



**ELECTRONIC  
INNOVATIONS**  
IN ACTION

**TUBES**

**GL-6283**

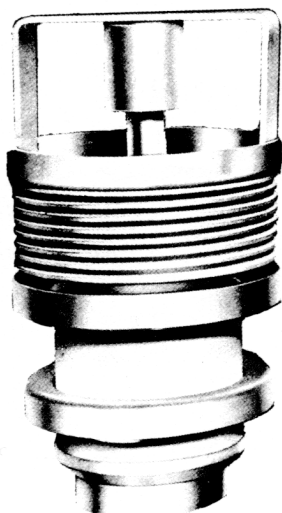
ET-T1050B

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**GL-6283**

## TETRODE



**RADIO-FREQUENCY AMPLIFIER  
CW SERVICE  
GROUNDED-GRID OPERATION**

The GL-6283 is a reliable power tetrode that delivers useful output to 1250 megacycles or higher. This tube is particularly suitable for application in the final output or driver stage of military-communications systems.

As a Class B linear amplifier in the 225-400-megacycle range, the tube will deliver 110 watts of carrier power modulated up to 100 percent. Since a power gain of 20 may be realized, drive requirements are low—approximately 5 watts at carrier level.

**FORCED-AIR COOLED  
METAL AND CERAMIC  
INTEGRAL RADIATOR**

Operating as a Class C CW amplifier at 900 megacycles, the gain is approximately 15 at the 200-watt level.

Features of the GL-6283 include long life and reliability, high gain, high linearity, and resistance to shock and vibration.

These together with such design factors as an oxide-coated cathode, coaxial elements, and metal-ceramic construction make the tube well adapted to application in modern systems where performance and reliability are important.

| Electrical                                                                        |         |       |         | Thermal                                                    |      |      |                |
|-----------------------------------------------------------------------------------|---------|-------|---------|------------------------------------------------------------|------|------|----------------|
|                                                                                   | Minimum | Bogey | Maximum |                                                            |      |      |                |
| Heater Voltage*                                                                   | —       | 6.3   | 6.8     | Cooling—Forced Air§<br>Through Radiator, at<br>Sea Level** |      |      |                |
| Heater Current                                                                    | —       | 3.8   | —       | Plate Dissipation...                                       | 500  | 400  | 300 Watts      |
| Cathode Heating Time                                                              | 1       | —     | —       | Air Flow, 45 C In-                                         |      |      |                |
| Amplification Factor,<br>G <sub>2</sub> to G <sub>1</sub> , E <sub>b</sub> =1000V | —       | —     | —       | coming Air Tem-                                            |      |      |                |
| DC; E <sub>2</sub> =275V DC;                                                      | —       | —     | —       | perature, mini-                                            |      |      |                |
| I <sub>b</sub> =0.2 A DC                                                          | —       | 14    | —       | mum                                                        | 17.0 | 12.0 | 6.5 Cubic Feet |
| Peak Cathode Current†                                                             | —       | —     | 1.75    | Static Pressure, ap-                                       |      |      |                |
| Direct Interelectrode                                                             | —       | —     | —       | proximate                                                  | 0.9  | 0.5  | 0.2 Inches-    |
| Capacitances                                                                      | —       | —     | —       | Radiator Hub Tem-                                          |      |      |                |
| Cathode to Plate‡                                                                 | —       | 0.006 | —       | perature, at Point                                         |      |      |                |
| Input, G <sub>2</sub> tied to G <sub>1</sub>                                      | —       | 18.25 | —       | Adjacent to Anode                                          |      |      |                |
| Output, G <sub>2</sub> tied to G <sub>1</sub> §                                   | —       | 6.4   | —       | Seal                                                       | —    | —    | 250 C          |
| Mechanical                                                                        |         |       |         | Seals                                                      |      |      |                |
| Mounting Position—Any                                                             |         |       |         | Screen-Grid to Con-                                        |      |      |                |
| Net Weight, approximate                                                           |         |       |         | trol-Grid, approxi-                                        | —    | —    | 1 Cubic Feet   |
|                                                                                   |         |       |         | mate                                                       |      |      |                |
|                                                                                   |         |       |         | Heater to Cathode,                                         | —    | —    | 1 Cubic Feet   |
|                                                                                   |         |       |         | approximate                                                |      |      |                |
|                                                                                   |         |       |         | Ceramic Temperature                                        |      |      |                |
|                                                                                   |         |       |         | at Any Point, maxi-                                        | —    | —    | 200 C          |
|                                                                                   |         |       |         | mum                                                        |      |      |                |

