



TRIODE

DESCRIPTION

The GL-826 is a three electrode tube designed for use as an oscillator, radio-frequency power amplifier, and frequency multiplier at the ultrahigh frequencies. The tube may be operated at maxi-

imum ratings at frequencies up to 250 megacycles and at reduced ratings at frequencies as high as 300 megacycles.

TECHNICAL INFORMATION

These data are for reference only. For design information see the specifications.

GENERAL

Electrical Data

Filament voltage*	7.5	volts
Filament current	4	amperes
Amplification factor	31	
Interelectrode capacitances		
Grid-plate	3	uuf
Grid-filament	3	uuf
Plate-filament	1.1	uuf

Mechanical Data

Mounting position	vertical only, base up or down
Net weight, approximate	4 ounces

GENERAL  ELECTRIC

Supersedes ETX-157 dated 5-46


Electronic
TUBE

TECHNICAL INFORMATION (CONT'D)

MAXIMUM RATINGS AND TYPICAL OPERATING CONDITIONS

PLATE-MODULATED RADIO-FREQUENCY POWER AMPLIFIER—CLASS C TELEPHONY

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

Maximum Ratings, Absolute Values	Natural Cooling		Forced-air Cooling		
	CCS**	ICAS†	CCS**	ICAS†	
D-c plate voltage.....	800 max	1000 max	800 max	1000 max	volts
D-c grid voltage.....	-600 max	-600 max	-600 max	-600 max	volts
D-c plate current.....	95 max	125 max	95 max	125 max	milliamperes
D-c grid current.....	40 max	40 max	40 max	40 max	milliamperes
Plate input.....	60 max	95 max	75 max	125 max	watts
Plate dissipation.....	30 max	45 max	40 max	60 max	watts
Typical Operation					
D-c plate voltage.....	CCS**	ICAS†	CCS**	ICAS†	
D-c grid voltage§ #.....		1000	800	1000	volts
		-160	-100	-100	volts
		4000	2800	2800	ohms
Peak R-F grid voltage.....		320	198	210	volts
D-c plate current.....		95	94	125	milliamperes
D-c grid current.....		40	35	35	milliamperes
Driving power, approximate.....		11.5	6.3	6.6	watts
Power output, approximate.....		70	53	90	watts

RADIO-FREQUENCY POWER AMPLIFIER AND OSCILLATOR—CLASS C TELEGRAPHY

Key-down conditions per tube without modulation¶

Maximum Ratings, Absolute Values	Natural Cooling		Forced-air Cooling		
	CCS**	ICAS†	CCS**	ICAS†	
D-c plate voltage.....	1000 max	1000 max	1000 max	1250 max	volts
D-c grid voltage.....	-600 max	-600 max	-600 max	-600 max	volts
D-c plate current.....	125 max	140 max	125 max	140 max	milliamperes
D-c grid current.....	40 max	40 max	40 max	40 max	milliamperes
Plate input.....	95 max	130 max	125 max	175 max	watts
Plate dissipation.....	45 max	55 max	60 max	75 max	watts
Typical Operation					
D-c plate voltage.....	CCS**	ICAS†	CCS**	ICAS†	
D-c grid voltage# ●.....		1000	1000	1250	volts
		-70	-70	-125	volts
		2000	2000	3600	ohms
		425	440	780	ohms
Peak R-F grid voltage.....		183	183	245	volts
D-c plate current.....		130	125	125	milliamperes
D-c grid current.....		35	35	35	milliamperes
Driving power, approximate.....		5.8	5.8	7.7	watts
Power output, approximate.....		90	86	120	watts

* The filament is center-tapped and the center lead is brought out of the tube. With this design, it is possible to minimize the effect of filament-lead inductance by connecting all three filament leads in parallel through r-f by-pass capacitors. The center lead of this parallel connection should not be returned directly to the center-tap of the filament-transformer winding or to ground, although it may be by-passed to either of these points if desired. R-F by-passing of the grid- and plate-return circuits should be made to the center lead of the filament.

** Continuous commercial service.

† Intermittent commercial and amateur service.

Grid voltages are given with respect to the mid-point of filament operated on a-c. If d-c is used, each stated value of grid voltage should be decreased by one-half the filament voltage and the circuit returns made to the negative end of the filament.

¶ 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 (2000, 2000, 3600) or by cathode resistor (425, 440, 780).

