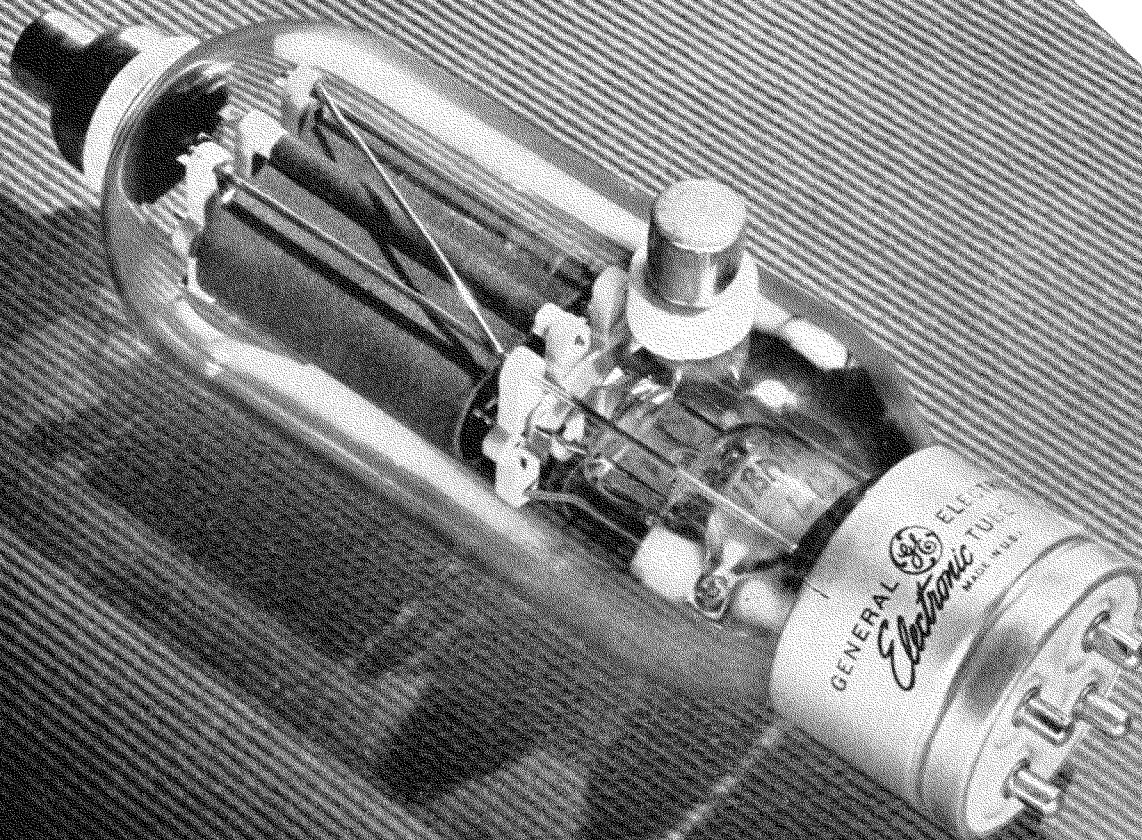




PLIOTRON

DESCRIPTION

The GL-810 is a high-mu tube with a typical power output of 475 watts (ICAS) for Class C telegraph service. Because of its high perveance the tube can be operated at high plate efficiency with low driving power and relatively low plate voltage. The heavy duty filament, shielded at each end con-

serves input power by eliminating bulb bombardment and stray electrons. The plate and grid leads are brought out to terminals at the top and side of the bulb respectively—a design which provides very short internal leads, low internal lead inductance, and permits compact high-frequency circuits.

