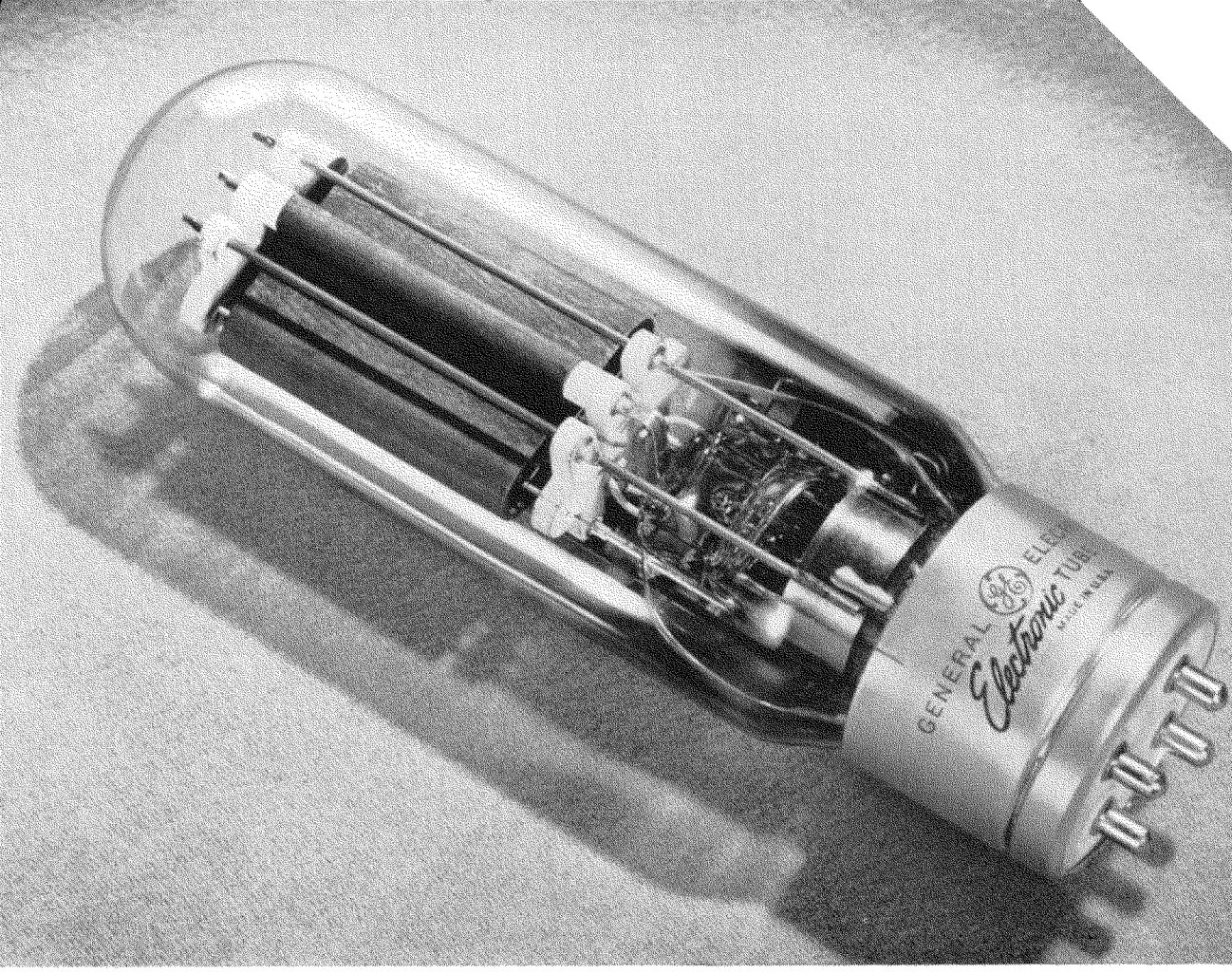

PLIOTRON

DESCRIPTION

The FP-285 is a high-vacuum tube suitable for use as an oscillator and radio-frequency amplifier in high-frequency circuits.