### RADIO-FREQUENCY POWER AMPLIFIER—CLASS B LINEAR

Carrier conditions per tube for use with a maximum modulation factor of 1.0

| Maximum Ratings       |               | Typical Operation                                       |                 |
|-----------------------|---------------|---------------------------------------------------------|-----------------|
| DC Plate Voltage      | 2000 Volts    | Grounded-Grid Circuit at 225-400 Megacycles             |                 |
| DC Grid-No. 2 Voltage | 320 Volts     | DC Plate Voltage                                        | 1750 Volts      |
| DC Plate Current      | 0.250 Amperes | DC Grid-No. 2 Voltage                                   | 250 Volts       |
| Plate Input           | 500 Watts     | DC Grid-No. 1 Voltage, approximate                      | -20 Volts       |
| Grid-No. 2 Input      | 5 Watts       | Peak RF Plate Voltage #, approximate                    | 1250 Volts      |
| Plate Dissipation     | 500 Watts     | Peak RF Grid-No. 1 Voltage #, approximate               | 40 Volts        |
|                       |               | DC Plate Current                                        | 0.200 Amperes   |
|                       |               | Zero Signal DC Plate Current (E <sub>cl</sub> adjusted) | 0.020 Amperes • |
|                       |               | DC Grid-No. 2 Current                                   | 0.005 Amperes   |
|                       |               | DC Grid-No. 1 Current                                   | 0.010 Amperes   |
|                       |               | Driving Power, approximate                              | 5 Watts         |
|                       |               | Power Output ♥                                          | 110 Watts       |

**GENERAL  ELECTRIC**

## RADIO-FREQUENCY AMPLIFIER—CLASS B TELEVISION SERVICE

Synchronizing-Level Conditions Per Tube Unless Otherwise Specified

## Maximum Ratings, Absolute Values

|                             |                   |
|-----------------------------|-------------------|
| DC Plate Voltage.....       | 1600 Max Volts    |
| DC Grid-No. 2 Voltage.....  | 320 Max Volts     |
| DC Plate Current.....       | 0.400 Max Amperes |
| Plate Input.....            | 600 Max Watts     |
| Grid-No. 2 Input.....       | 15 Max Watts      |
| Plate Dissipation.....      | 500 Max Watts     |
| Grid-No. 1 Dissipation..... | 2 Max Watts       |

## Typical Operation—Grounded-Grid Circuit up to 900 Megacycles

|                            |            |
|----------------------------|------------|
| Bandwidth 6 Megacycles     |            |
| DC Plate Voltage.....      | 1500 Volts |
| DC Grid-No. 2 Voltage..... | 250 Volts  |
| DC Grid-No. 1 Voltage..... | —25 Volts  |
| Peak RF Plate Voltage      |            |
| Synchronizing Level.....   | 1100 Volts |
| Pedestal Level.....        | 825 Volts  |
| Peak RF Driving Voltage    |            |
| Synchronizing Level.....   | 35 Volts   |
| Pedestal Level.....        | 27 Volts   |

## DC Plate Current

|                                             |               |
|---------------------------------------------|---------------|
| Synchronizing Level.....                    | 0.400 Amperes |
| Pedestal Level.....                         | 0.295 Amperes |
| DC Grid-No. 2 Current (Pedestal Level)..... | 0.007 Amperes |
| DC Grid-No. 1 Current                       |               |
| Synchronizing Level.....                    | 0.036 Amperes |
| Pedestal Level.....                         | 0.016 Amperes |
| Driving Power at Tube, approximate          |               |
| Synchronizing Level.....                    | 25 Watts      |
| Pedestal Level.....                         | 15 Watts      |
| Power Output, approximate                   |               |
| Synchronizing Level†.....                   | 260 Watts     |
| Pedestal Level‡.....                        | 145 Watts     |

