

# DESCRIPTION AND RATING

## PENTODE GL-5899

FIVE-STAR TUBE

★ ★ ★ ★ ★

The GL-5899 is a subminiature semi-remote-cutoff pentode intended for use as a wide-band, high-frequency amplifier. Its semi-remote-cutoff characteristic makes it suitable for use in circuits to which it is desired to apply automatic-gain-control. This tube is designed for service under severe conditions of mechanical shock and mechanical vibration, and where high ambient temperatures will be encountered. The tube is especially suited for compact military applications because of its dependable performance, stable operating characteristics, and small size.

## TECHNICAL INFORMATION

### GENERAL

#### Electrical

Cathode - Coated Unipotential

Heater Voltage (A-c or D-c\*)

6.3  $\pm$  5% Volts

Heater Current

0.15 Ampere

Direct Interelectrode Capacitances

With Shield†

Without Shield

Grid-No. 1 to Plate, maximum

0.015

0.03 uuf

Input

4.2

4.0 uuf

Output

3.4

1.9 uuf

#### Mechanical

Mounting Position - Any

Envelope - T-3, Glass

Base - E8-10, Subminiature Button 8-Lead

### MAXIMUM RATINGS

Electrical - Absolute Maximum Values

Plate Voltage

165 Volts

Screen Voltage

155 Volts

Negative D-c Grid-No. 1 Voltage

55 Volts

Plate Dissipation

1.1 Watts

Screen Dissipation

0.55 Watt

D-c Cathode Current

16.5 Milliamperes

Heater-Cathode Voltage

Heater Positive with Respect to Cathode

200 Volts

Heater Negative with Respect to Cathode

200 Volts

#### Mechanical

Peak Impact Acceleration #

450 G

Uniform Acceleration §

1000 G

Vibrational Acceleration π

2.5 G

Bulb Temperature at Hottest Point Δ

+250 Centigrade

# CHARACTERISTICS AND TYPICAL OPERATION

## Class A<sub>1</sub> Amplifier

|                                  |       |              |
|----------------------------------|-------|--------------|
| Plate Voltage                    | 100   | Volts        |
| Screen Voltage                   | 100   | Volts        |
| Cathode-bias Resistor            | 120   | Ohms         |
| Plate Resistance, approximate    | 0.26  | Megohm       |
| Transconductance                 | 4500  | Micromhos    |
| Plate Current                    | 7.2   | Milliamperes |
| Screen Current                   | 2.0   | Milliamperes |
| Grid-No. 1 Voltage, approximate  |       |              |
| Gm = 25 Micromhos                | -14   | Volts        |
| Maximum Noise Output Voltage ◇   | 0.060 | Volts        |
| Life Expectancy                  |       |              |
| For Ambient Temperature = +30 C  | 5000  | Hours        |
| For Ambient Temperature = +175 C | 1000  | Hours        |

\* Tube life and reliability of performance are directly related to the degree of regulation of the heater voltage to its center-rated value of 6.3 volts.

† With external shield of 0.405-inch inside diameter connected to cathode.

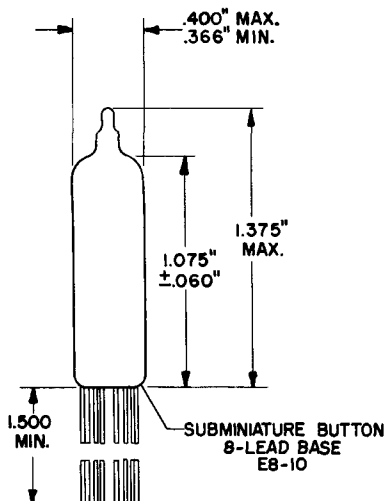
# Forces in any direction as applied by the Navy-type, High Impact (flyweight) Shock Machine for Electronic Devices or its equivalent.

§ Forces in any direction applied gradually as in a centrifuge.

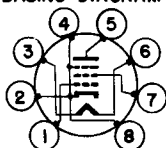
π Vibrational forces in any direction for a period of at least 100 hours at a frequency of 60 cycles per second.

Δ The indicated maximum bulb temperature rating should never be exceeded under any circumstances. Tube life and reliability of performance will be enhanced by operation at lower temperatures.

◇ Across a plate load resistor of 10,000 ohms with an applied vibrational acceleration of 15 G at a frequency of 40 cycles per second.



