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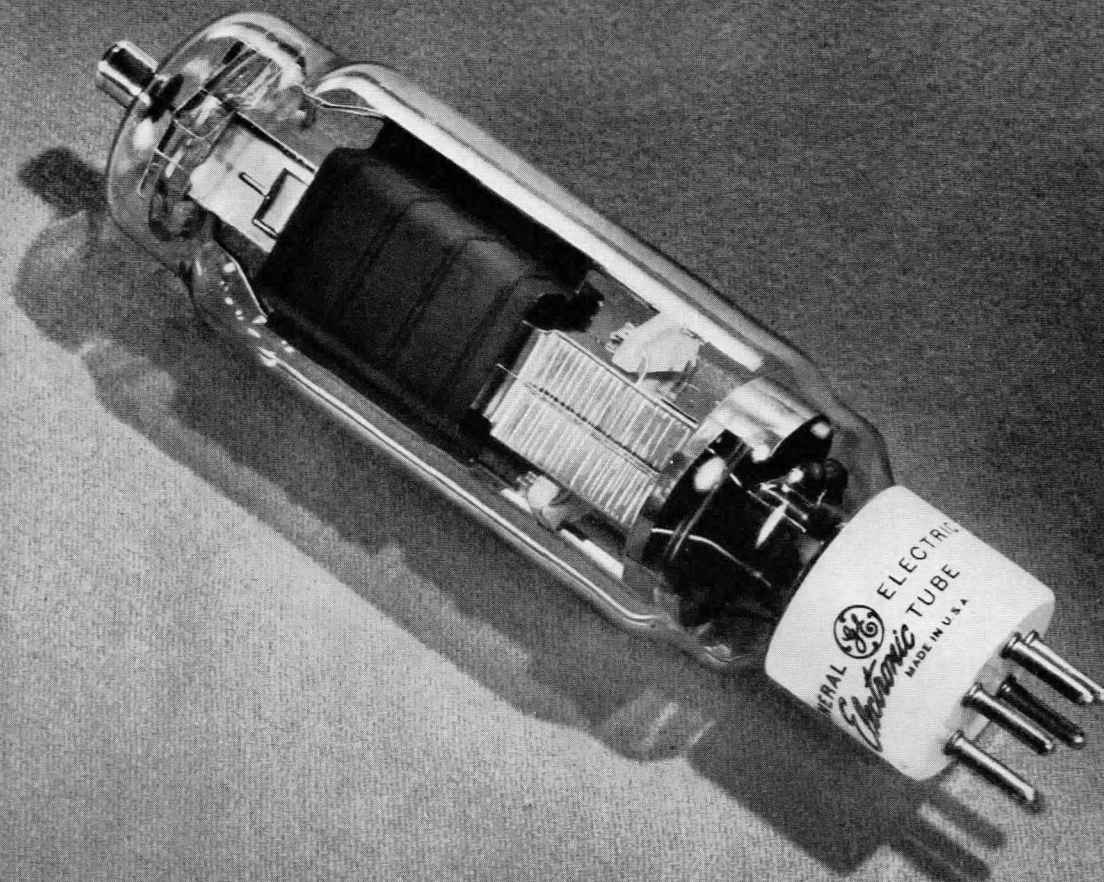
GL-814

DESCRIPTION
AND RATING

ETX-154

PAGE 1

5-46



BEAM POWER TUBE

DESCRIPTION

GL-814 is a filament type of transmitting tube incorporating new design principles involving the use of directed electron beams. Features resulting from the use of these principles in the 814 are that the screen absorbs little power and that efficient suppressor action is supplied by space-charge effects produced between the screen and the plate. The resultant high power sensitivity makes this

tube especially suited for use as a radio-frequency amplifier, frequency multiplier, oscillator, and plate-modulated amplifier. The plate connection is brought out through a separate seal at the top of the bulb to maintain low grid-plate capacitance. The GL-814 can be operated at maximum ratings at frequencies as high as 30 megacycles and up to 75 megacycles at reduced ratings.

TECHNICAL INFORMATION

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

GENERAL CHARACTERISTICS

Number of electrodes 5

Electrical

Cathode—Filamentary

Voltage 10 volts

Current 3.25 amperes

Grid-plate transconductance 3300 micromhos

Direct interelectrode capacitances

Grid-plate 0.15 micromicrofarad

Input or grid—filament 13.5 micromicrofarads

Output or plate—filament 13.5 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
Cap description	C1-1
Base Description	Medium 5-pin, ceramic, A5-11
Mounting position	
Vertical	Base down
Horizontal	Filament in vertical plane (on edge)
Maximum over-all dimensions	See outline
Length	7 $\frac{11}{16}$ inches
Diameter	2 $\frac{1}{16}$ inches
Net weight, approx	8 ounces
Shipping weight, approx	8 pounds