TECHNICAL INFORMATION

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

GENERAL CHARACTERISTICS

Number of electrodes.....	3
Electrical	
Filament voltage.....	10 volts
Filament current.....	4.5 amperes
Average characteristics	
Amplification factor.....	36
Direct interelectrode capacitance	
Grid-plate.....	4.8 micromicrofarads
Grid-cathode.....	8.7 micromicrofarads
Plate-cathode.....	12 micromicrofarads
Frequency for maximum ratings.....	30 megacycles

GENERAL  ELECTRIC


Electronic
TUBE

TECHNICAL INFORMATION (CONT'D)

Mechanical

Type of cooling.....	convection
Maximum ambient temperature.....	60 centigrade
Net weight, approx.....	8 ounces
Shipping weight, approx.....	1 pound
Mounting position.....	Vertical, base down; horizontal—plane of electrodes vertical

MAXIMUM RATINGS AND TYPICAL OPERATING CONDITIONS

CLASS B AUDIO-FREQUENCY POWER AMPLIFIER (TWO TUBES)

	Typical Operation			Maximum Ratings		
	CCS		ICAS	CCS	ICAS	
D-c plate voltage.....	1500	2000	2250	2000	2250	volts
Max signal plate current (per tube)†.....				250	250	milliamperes
D-c max signal plate input (per tube)†.....				425	510	watts
Plate dissipation (per tube)†.....				125	150	watts
D-c grid voltage.....	—30	—50	—60			volts
Peak a-f grid input voltage.....	345	345	380			volts
Zero signal plate current.....	80	60	70			milliamperes
Max signal plate current.....	500	420	450			milliamperes
Max signal driving power, approx.....	12	10	13			watts
Effective load (plate to plate).....	6600	11000	11600			ohms
Max signal plate power output.....	510	590	725			watts

CLASS B RADIO-FREQUENCY POWER AMPLIFIER

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

D-c plate voltage.....	1500	2000	2250	2000	2250	volts
D-c grid voltage.....	—50	—65	—70			volts
D-c plate current.....	115	93	100	185	185	milliamperes
Plate input.....				185	225	watts
D-c grid current.....	2	2	2			milliamperes
Plate dissipation.....				125	150	watts
Peak r-f grid input voltage.....	110	100	100			volts
Driving power, approx†.....	6	4	4			watts
Plate power output.....	60	60	75			watts

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

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

D-c plate voltage.....	1500	2000	2250	2000	2250	volts
D-c grid voltage.....	—140	—140	—140	—500	—500	volts
D-c plate current.....	110	92	100	185	185	milliamperes
D-c grid current, approx.....	2	2	2			milliamperes
Plate input.....				185	225	watts
Plate dissipation.....				125	150	watts
Peak r-f grid input voltage, approx.....	175	160	180			volts
Driving power†, approx.....	5	4	4			watts
Plate power output.....	60	60	75			watts

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

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

D-c plate voltage.....	1250	1600	1800	1600	1800	volts
D-c grid voltage§.....	—200	—200	—200	—500	—500	volts
	4000	4000	4000			ohms
D-c plate current.....	210	210	250	210	250	milliamperes
D-c grid current, approx.....	50	50	50	70	70	milliamperes
Plate input.....				335	450	watts
Plate dissipation.....				85	125	watts
Peak r-f grid input voltage, approx.....	370	370	370			volts
Driving power, approx.....	17	17	17			watts
Plate power output.....	180	250	335			watts

CLASS C RADIO-FREQUENCY POWER AMPLIFIER AND OSCILLATOR

(Key-down conditions per tube without modulation)||

	Typical Operation			Maximum Ratings		
	CCS	ICAS	CCS	ICAS		
D-c plate voltage	1500	2000	2250	2000	2250	volts
D-c grid voltage ¶	—120	—160	—160	—500	—500	volts
	3000	4000	4000			ohms
	415	550	510			ohms
D-c plate current	250	250	275	250	275	milliamperes
D-c grid current	40	40	40	70	70	milliamperes
Plate input				500	620	watts
Plate dissipation				125	150	watts
Peak r-f grid input voltage, approx.	280	330	330			volts
Driving power, approx.	10	12	12			watts
Plate power output	275	375	475			watts

†Averaged over any audio-frequency cycle.

‡At crest of audio-frequency cycle.

§Obtained by grid-resistor of value shown 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.

