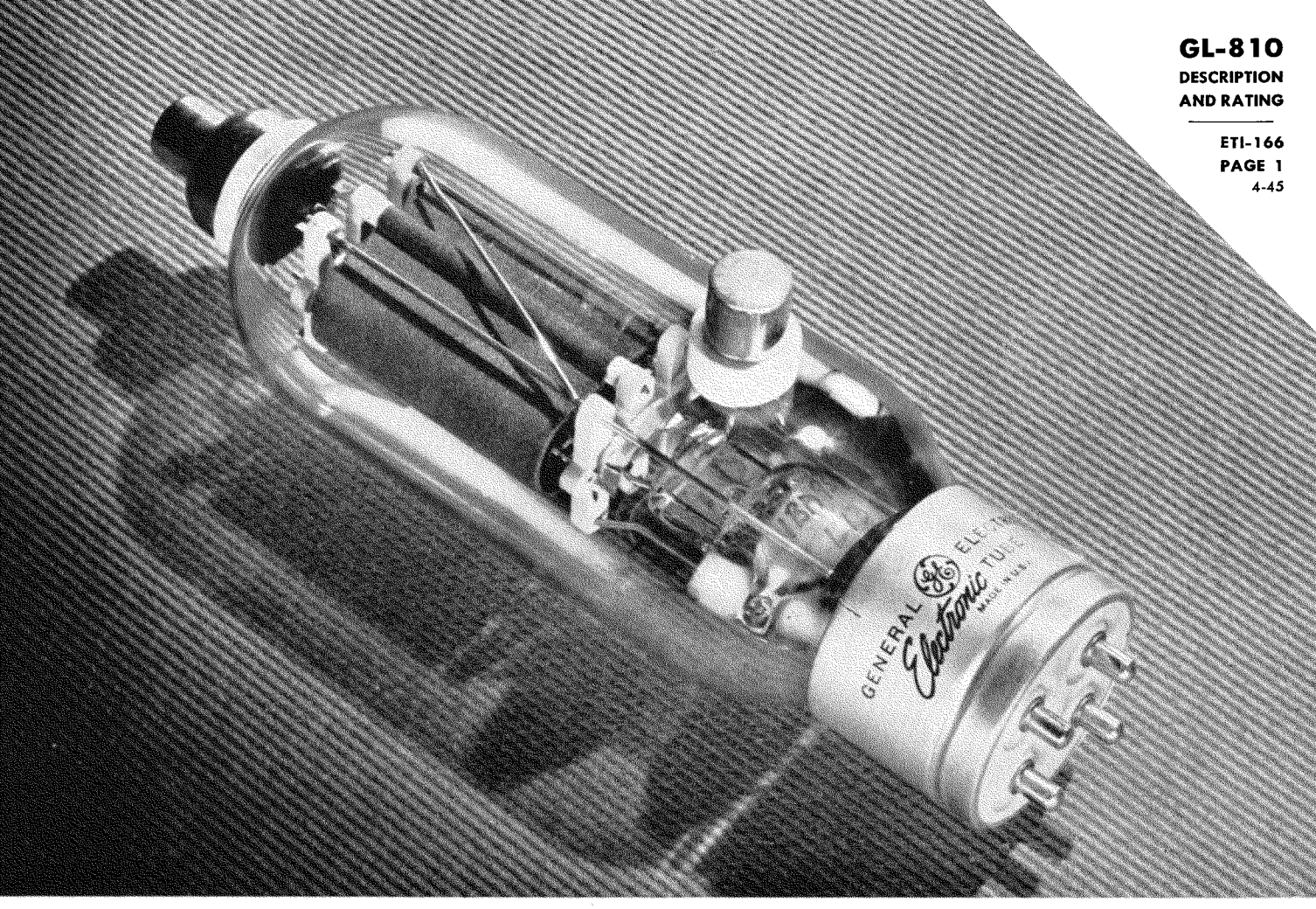


PLIOTRON

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 conserves 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