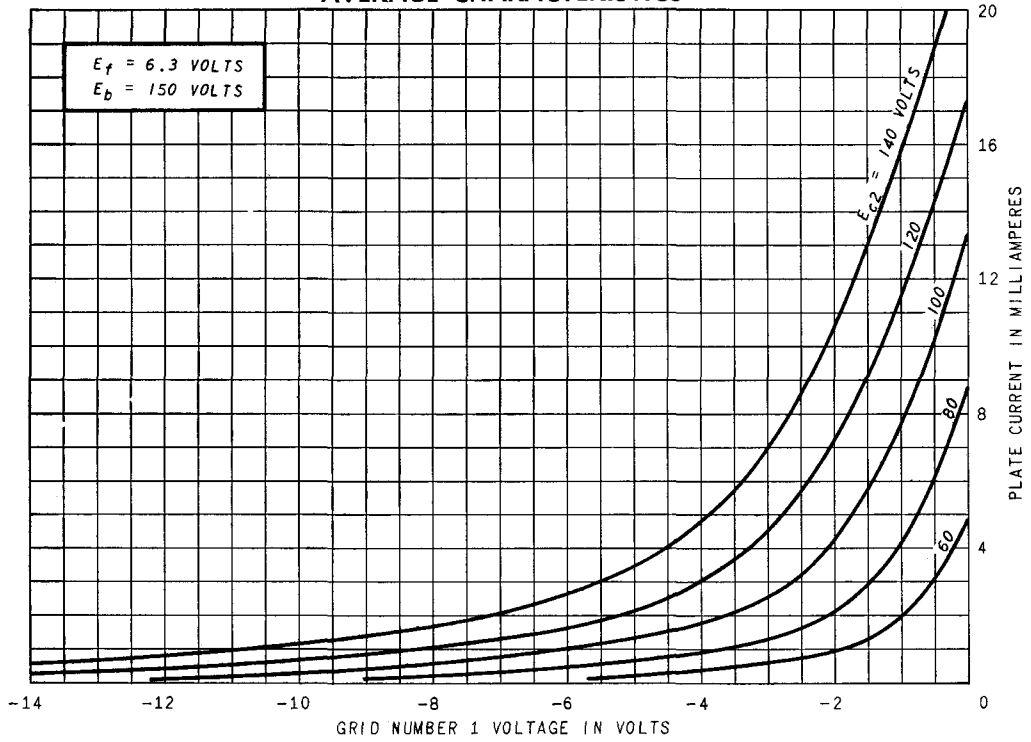
BASING DIAGRAM



8DL  
(BOTTOM VIEW)

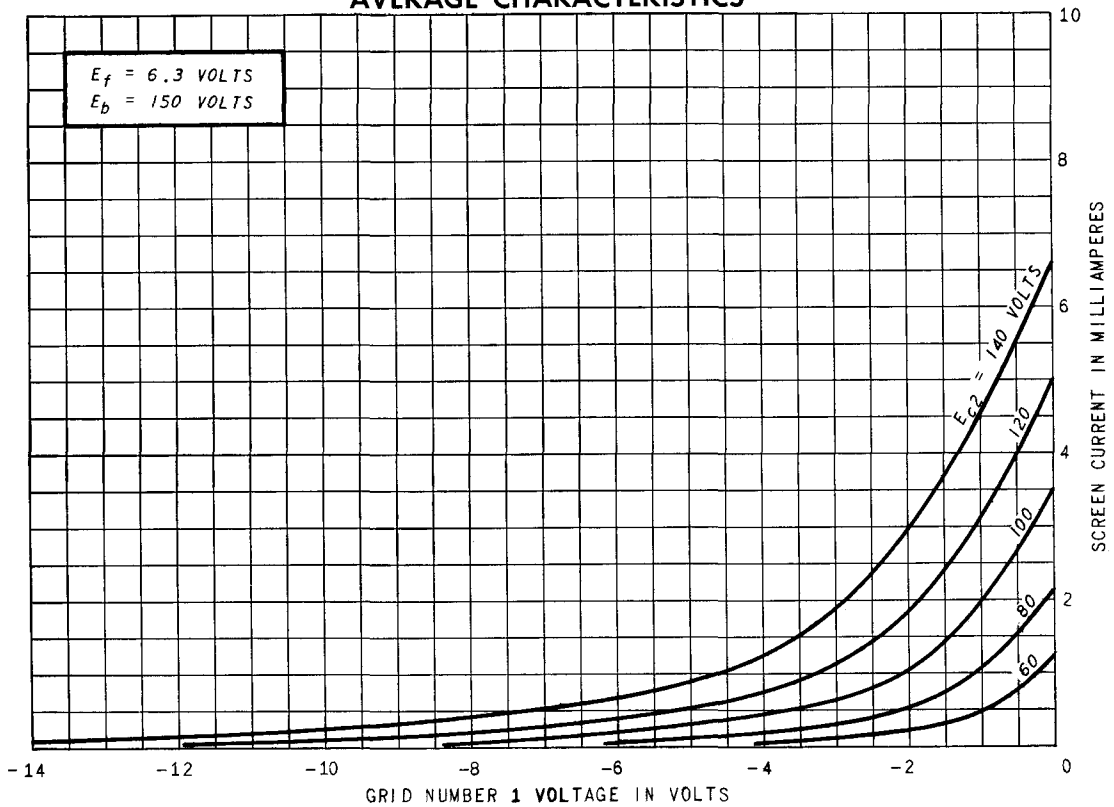
- LEAD 1: - GRID NUMBER 1
- LEAD 2: - CATHODE AND GRID NUMBER 3
- LEAD 3: - HEATER
- LEAD 4: - CATHODE AND GRID NUMBER 3
- LEAD 5: - PLATE
- LEAD 6: - HEATER
- LEAD 7: - GRID NUMBER 2 (SCREEN)
- LEAD 8: - CATHODE AND GRID NUMBER 3