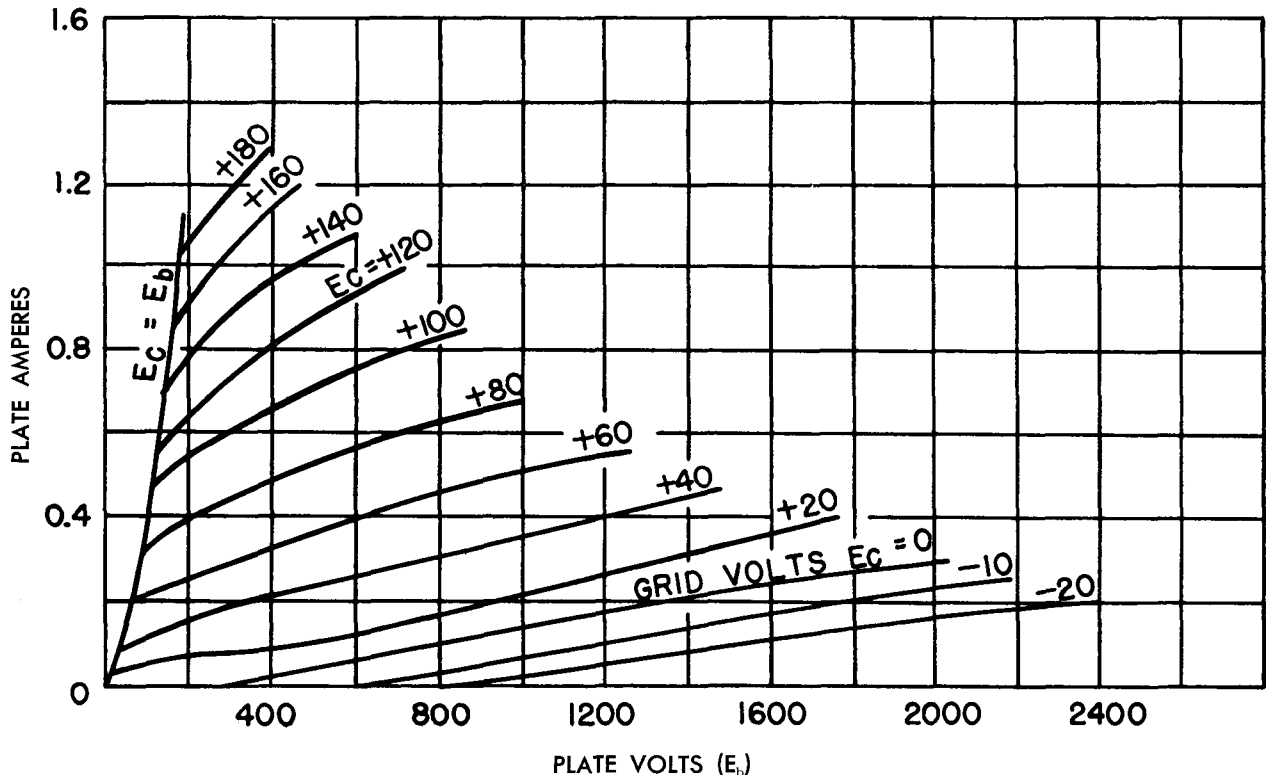
¶Obtained from fixed supply, by grid resistor (3000, 4000), or by cathode resistor (415, 550, 510).

