



PENTODE

DESCRIPTION

The GL-1613 is a transmitting tube designed for use as a Class C radio-frequency power amplifier and oscillator. This tube may be operated at maximum ratings at frequencies as high as 45 megacycles and at frequencies up to 90 megacycles at reduced ratings.

TECHNICAL INFORMATION

These data are for reference only. For design information refer to specifications.

GENERAL CHARACTERISTICS

Number of electrodes	5
Electrical	
Filament—indirectly heated	
Voltage, a-c or d-c	6.3 volts
Current	0.7 amperes
Grid-plate transconductance, $I_b = -31$ ma	2500 micromhos
Direct interelectrode capacitances*	
Grid-plate	0.26 micromicrofarads
Input	6.5 micromicrofarads
Output	13.5 micromicrofarads
Frequency for maximum ratings	45 megacycles

GENERAL  ELECTRIC


Electro
TUB

TECHNICAL INFORMATION (CONT'D)

Mechanical

Base description.....	small wafer octal 7-pin
Net weight, approximate.....	3 ounces
Shipping weight, approximate.....	1 pound
Mounting position.....	vertical or horizontal

MAXIMUM RATINGS AND TYPICAL OPERATING CONDITIONS

CLASS C RADIO-FREQUENCY POWER AMPLIFIER AND OSCILLATOR—PLATE-MODULATED

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

	Typical Operation	Maximum Ratings
D-c plate voltage.....	275	275 volts
D-c grid voltage (grid 1)†.....	-35	-100 volts
	12500	ohms
D-c grid voltage (grid 2)†.....	200	275 volts
	7500	ohms
D-c plate current.....	42	50 milliamperes
D-c grid current, approximately.....	2.8	5 milliamperes
D-c screen current.....	10	milliamperes
Plate input.....		11.5 watts
Screen input.....		2 watts
Plate dissipation.....		7 watts
Peak r-f grid input voltage.....	65	volts
Driving power.....	0.16	watts
Plate power output.....	6	watts
D-c heater-cathode potential.....		100 volts

CLASS C RADIO-FREQUENCY POWER AMPLIFIER AND OSCILLATOR

Key-down conditions per tube without modulation #

D-c plate voltage.....	350	350 volts
D-c grid voltage (grid 1) ▲.....	-35	-100
	10000	ohms
D-c grid voltage (grid 2) ■.....	200	275 volts
	15000	ohms
D-c plate current.....	50	50 milliamperes
D-c grid current, approximate.....	3.5	5 milliamperes
D-c screen current.....	10	milliamperes
Plate input.....		17.5 watts
Screen input.....		2.5 watts
Plate dissipation.....		10 watts
Peak r-f grid input voltage, approximate.....	70	volts
Driving power, approximate.....	0.22	watts
Plate power output, approximate.....	9	watts
D-c heater-cathode potential.....		100 volts

* With shell connected to cathode.

† From modulated fixed supply or modulated plate-voltage supply through resistor of value shown.

‡ Obtained by grid leak or by partial self-bias methods.

Modulation, essentially negative, may be used if the positive peak of the audio-frequency envelope does not exceed 115 per cent of the carrier conditions.

■ Separate source, or from the plate-voltage supply with a voltage divider, or through a series resistor of the value shown.

▲ Obtained by grid resistor or other self- or fixed-bias method.

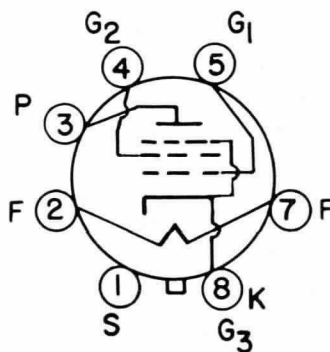
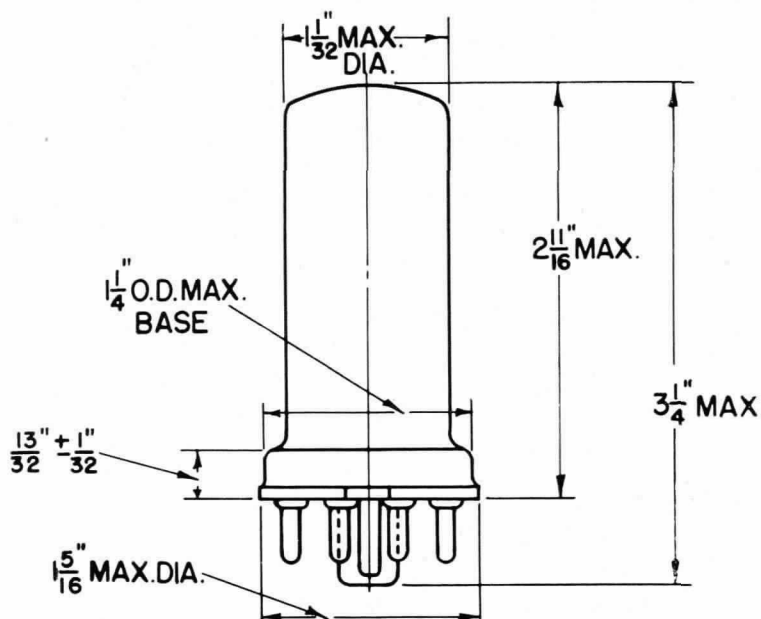
APPLICATION NOTES

The 1613 can be operated at frequencies as high as 45 megacycles. The tube may be operated at higher frequencies, provided the maximum values of plate voltage and power input are reduced as the frequency is raised (other maximum ratings are the same as shown above).

The tabulation below shows the highest percentage of maximum plate voltage and power input that can be used up to 90 megacycles for the various classes of service. Special attention should be given to adequate ventilation of the bulb at these frequencies.

Frequency

Percentage of maximum rated plate voltage and plate input.....	45	60	90 megacycles
Class C, plate-modulated.....	100	90	85 per cent
Class C, unmodulated.....	100	90	85 per cent



BOTTOM VIEW
BASING DIAGRAM

GL-1613 OUTLINE

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GENERAL ELECTRIC
Schenectady, N. Y.