PLIOTRON

DESCRIPTION

The 880 is a three-electrode power tube designed for use as a radio-frequency amplifier, oscillator, or Class B modulator. The plate is water-cooled and is capable of dissipating 12 to 20 kilowatts. The design of the terminal mount connections and the introverted anode minimize lead inductance and make the tube particularly suitable for high-frequency applications.

TECHNICAL INFORMATION

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

GENERAL CHARACTERISTICS

Number of electrodes	3	
Electrical		
Filament voltage	12.6	volts
Filament current	320	amperes
Average Characteristics		
Amplification factor	20	
Grid-plate transconductance, $I_b = 2.0$	21000	micromhos
Direct interelectrode capacitances		
Grid-plate	24	micromicrofarads
Grid-filament	35	micromicrofarads
Plate-filament	2.0	micromicrofarads
Frequency for maximum ratings	25	megacycles

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TECHNICAL INFORMATION (CONT'D)

Mechanical

Type of cooling	Water and forced air
Maximum outlet temperature	70 centigrade
Water flow	12–20 gal per min
Air flow to bulb, from a 3-inch diam. nozzle	20 cu ft per min
Gasket	cat. no. P5182028P1
Net weight	7 pounds
Shipping weight, approximate	21 pounds
Mounting position	vertical, anode down

MAXIMUM RATINGS AND TYPICAL OPERATING CONDITIONS

CLASS B AUDIO-FREQUENCY POWER AMPLIFIER (TWO TUBES)

	Typical Operation		Maximum* Ratings	
D-c plate voltage	7500	10000	10500	volts
Max signal plate current (per tube)†			5	amperes
D-c max signal plate input (per tube)†			40	kilowatts
Plate dissipation (per tube)†			15	kilowatts
D-c grid voltage	−300	−430		volts
Peak a-f grid input voltage	1450	1690		volts
Zero signal plate current	1.0	1.0		ampere
Max signal plate current	7.0	7.0		amperes
Max signal plate input†	52	70		kilowatts
Max signal driving power, approx	250	225		watts
Effective load (plate-to-plate)	2200	3200		ohms
Max signal plate power output	30	45		kilowatts

CLASS B RADIO-FREQUENCY POWER AMPLIFIER

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

D-c plate voltage	7500	10000	10500	volts
D-c grid voltage	−310	−430		volts
D-c plate current	3.5	3	4	amperes
Plate input			32	kilowatts
Plate dissipation			20	kilowatts
Peak r-f grid input voltage	450	550		volts
Driving power‡, approx	500	500		watts
Plate power output	8	10		kilowatts

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	7500	10000	10500	volts
D-c grid voltage	−1000	−1200	−1200	volts
D-c plate current	3.0	3.6	3.6	amperes
D-c grid current, approx	0.3	0.5	0.8	ampere
Plate input			36	kilowatts
Plate dissipation			12	kilowatts
Peak r-f grid input voltage, approx	1550	1770		volts
Driving power, approx	460	880		watts
Plate power output	16	28		kilowatts

CLASS C RADIO-FREQUENCY POWER AMPLIFIER AND OSCILLATOR

Key-down conditions per tube without modulation§

D-c plate voltage	7500	10000	10000	10500	volts
D-c grid voltage	−600	−800	−800	−1200	volts
D-c plate current	5	4.5	6	6	amperes
D-c grid current, approx	0.45	0.4	0.5	0.8	ampere
Plate input				60	kilowatts
Plate dissipation				20	kilowatts
Peak r-f grid input voltage, approx	1250	1400	1500		volts
Driving power, approx	560	550	750		watts
Plate power output	27	34	45		kilowatts

† Averaged over any audio-frequency cycle.

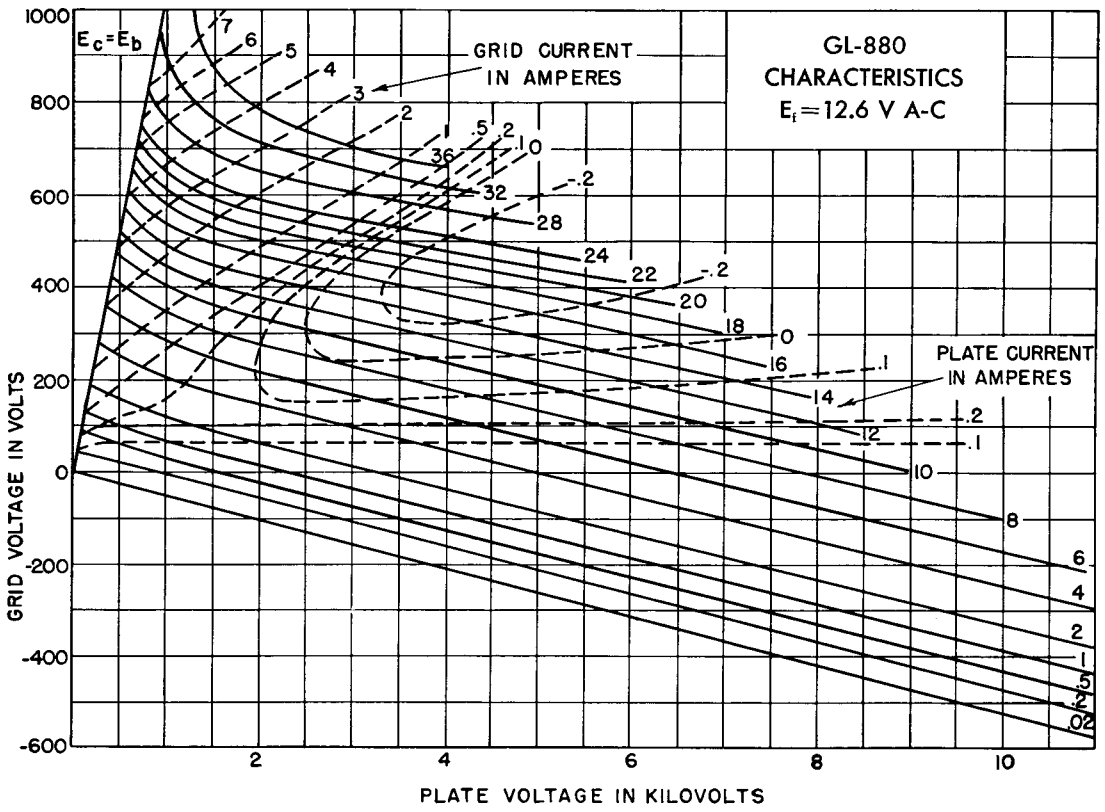
‡ At crest of audio-frequency cycle.