§ Obtained by grid resistor of value shown. Fixed supply not recommended for linear modulation.

NOTE: When the 826 is used in the final amplifier or a preceding stage of a transmitter designed for break-in operation and oscillator keying, a small amount of fixed bias must be used to maintain the plate current at a safe value. With plate voltage of 1250 volts, a fixed bias of at least -22.5 volts should be used.

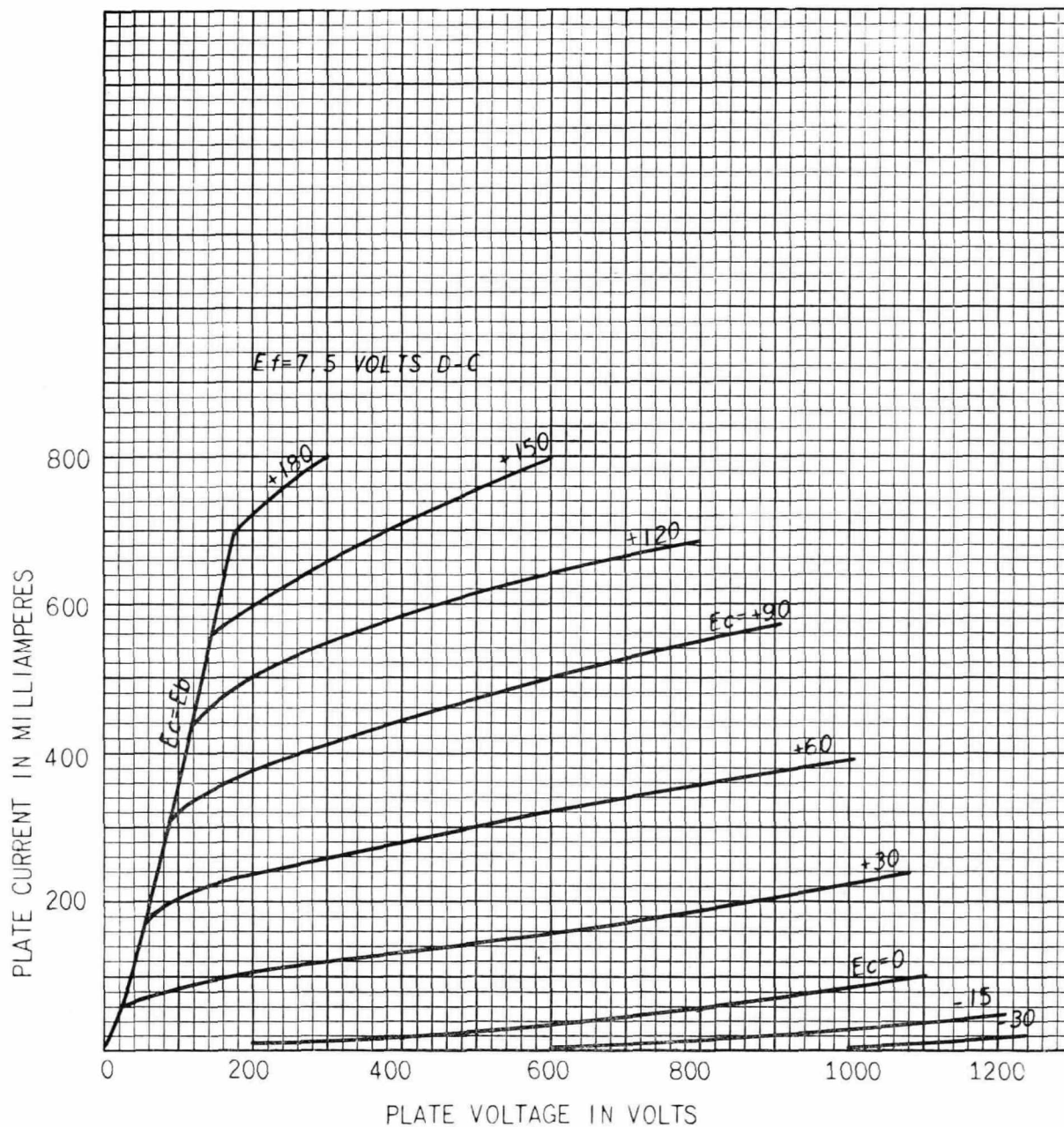
APPLICATION NOTES

Maximum ratings apply up to 250 megacycles. The tube may be operated at higher frequencies provided the maximum values of plate voltage and power input are reduced according to the tabulation below (other maximum ratings are the same as shown above). Special attention should be given to adequate ventilation of the bulb at these frequencies.