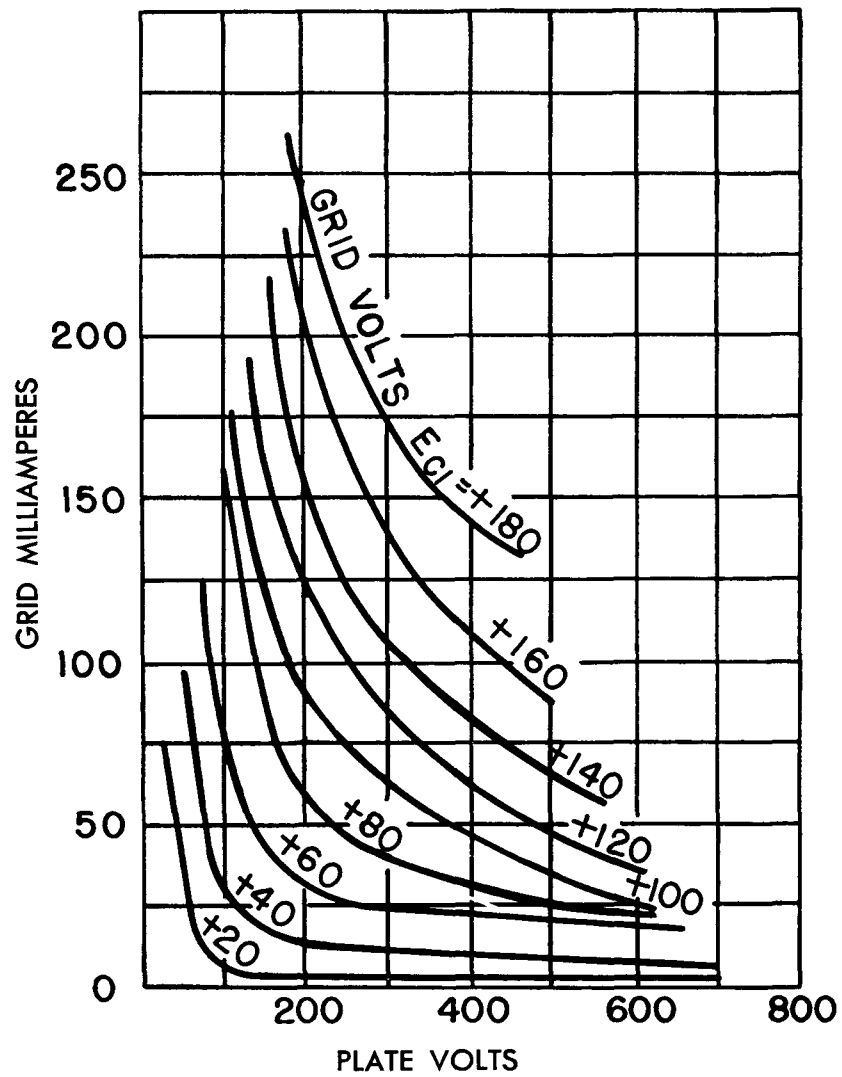
APPLICATION NOTES

*The GL-810 can be operated at frequencies as high as 30 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 100 megacycles for the various classes of service. Special attention should be given to adequate ventilation of the bulb at these frequencies.