GE Electronic TUBE

GENERAL ELECTRIC

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

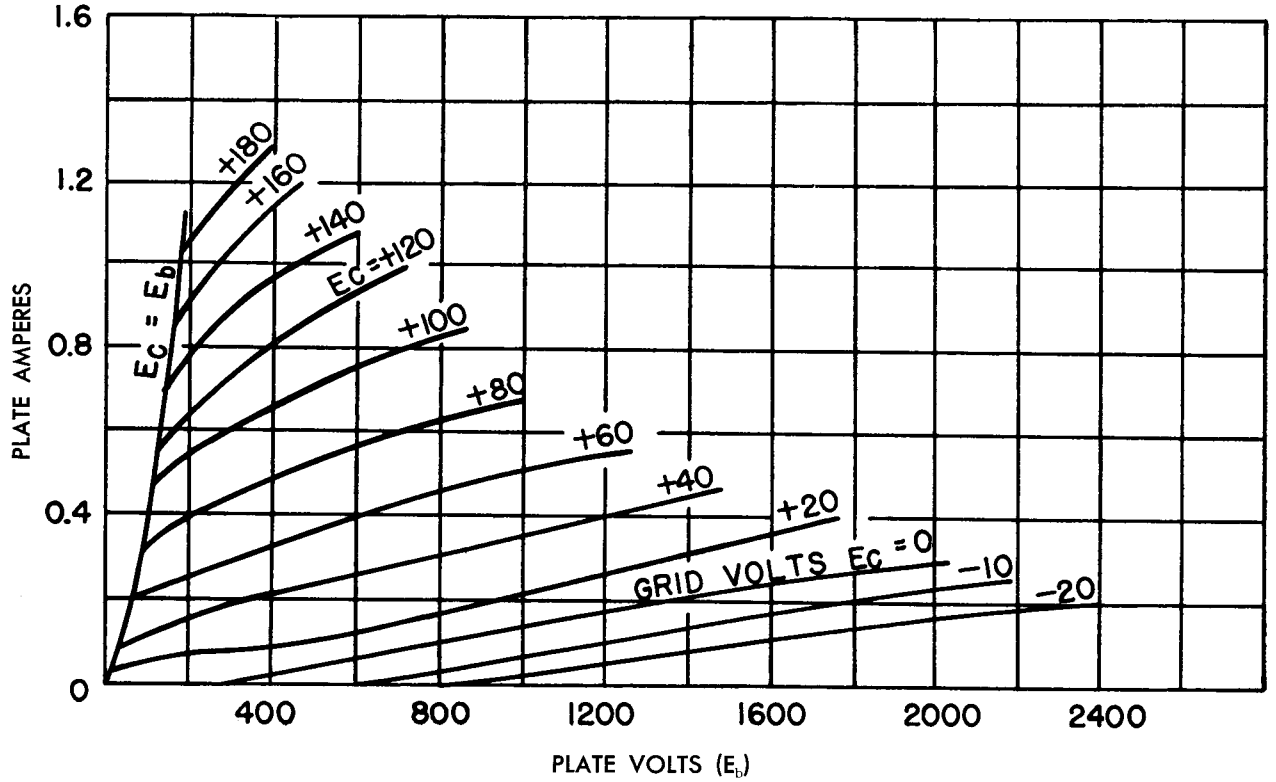
†Averaged over any audio-frequency cycle.
‡At crest of audio-frequency cycle.
§Obtained by grid-resistor of value shown or by partial self-bias methods.
‖Modulation, essentially negative, may be used if the positive peak of the audio-frequency envelope does not exceed 115 per cent of the carrier conditions.
¶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_f = 10 VOLTS D-C)



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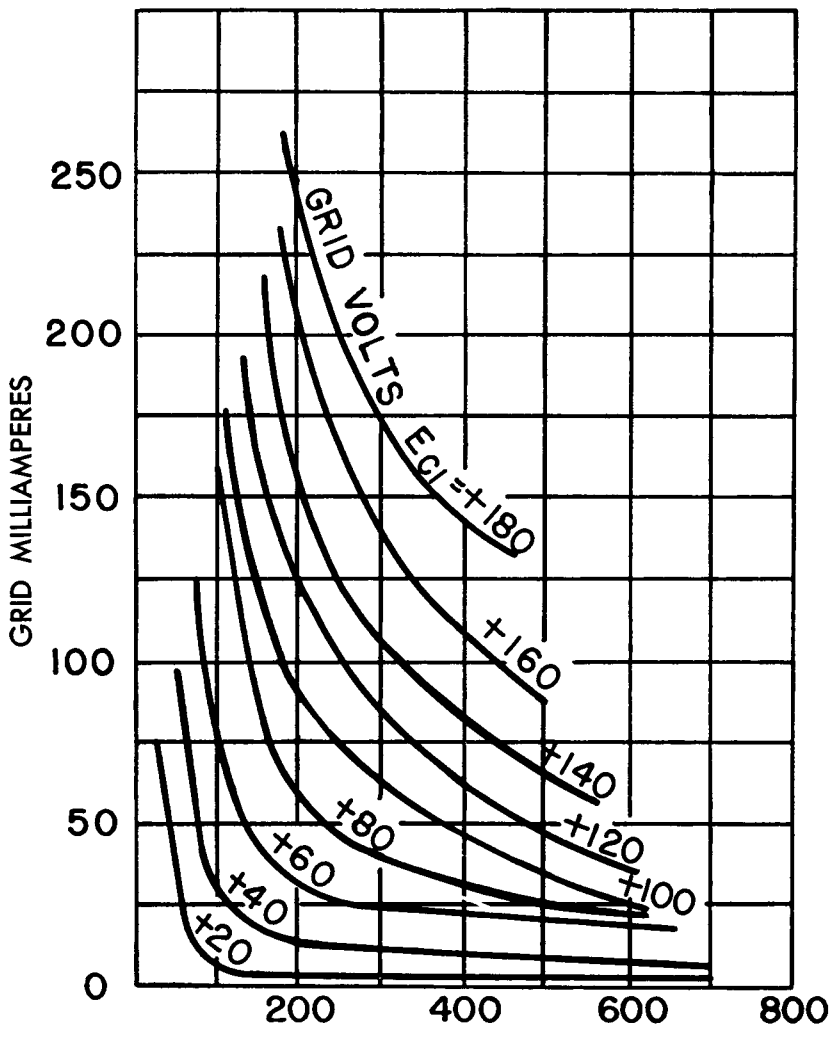

