



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



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.

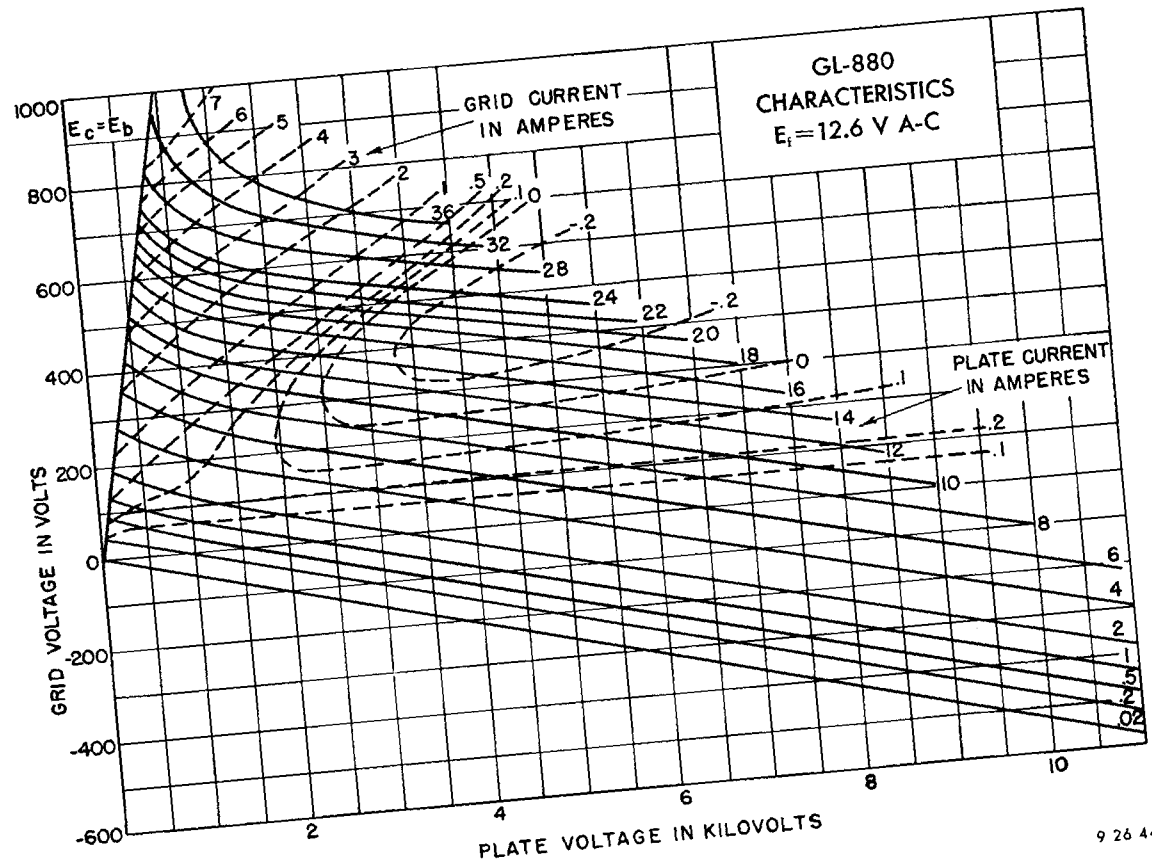
§ Modulation, essentially negative, may be used if the positive peak of the audio-frequency envelope does not exceed 115 per cent of the carrier conditions.

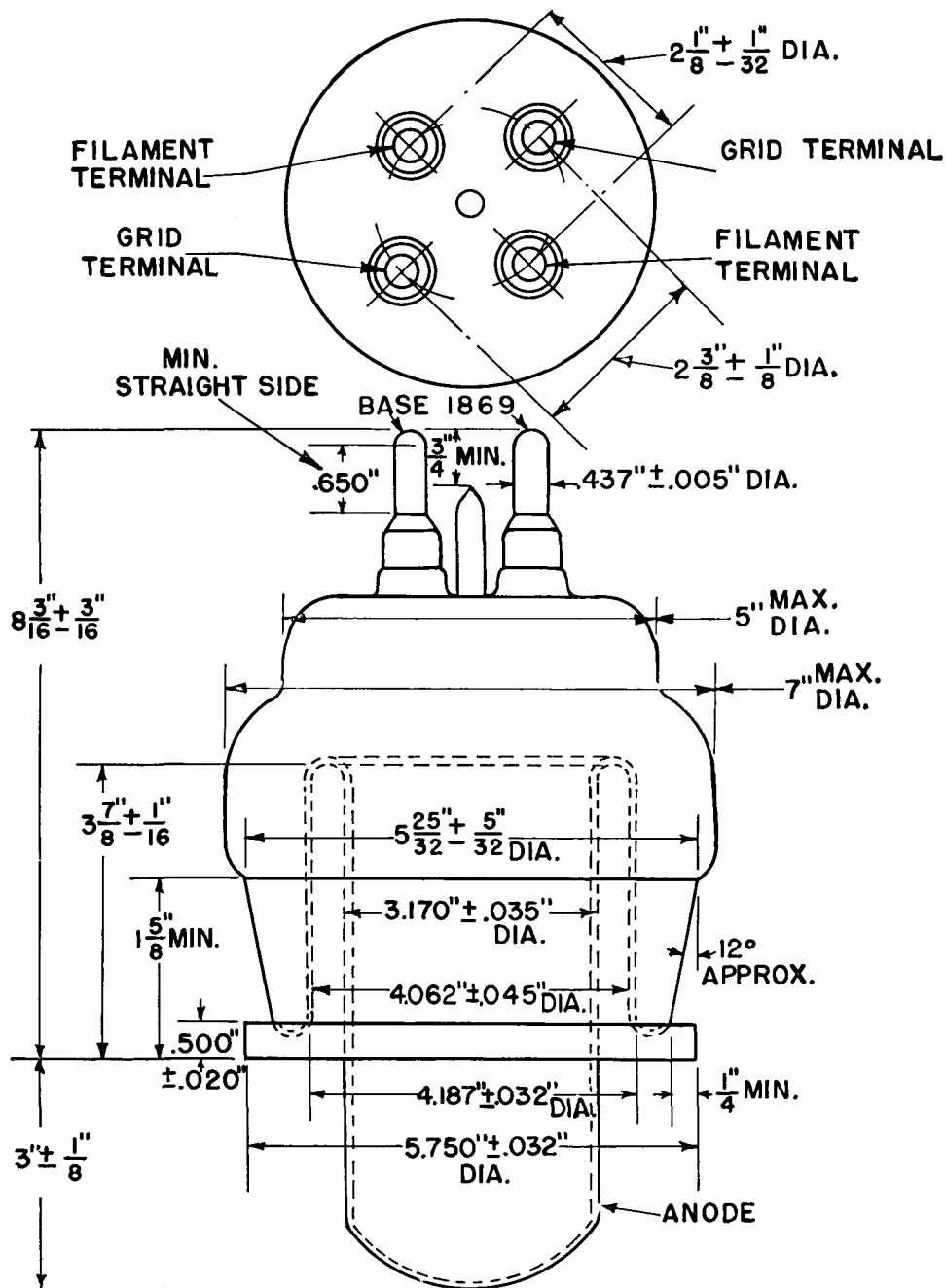
APPLICATION NOTES

*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 IN-

FORMATION.) 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





OUTLINE

GL-880 PLIOTRON

K-5965320

9-23-44