## RADIO-FREQUENCY POWER AMPLIFIER AND OSCILLATOR—CLASS C TELEGRAPHY

Key-down conditions per tube without amplitude modulation △

| Maximum Ratings             | 900        | 400        | Typical Operation                       |                                 |       |       |        |
|-----------------------------|------------|------------|-----------------------------------------|---------------------------------|-------|-------|--------|
|                             | Megacycles | Megacycles | Grounded-Grid Circuit at 900 Megacycles |                                 |       |       |        |
| DC Plate Voltage.....       | 1600       | 2000       | Volts                                   | DC Plate Voltage.....           | 1500  | 2000  | Volts  |
| DC Grid-No. 2 Voltage.....  | 320        | 320        | Volts                                   | DC Grid-No. 2 Voltage.....      | 210   | 225   | Volts  |
| DC Grid-No. 1 Voltage.....  | —100       | —100       | Volts                                   | DC Grid-No. 1 Voltage.....      | —40   | —40   | Volts  |
| DC Plate Current.....       | 0.300      | 0.300      | Ampere                                  | DC Plate Current.....           | 0.300 | 0.250 | Ampere |
| DC Grid-No. 1 Current.....  | 0.050      | 0.050      | Ampere                                  | DC Grid-No. 2 Current,          |       |       |        |
| Plate Input.....            | 480        | 600        | Watts                                   | approximate.....                | 0.010 | 0.010 | Ampere |
| Grid-No. 2 Input.....       | 15         | 15         | Watts                                   | DC Grid-No. 1 Current,          |       |       |        |
| Plate Dissipation.....      | 500        | 500        | Watts                                   | approximate.....                | 0.020 | 0.020 | Ampere |
| Grid-No. 1 Dissipation..... | 2          | 2          | Watts                                   | Driving Power, approximate..... | 14    | 15    | Watts  |
|                             |            |            |                                         | Power Output, approximate¶..... | 205   | 300   | Watts  |

\* Because the temperature of the cathode is increased by back bombardment of electrons at UHF, required heater voltage for optimum life decreases with increasing frequency. The amount of heater-voltage reduction is dependent on operating conditions. However, this voltage should not be less than 5.5 volts.

† Represents maximum usable cathode current (plate current plus current to each grid) for any condition of operation.

‡ Measured with a 6-inch minimum diameter flat metal disk attached to the screen-grid ring. Control grid connected to the screen grid.

♦ Output capacitances measured between anode and screen grid. Control grid connected directly to screen grid.

§ Forced-air cooling to be applied before and during the application of any voltages.

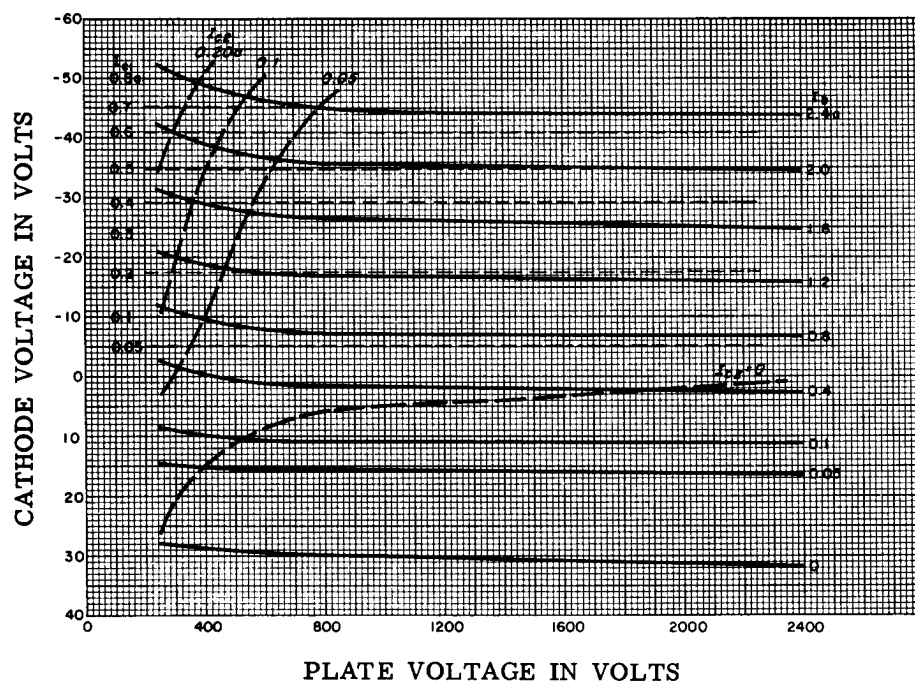
\*\* Provision must be made for unobstructed passage of cooling air between radiator fins and between the anode terminal and adjacent radiator fin.