MAXIMUM RATINGS AND TYPICAL OPERATING CONDITIONS

			Typical Operation	Maximum Ratings	
CLASS B RADIO-FREQUENCY POWER AMPLIFIER					
Carrier conditions per tube for use with a maximum modulation factor of 1.0					
	CCS		ICAS	CCS	ICAS
D-c plate voltage.....	1000	1250	1500	1250	1500 volts
D-c grid voltage (grid No. 1).....	—28	—28	—35		volts
D-c grid voltage (grid No. 2) etc.....	200	200	250	400	400 volts
D-c plate current.....	60	60	60	60	60 milliamperes
Plate input.....				75	90 watts
Screen input.....				6.7	6.7 watts
Plate dissipation.....				50	60 watts
Peak r-f grid input voltage.....	50	50	56		volts
Driving power*, approx.....	0.65	0.65	0.85		watts
Plate power output, approx.....	20	25	30		watts

*At the crest of audio-frequency cycle.

CLASS C RADIO-FREQUENCY POWER AMPLIFIER, GRID MODULATED

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

D-c plate voltage	1000	1250	1500	1250	1500	volts
D-c grid voltage (grid No. 1)	-100	-100	-120	-250	-250	volts
D-c grid voltage (grid No. 2)	200	200	250	400	400	volts
Beam forming plate voltage	0	0	0			volts
D-c plate current	60	60	60	60	60	milliamperes
D-c grid current, approx.	3	2.8	2.5			milliamperes
D-c screen current	2	1.4	3			watts
Plate input				75	90	watts
Screen input				6.7	6.7	watts
Plate dissipation				50	60	watts
Peak r-f grid input voltage	129	129	150			volts
Peak a-f grid voltage	64	64	90			volts
Driving power, approx.	2.5	2.3	4.2			watts
Plate power output	25	29	35			watts

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

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

	CCS		ICAS	
D-c plate voltage	900	1000	1250	1000
D-c grid voltage (grid No. 1)	-150	-150	-105	-300
D-c grid voltage (grid No. 2)	300	300	300	400
D-c plate current	120	120	144	120
D-c grid current, approx.	10	10	10	15
Plate input				120
Screen input				6.7
Plate dissipation				34
Peak r-f grid input voltage	215	222	222	
Driving power	2	2	3.2	
Plate power output	76	87	130	

CLASS C RADIO-FREQUENCY POWER AMPLIFIER AND OSCILLATOR

Key-down conditions per tube without modulation†

		Typical Operation		Maximum Ratings		
D-c plate voltage.....	1000	1250	1500	1250	1500	volts
D-c grid voltage (grid No. 1).....	-70	-80	-90	-300	-300	volts
D-c grid voltage (grid No. 2).....	300	300	300	400	400	volts
Beam forming plate voltage.....	0	0	0			volts
D-c plate current.....	150	144	150	150	150	milliamperes
D-c grid current, approx.....	10	10	10	15	15	milliamperes
Plate input.....				180	225	watts
Screen input.....				10	10	watts
Plate dissipation.....				50	65	watts
Peak r-f grid input voltage, approx.....	150	165	170			volts
Driving power output, approx.....	1.35	1.5	1.5			watts
Plate power output, approx.....	100	130	160			watts