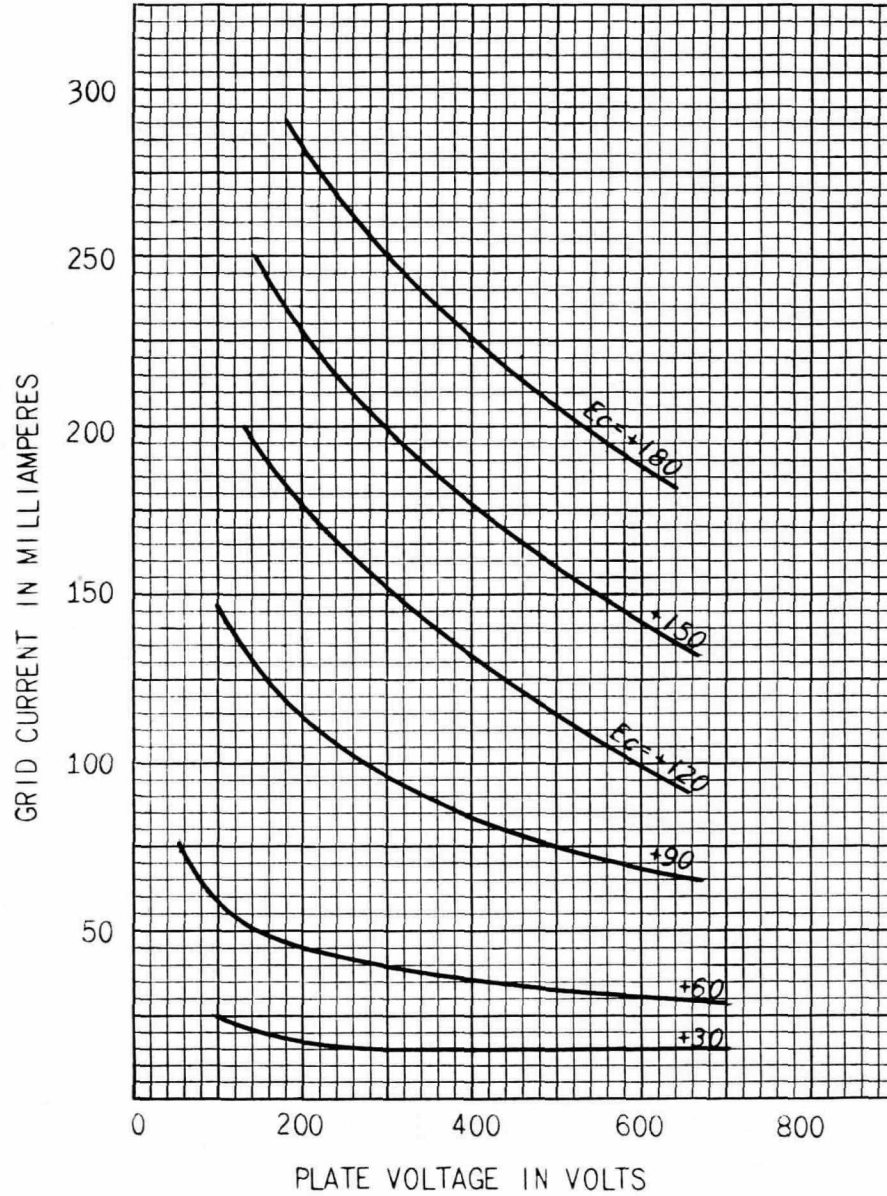
Frequency	250	300 megacycles
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Percentage of Maximum Rated Plate Voltage and Plate Input