♥ Useful power output as measured in output-circuit load.

¶ Useful power output including power transferred from driver stage. Output circuit efficiency approximately 80 percent.

△ Modulation essentially negative may be used if the positive peak of the envelope does not exceed 115 percent of the carrier conditions.

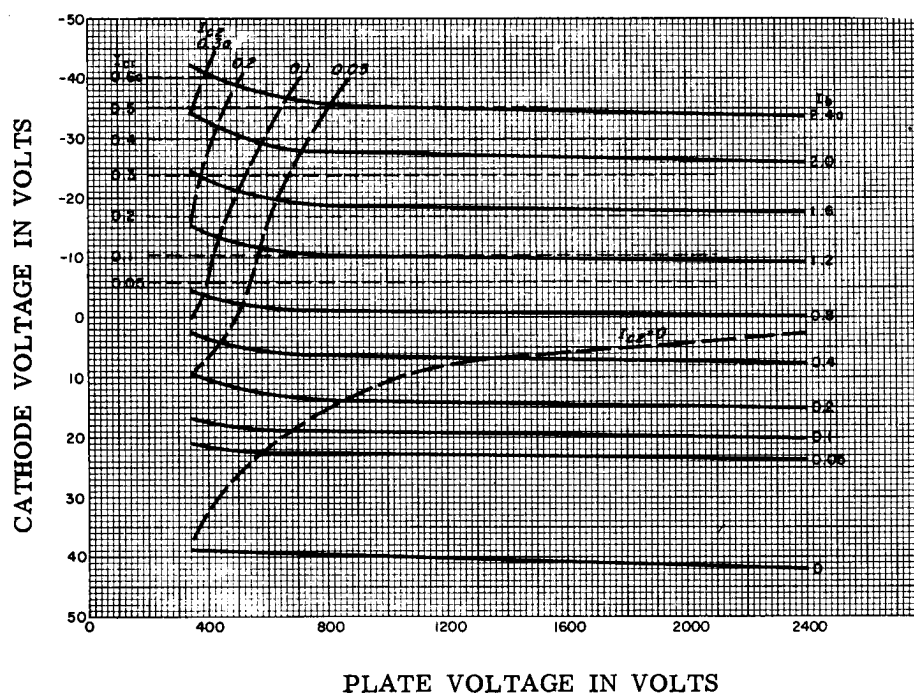
CONSTANT CURRENT CHARACTERISTIC  
SCREEN VOLTAGE = 250 VOLTS  
ALL VOLTAGES REFERENCED TO CONTROL GRID