§ 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.

APPLICATION NOTES

*The GL-880 can be operated at maximum ratings in all classes of service at frequencies as high as 25 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 under TECHNICAL INFORMATION.) 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	25	50	75	100	megacycles
Class B radio-frequency					
Max plate voltage	100	80	68	60	per cent
Max plate input	100	94	85	75	per cent
Class C plate-modulated					
Max plate voltage and plate input	100	72	56	45	per cent
Class C					
Max plate voltage and plate input	100	75	62	50	per cent
Plate series protective resistors					
Series resistor	10	15	20	30	ohms
Maximum power output of rectifier	40	100	250	640	kilowatts



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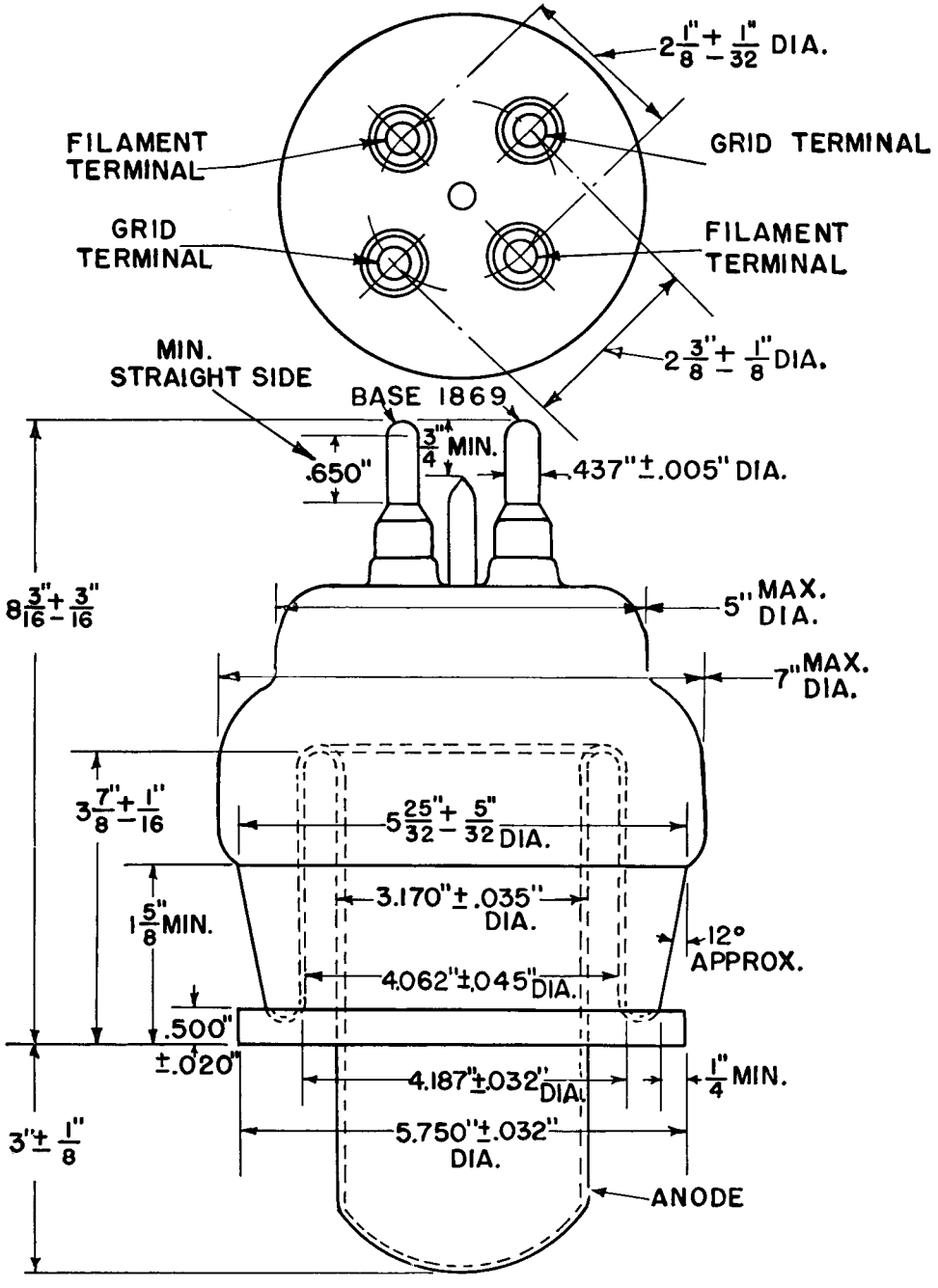

OUTLINE
GL-880 PLIOTRON

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