This tube is especially satisfactory when used to generate the ultra-high frequencies required in short-wave therapy equipment. The hazard of stem puncture, a common fault in some tubes used in such applications, has been eliminated by bringing the plate and grid leads out through the side wall of the cathode stem. Low plate-to-filament capacitance and good insulation, especially important features in tubes for high-frequency service, are assured by the use of a special insulator which supports the mount and holds the clamp and supports away from the plate.

These, together with the other design features inherent in pliotrons of this type, result in economical, dependable operation and long life.

TECHNICAL INFORMATION

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

GENERAL CHARACTERISTICS

Number of electrodes	3	
Electrical		
Filament—thoriated tungsten		
Voltage	10	volts
Current	3.25	amperes
Average characteristics, $I_b = 0.072$ ampere		
Amplification factor	12	
Grid-plate transconductance	4000	micromhos

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TECHNICAL INFORMATION (CONT'D)

Direct interelectrode capacitance		
Grid-plate	13.5	micromicrofarads
Grid-filament	6	micromicrofarads
Plate-filament	5	micromicrofarads
Frequency for maximum ratings	20	megacycles

Mechanical

Base		jumbo, large 4-pin
Net weight, approx	8	ounces
Shipping weight, approx	3	pounds
Operating position		vertical or horizontal with plane of electrodes vertical

MAXIMUM RATINGS AND TYPICAL OPERATING CONDITIONS

CLASS C RADIO-FREQUENCY POWER AMPLIFIER AND OSCILLATOR

Key-down conditions per tube without modulation.
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.

	Typical Operation			Maximum Ratings	
A-c plate voltage, rms				1500	volts
D-c plate voltage, filtered or pulsating	750	1000	1250	1350	volts
D-c grid voltage	−100	−150	−200	−400	volts
D-c plate current	200	200	200	200	milliamperes
D-c grid current	30	30	30	50	milliamperes
Plate input				270	watts
Plate dissipation				100	watts
Plate power output	100	140	180		watts

APPLICATION NOTES

The tube may be mounted either vertically, with base up or down, or horizontally, with the filament in a vertical plane. The metal shell must not be connected to any part of the circuit.

The normal value of grid leak, when the tube is used as an oscillator or r-f power amplifier (Class C), is in the neighborhood of 5000 ohms, although this may be replaced by a suitable fixed bias. If self-bias is used, the cathode resistor should be approximately 1000 ohms. In some cases, to minimize the danger of overloads, a combination of grid leak and partial self-bias may be desirable. The values should be chosen so that the plate loss at the worst condition is limited to the maximum rating.

The maximum ratings apply only at frequencies below 20 megacycles. For operation at higher frequencies adequate ventilation and normal ambient temperatures must be maintained, and the plate voltage must be reduced as indicated.

Frequency	20	50	80	megacycles
Percentage of maximum rated plate voltage and plate input	100	75	50	per cent

The following table indicates the tube output obtainable at various wavelengths when the tube is operated within the maximum allowable conditions in a properly designed circuit.

Wavelength		A-c Plate Voltage, Volts	Minimum Plate Output, Watts	Maximum Plate Output, Approx Watts
Meters	Megacycles			
15	20	1500	170	200
10	30	1350	150	180
7.5	40	1250	140	160
6	50	1150	110	130
5	60	1000	80	100
4	75	750	40	60

