. For parallel operation of heaters, equipment should be designed that at normal supply voltage bogey tubes will operate at this value of heater voltage.
2. Heater voltage supply variations shall be restricted to maintain heater voltage within the specified values.
3. Design Maximum Ratings are limiting values of operating and environmental conditions applicable to a bogey electron tube of a specified type as defined by its published data and should not be exceeded under the worst probable conditions.  
The tube manufacturer chooses these values to provide acceptable serviceability of the tube, making allowance for the effects of changes in operating conditions due to variations in the characteristics of the tube under consideration.  
The equipment manufacturer should design so that initially and throughout life no design maximum value for the intended service is exceeded with a bogey tube under the worst probable operating conditions with respect to supply voltage variation, equipment component variation, equipment control adjustment, load variation, signal variation, environmental conditions, and variations in the characteristics of all other electron devices in the equipment.
4. Grid No. 2 Dissipation may be permitted to reach 6 watts during the periods of maximum input of speech and music signals. For efficient operation of Grid No. 2, the two Grid No. 2 connections, Pins 1 and 7, should be externally tied together.
5. Grid No. 2 tapped from the primary winding of output transformer, in a manner to apply 50 % of plate signal to G2 of each tube.

### AVERAGE PLATE CHARACTERISTICS



### AVERAGE PLATE CHARACTERISTICS



### POWER OUTPUT AND DISTORTION