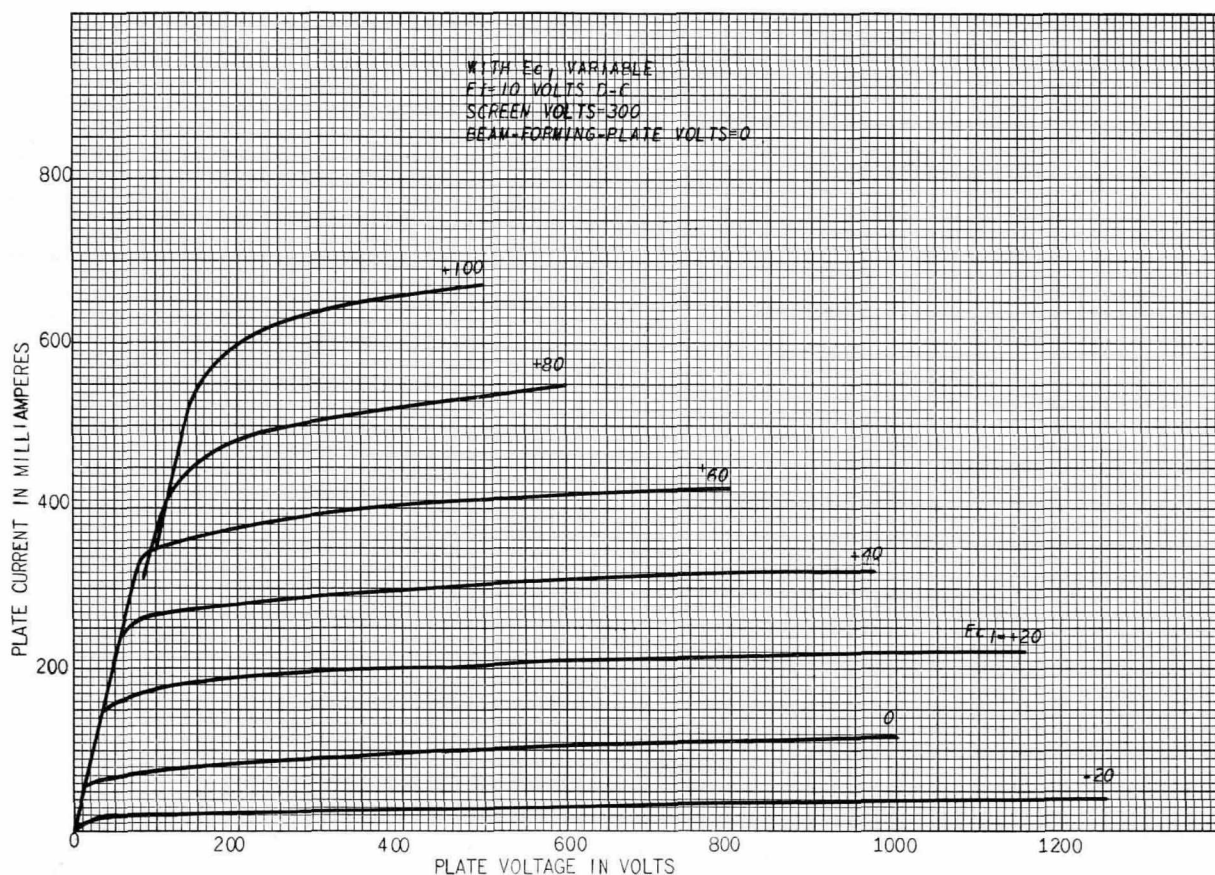
†Modulation, essentially negative, may be used if the positive peak of the audio-frequency envelope does not exceed 115 per cent of the carrier conditions.

APPLICATION NOTES

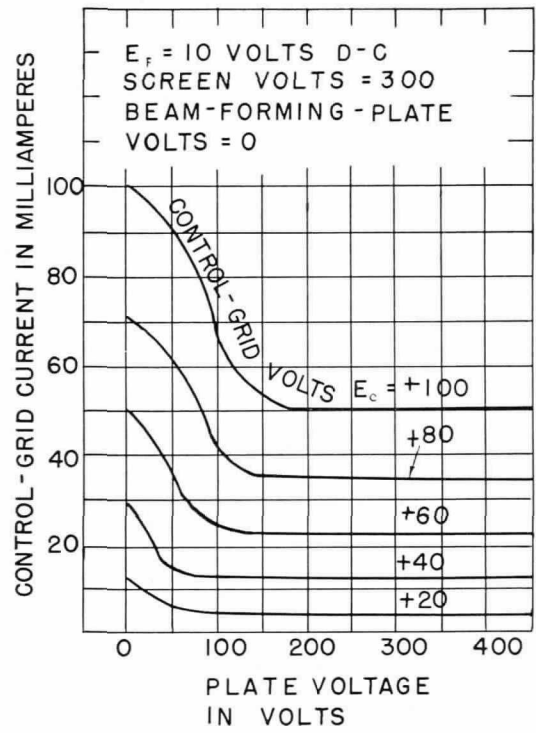
The GL-814 can be operated at frequencies as high as 30 megacycles. The tube may be operated at higher frequencies provided the maximum values of plate voltage and power input are reduced as the frequency is raised (other maximum ratings are the same as shown above). The tabulation below shows the highest percentage of maximum plate voltage and power input that can be used up to 75 megacycles for the various classes of service. Special attention should be given to adequate ventilation of the bulb at these frequencies.

Frequency.....	30	50	75 megacycles
Percentage of maximum rated plate voltage and plate input			
Class B.....	100	90	85 per cent
Class C plate modulated.....	100	80	64 per cent
Class C unmodulated.....	100	80	64 per cent
Class C grid modulated.....	100	90	85 per cent