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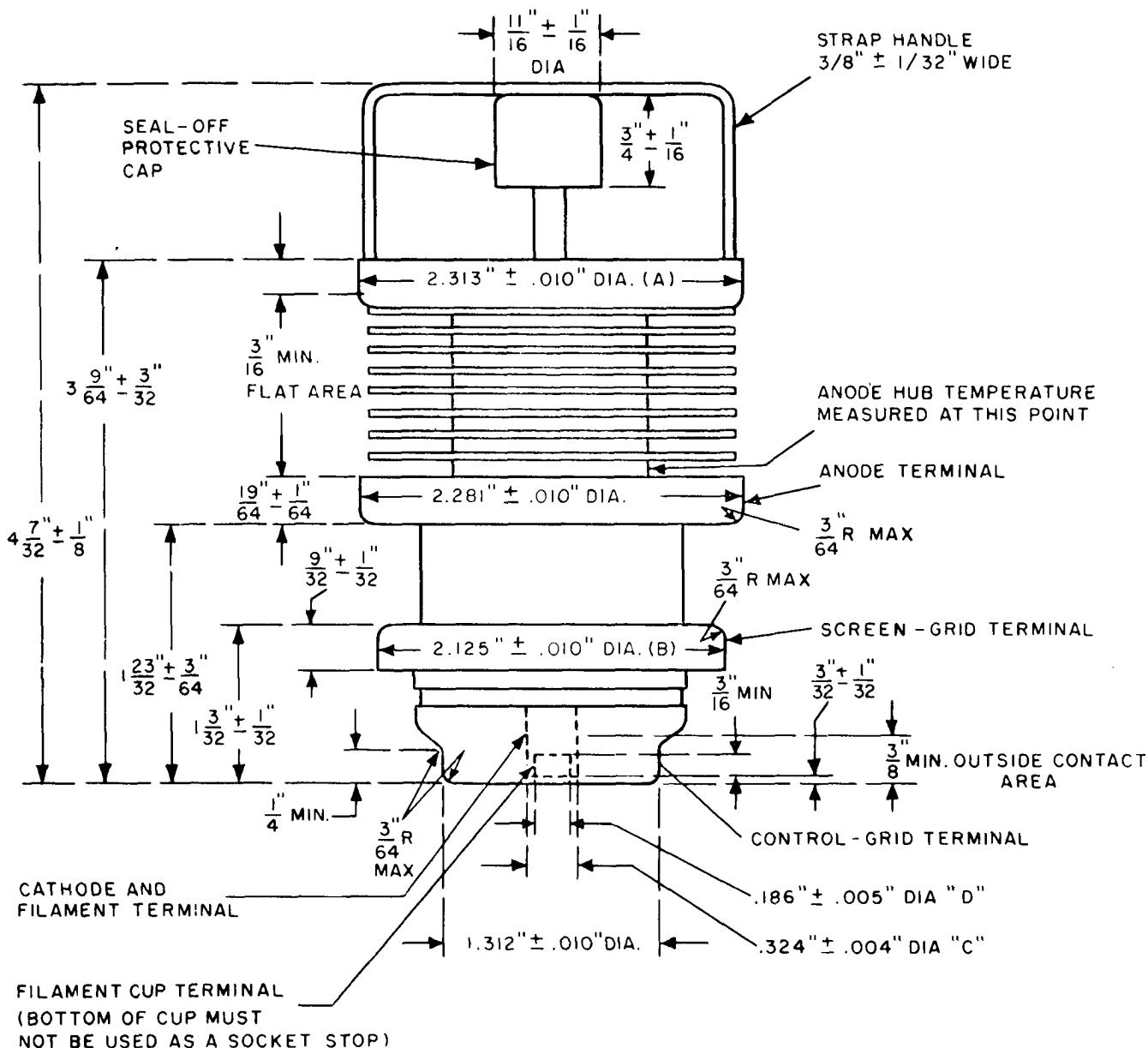
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CONSTANT CURRENT CHARACTERISTIC  
SCREEN VOLTAGE = 350 VOLTS  
ALL VOLTAGES REFERENCED TO CONTROL GRID



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**CONCENTRICITIES**

THE FOLLOWING TOTAL INDICATOR READINGS ARE MEASURED WITH RESPECT TO A CENTERLINE DETERMINED BY THE CENTERS OF THE ANODE TERMINAL AND CONTROL GRID TERMINAL

DIAMETER A - 0.030 INCHES  
 DIAMETER B - 0.016 INCHES  
 DIAMETER C - 0.036 INCHES  
 DIAMETER D - 0.042 INCHES

TOTAL INDICATOR READING OF FILAMENT CUP TERMINAL DIAMETER (D) MEASURED WITH RESPECT TO CENTER OF CATHODE AND FILAMENT TERMINAL  
 DIAMETER (C) - 0.016 INCHES