# AVERAGE CHARACTERISTICS

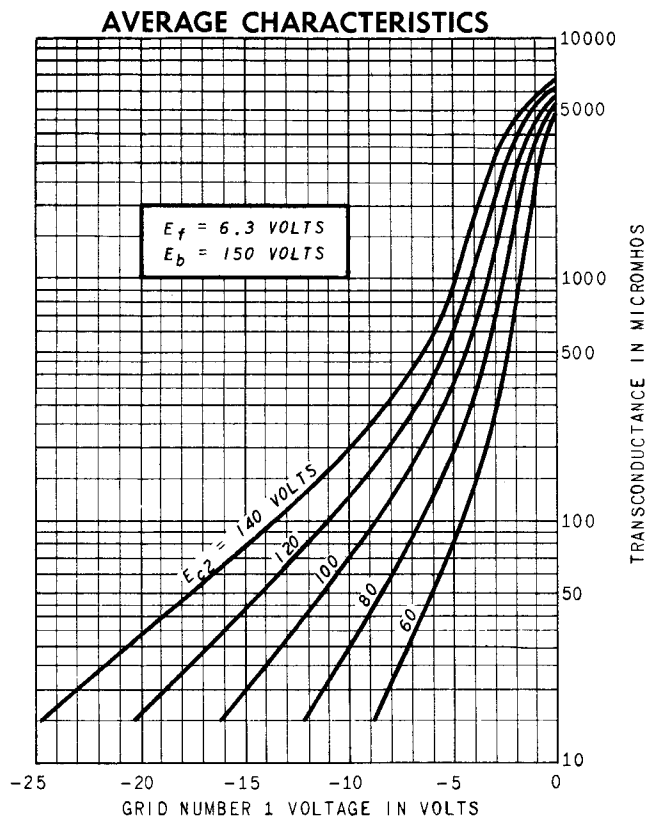


April 3, 1953

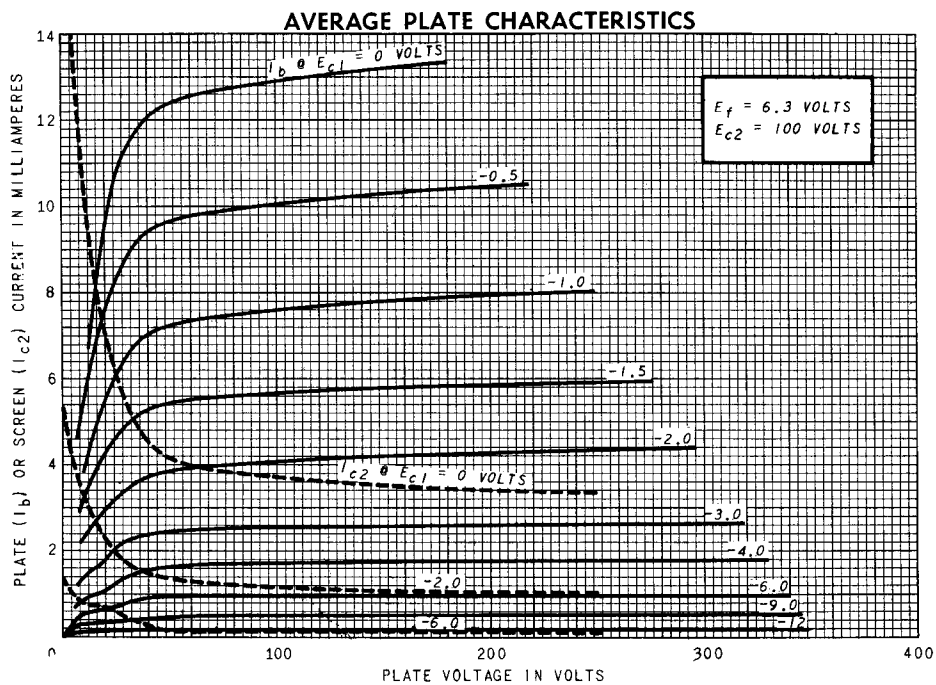
# AVERAGE CHARACTERISTICS



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TUBE DEPARTMENT  
**GENERAL  ELECTRIC**  
 Schenectady 5, N. Y.