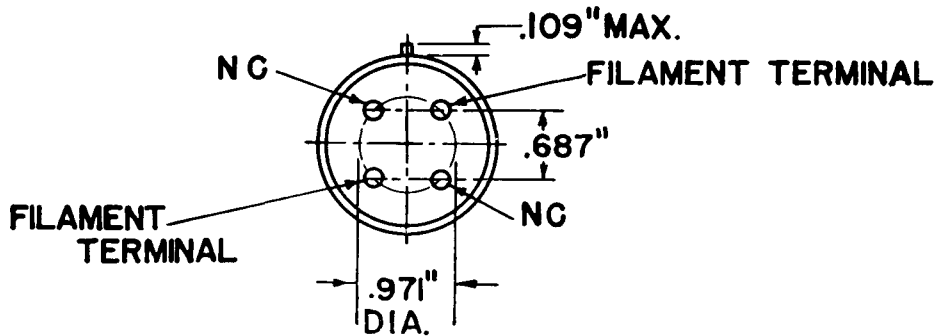
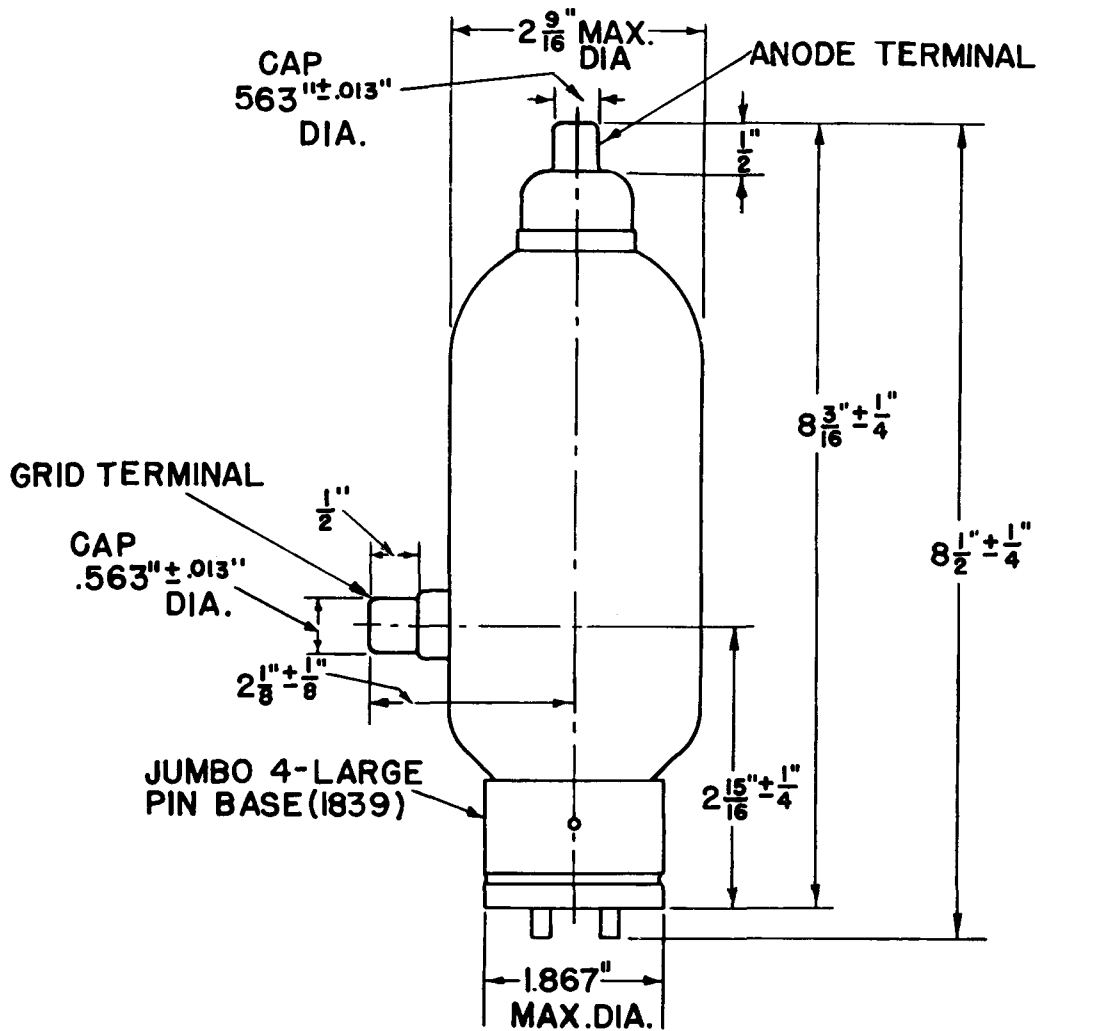
Frequency	30	60	100 megacycles
Max permissible percentage of max rated			
Plate voltage and plate input, Class B	100	88	80 per cent
Class C, grid-modulated	100	88	80 per cent
Class C, plate-modulated	100	70	50 per cent
Class C, telegraphy	100	70	50 per cent

GL-810 AVERAGE PLATE CHARACTERISTICS ($E_c = 10$ VOLTS D-C)





GL-810 TYPICAL CHARACTERISTICS ($E_f = 10$ VOLTS D-C)



OUTLINE
GL-810 PIOTRON

Electronics Department
GENERAL ELECTRIC
Schenectady, N. Y.