GL-814 AVERAGE PLATE CHARACTERISTICS



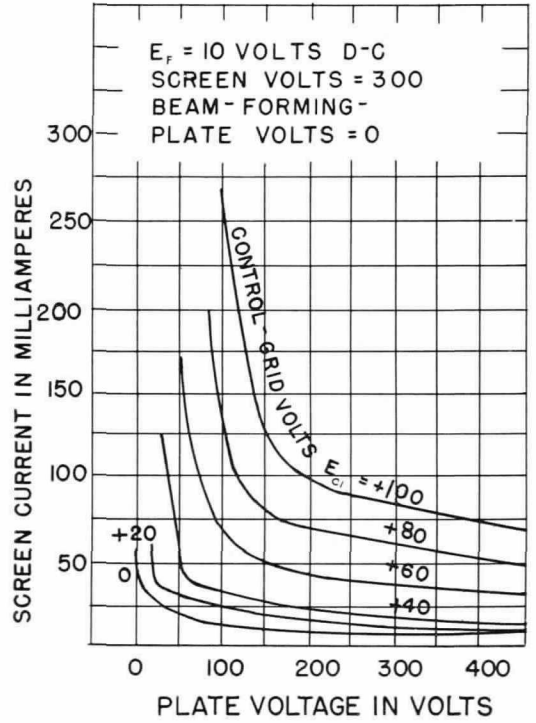
GL-814 AVERAGE CHARACTERISTICS



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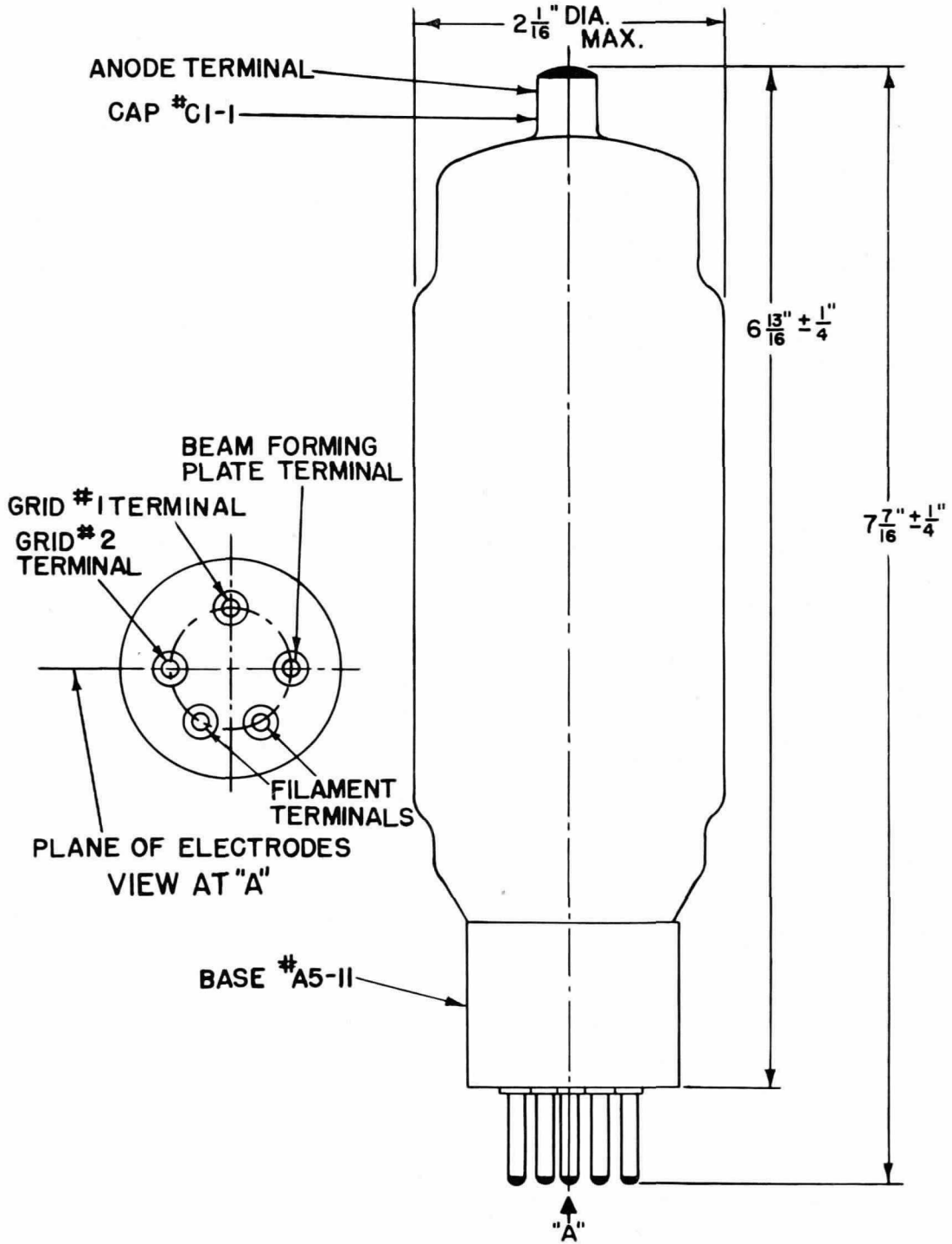
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GL-814 AVERAGE CHARACTERISTICS



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GL-814 OUTLINE

K-5965391

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Electronics Department
GENERAL ELECTRIC
Schenectady, N. Y.