GL-810 TYPICAL CHARACTERISTICS (E_f = 10 VOLTS D-C)

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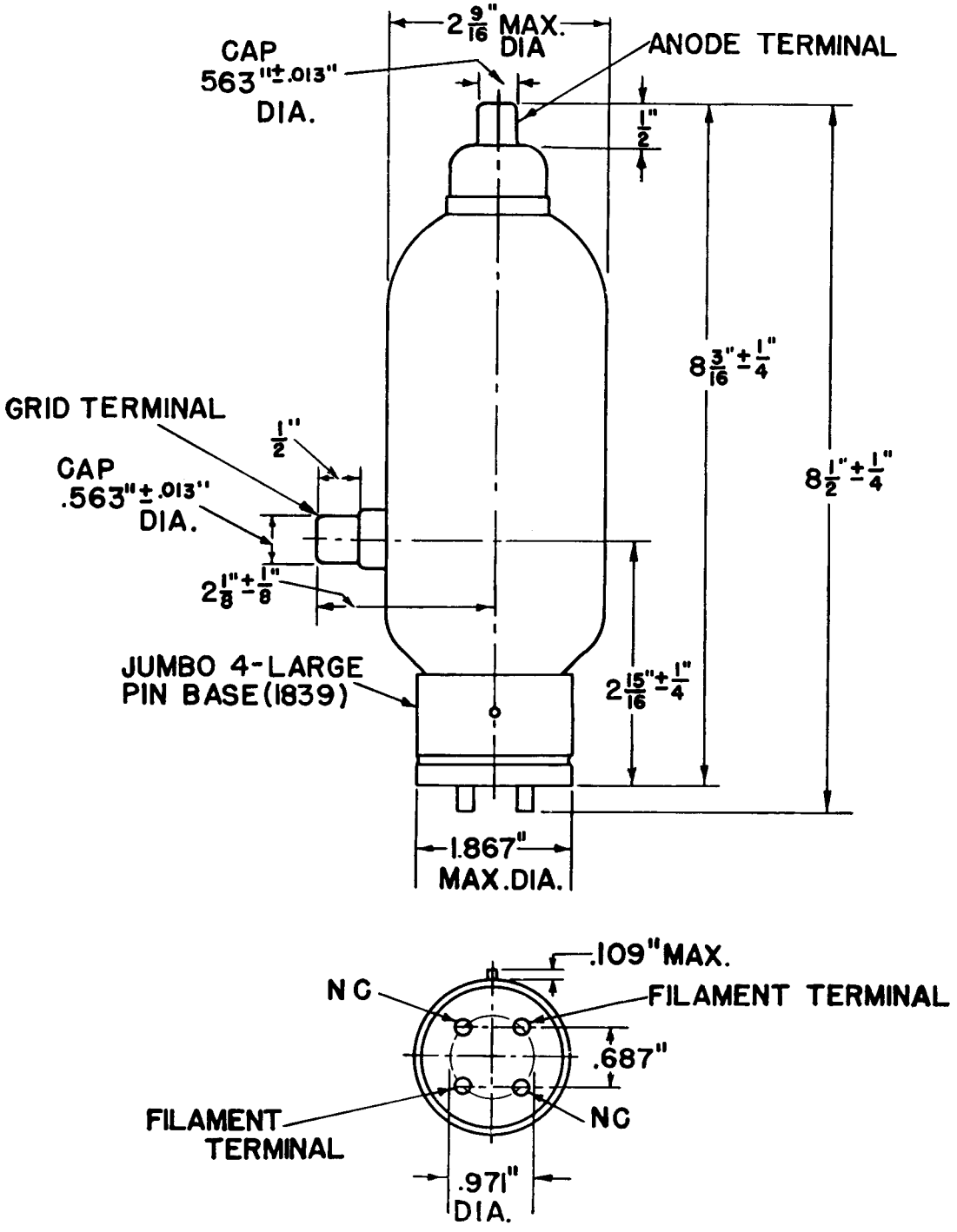

OUTLINE
GL-810 PLIOTRON

K-9033819

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