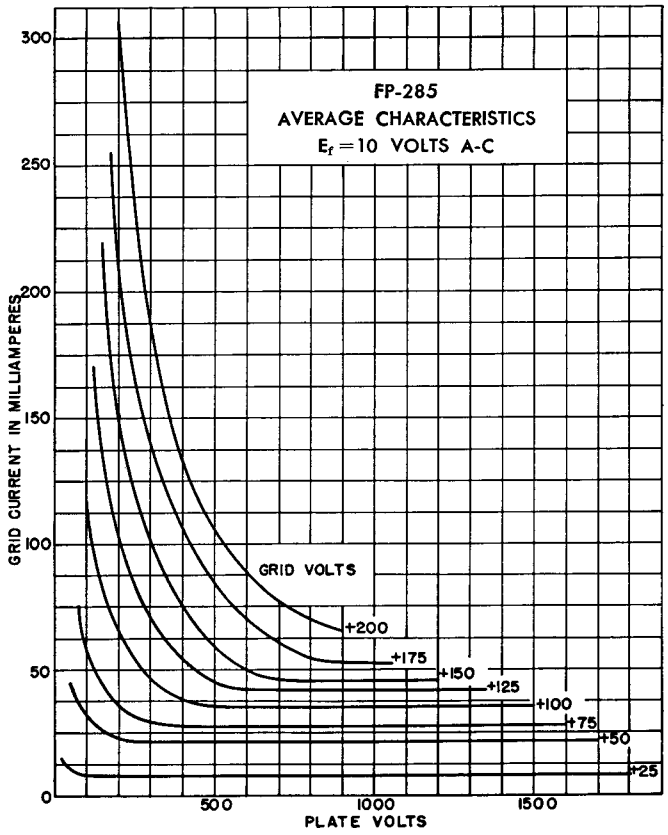

FP-285
AVERAGE CHARACTERISTICS
$E_f = 10$ VOLTS A-C
GRID CURRENT IN MILLIAMPERES
PLATE VOLTS
GRID VOLTS
+200
+175
+150
+125
+100
+75
+50
+25
300
250
200
150
100
50
0
500
1000
1500
K-6917435
9-26-44