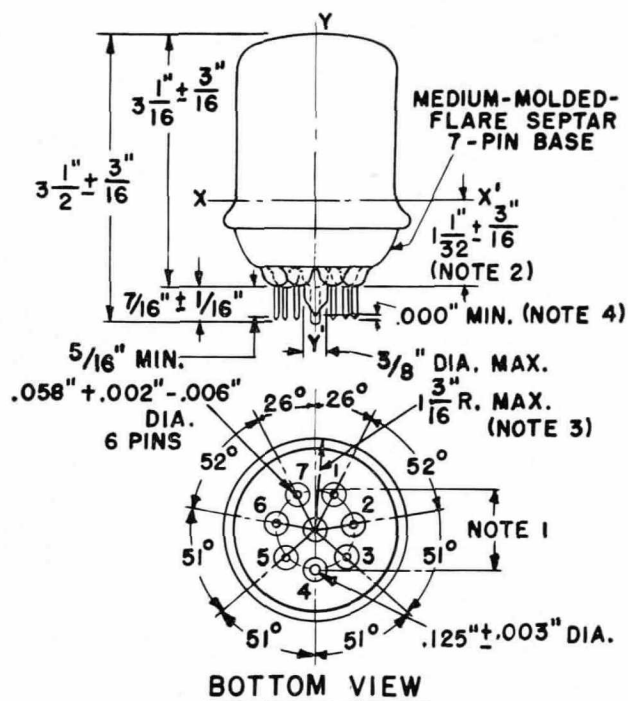
Class B	100	90 per cent
Class C plate modulated	100	80 per cent
Class C unmodulated	100	80 per cent

GL-826
AVERAGE PLATE CHARACTERISTICS

GL-826
TYPICAL CHARACTERISTICS
($E_i = 7.5$ VOLTS D-C)

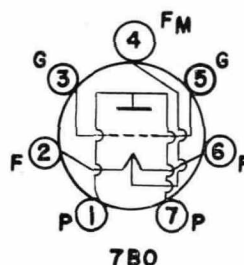


DIMENSIONAL OUTLINE



SOCKET CONNECTIONS

BOTTOM VIEW



- PIN 1 - PLATE
- PIN 2 - FILAMENT
- PIN 3 - GRID
- PIN 4 - FILAMENT MID-TAP
- PIN 5 - GRID
- PIN 6 - FILAMENT
- PIN 7 - PLATE

THE REFERENCE AXIS YY' IS DEFINED AS THE AXIS OF THE BASE-PIN GAGE DESCRIBED IN NOTE 1.

NOTE 1: ANGULAR VARIATIONS BETWEEN PINS AND VARIATION IN PIN-CIRCLE DIAMETER ARE HELD TO TOLERANCES SUCH THAT PINS WILL ENTER TO A DISTANCE OF 0.375" A FLAT-PLATE BASE-PIN GAGE HAVING SIX HOLES 0.0800 ± 0.0005 " AND ONE HOLE 0.1450 ± 0.0005 " ARRANGED ON A 1.0000 ± 0.0005 " CIRCLE AT SPECIFIED ANGLES WITH TOLERANCE OF $\pm 5^\circ$ FOR EACH ANGLE, GAGE IS ALSO PROVIDED WITH A HOLE 0.500 ± 0.010 " CONCENTRIC WITH PIN CIRCLE WHOSE CENTER IS ON THE AXIS YY'.

NOTE 2: A FLAT-PLATE FLANGE GAGE WITH HOLE $2.063 - 0.000 + 0.003$ " IS LOWERED OVER TUBE SEATED IN BASE-PIN GAGE SO THAT THE HOLE AXIS IS COINCIDENT WITH AXIS YY' WITHIN 0.150" AND SO THAT THE BOTTOM SURFACE OF THE FLANGE GAGE IS PARALLEL TO THE TOP SURFACE OF THE BASE-PIN GAGE, AND UNTIL THE FLANGE GAGE RESTS ON THE TUBE FLANGE SEAL AT POSITION XX'. THE PERPENDICULAR DISTANCE BETWEEN THE TWO GAGES WILL BE AS SHOWN.

NOTE 3: MINIMUM DIAMETER OF TUBE-SEAL FLANGE WILL BE SUCH THAT A RING GAGE HAVING I.D. OF $2.125 - 0.000 + 0.003$ " AND THICKNESS OF 0.125 ± 0.010 " WILL NOT PASS THE FLANGE WHEN TRIED AT ANY ANGLE.

NOTE 4: EXHAUST TIP WILL NOT EXTEND BEYOND THE PLANE WHICH PASSES THROUGH THE ENDS OF THE THREE LONGEST PINS.

K-9186158

GL-826 OUTLINE

10-15-47

Electronics Department
GENERAL ELECTRIC
 Schenectady, N. Y.