Fig. 1

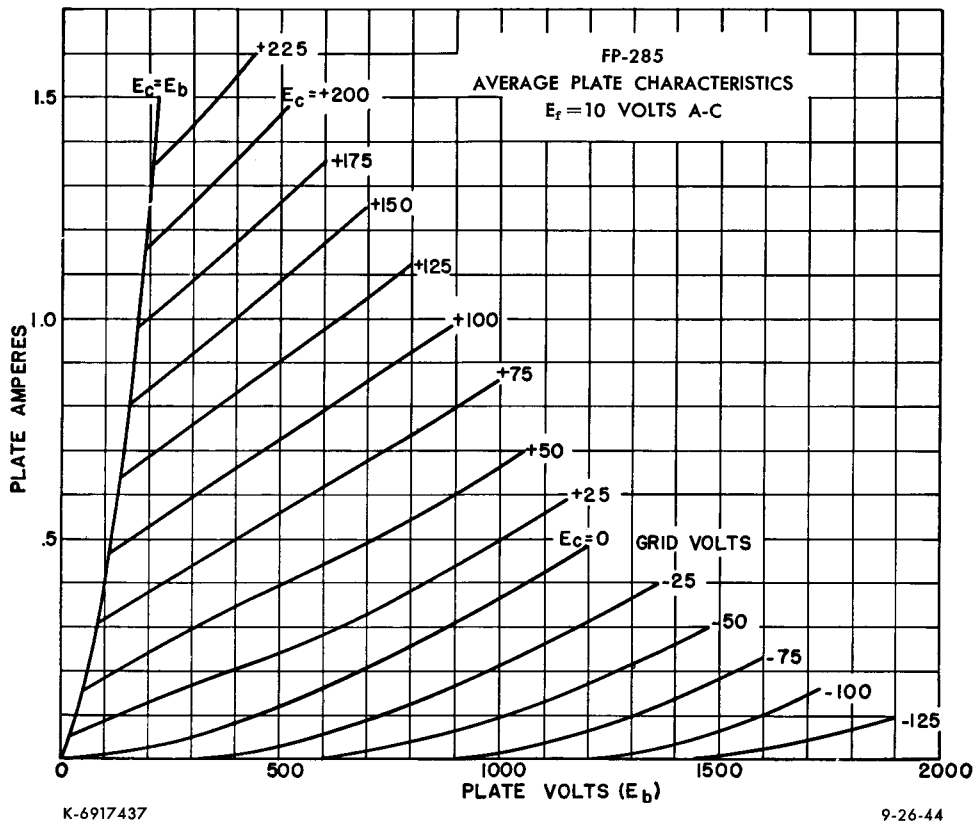
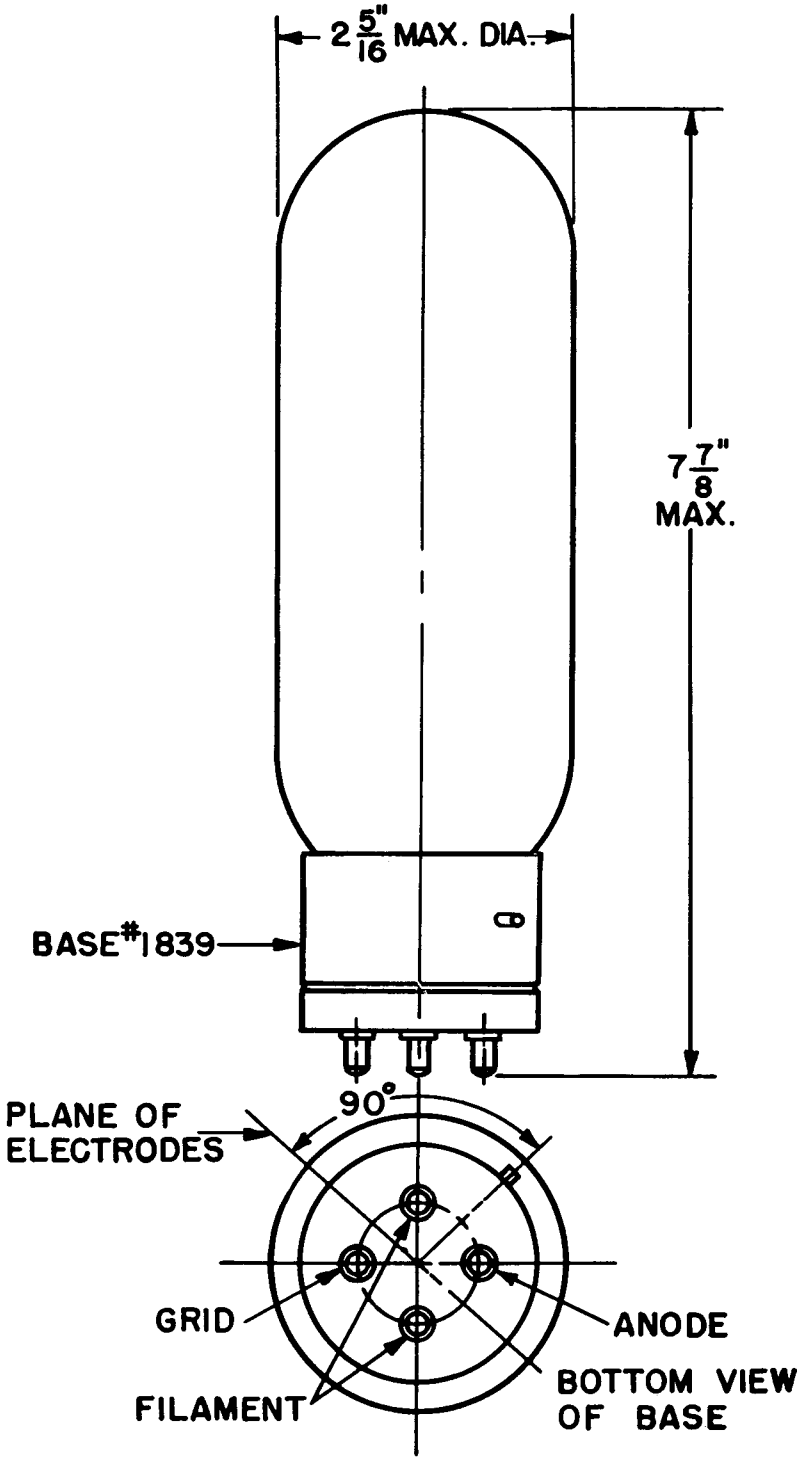

FP-285
AVERAGE PLATE CHARACTERISTICS
$E_f = 10$ VOLTS A-C
PLATE AMPERES
PLATE VOLTS (E_b)
$E_c = E_b$
E_c = +200
+225
+175
+150
+125
+100
+75
+50
+25
E_c = 0
GRID VOLTS
-25
-50
-75
-100
-125
1.5
1.0
.5
0
500
1000
1500
2000
K-6917437
9-26-44

Fig. 2



OUTLINE
FP-285 PLIOTRON

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