



▲ TETRODE

DESCRIPTION

The GL-4D21/4-125A is a four-electrode tube designed for use as a power amplifier and oscillator. The anode is capable of dissipating 125 watts, and

cooling is accomplished by radiation. The cathode is a thoriated-tungsten filament. Maximum ratings apply up to 120 megacycles.

TECHNICAL INFORMATION

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

GENERAL CHARACTERISTICS

Number of electrodes 4

Electrical

Filament voltage.....	5.0	volts
Filament current.....	6.5	amperes
Grid-screen amplification factor.....	6.2	
Interelectrode capacitances		
Grid No. 1 to plate*.....	0.05	micromicrofarad
Input.....	10.8	micromicrofarads
Output.....	3.1	micromicrofarads
Transconductance, $I_b = 50$ ma, $E_b = 2500$ v, $E_c = 400$ v.....	2450	micromhos

* Without external shielding, base shell connected to ground.

▲ Changed from BEAM POWER TUBE.


Electronic
TUBE

GENERAL  ELECTRIC

Supersedes page 1 and 2 only ETX-225 dated 9-47

TECHNICAL INFORMATION (CONT'D)

Mechanical

Mounting position—vertical

Net weight, approximate.....6.5 ounces

MAXIMUM RATINGS AND TYPICAL OPERATING CONDITIONS

CLASS AB₁ AUDIO-FREQUENCY POWER AMPLIFIER AND MODULATOR*Sinusoidal wave, two tubes unless otherwise specified*

Maximum ratings, absolute values

D-c plate voltage.....	3000	max volts
D-c grid No. 2 voltage.....	600	max volts
Maximum signal d-c plate current, per tube.....	225	max milliamperes
Grid No. 2 dissipation, per tube.....	20	max watts
Plate dissipation, per tube.....	125	max watts

Typical operation

D-c plate voltage.....	1500	2000	2500	volts
D-c grid No. 2 voltage.....	600	600	600	volts
D-c grid No. 1 voltage†.....	-90	-94	-96	volts
Peak a-f grid input voltage, per tube.....	90	94	96	volts
Zero-signal d-c plate current.....	60	50	50	milliamperes
Maximum signal d-c plate current.....	222	240	232	milliamperes
Zero-signal d-c grid No. 2 current.....	-1.0	-0.5	-0.3	milliamperes
Maximum signal d-c grid No. 2 current.....	17	6.4	8.5	milliamperes
Effective load resistance, plate to plate.....	10200	13400	20300	ohms
Driving power.....	0	0	0	watts
Maximum signal power output.....	158	230	330	watts
Total harmonic distortion.....	.5	2	2.6	per cent
Maximum signal plate dissipation, per tube.....	87.5	125	125	watts

CLASS AB₂ AUDIO-FREQUENCY POWER AMPLIFIER AND MODULATOR*Sinusoidal wave, two tubes unless otherwise specified*

Maximum ratings, absolute values

D-c plate voltage.....	3000	max volts
D-c grid No. 2 voltage.....	400	max volts
Maximum signal d-c plate current, per tube.....	225	max milliamperes
Grid No. 2 dissipation, per tube.....	20	max watts
Plate dissipation, per tube.....	125	max watts

Typical operation

D-c plate voltage.....	1500	2000	2500	3000	volts
D-c grid No. 2 voltage.....	350	350	350	350	volts
D-c grid No. 1 voltage.....	-41	-45	-43	-51	volts
Peak a-f grid input voltage, per tube.....	141	105	89	99	volts
Zero-signal d-c plate current.....	87	72	93	55	milliamperes
Maximum signal d-c plate current.....	400	300	260	260	milliamperes
Zero-signal d-c grid No. 2 current.....	0	0	0	0	milliamperes
Maximum signal d-c grid No. 2 current.....	.34	5	6	3.5	milliamperes
Effective load resistance, plate to plate.....	7200	13600	22200	27700	ohms
Maximum signal average driving power, approximate.....	2.5	1.4	1	1.1	watts
Maximum signal peak driving power.....	5.2	3.1	2.4	2.5	watts
Maximum signal power output.....	350	350	400	520	watts
Total harmonic distortion.....	2.5	1	2.2	1.8	per cent
Maximum signal plate dissipation, per tube.....	125	125	122	125	watts

TECHNICAL INFORMATION (CONT'D)

CLASS C TELEPHONY PLATE-MODULATED RADIO-FREQUENCY POWER AMPLIFIER

Carrier Conditions per Tube for Use with a Maximum Modulation Factor of 1.0

Maximum Ratings, Absolute Values

DC Plate Voltage	2500	Max	Volts
DC Grid No. 2 Voltage	400	Max	Volts
DC Grid No. 1 Voltage	-500	Max	Volts
DC Plate Current	200	Max	Milliamperes
Grid No. 1 Dissipation	5	Max	Watts
Grid No. 2 Dissipation	20	Max	Watts
Plate Dissipation	85	Max	Watts

Typical Operation

DC Plate Voltage	2000	2500	Volts
DC Grid No. 2 Voltage	350	350	Volts
DC Grid No. 1 Voltage	-220	-210	Volts
Peak RF Grid Input Voltage	375	360	Volts
Peak AF Grid No. 2 Voltage, 100 percent modulation	210	210	Volts
DC Plate Current	150	152	Milliamperes
DC Grid No. 2 Current	33	30	Milliamperes
DC Grid No. 1 Current, approximate	10	9	Milliamperes
Grid No. 1 Dissipation	1.6	1.4	Watts
Grid No. 2 Dissipation	11.5	10.5	Watts
Driving Power, approximate	3.8	3.3	Watts
Power Input	300	380	Watts
Power Output, approximate	225	300	Watts
Plate Dissipation	75	80	Watts

CLASS C TELEGRAPHY RADIO-FREQUENCY POWER AMPLIFIER AND OSCILLATOR

Key-Down Conditions per Tube without Modulation¶

Maximum Ratings, Absolute Values

DC Plate Voltage	3000	Max	Volts
DC Grid No. 2 Voltage	400	Max	Volts
DC Grid No. 1 Voltage	-500	Max	Volts
DC Plate Current	225	Max	Milliamperes
DC Grid No. 1 Dissipation	5	Max	Watts
Grid No. 2 Dissipation	20	Max	Watts
Plate Dissipation	125	Max	Watts

Typical Operation

DC Plate Voltage	2000	2500	3000	Volts
DC Grid No. 2 Voltage	350	350	350	Volts
DC Grid No. 1 Voltage	-100	-150	-150	Volts
Peak RF Grid Input Voltage	230	320	280	Volts
DC Plate Current	200	200	167	Milliamperes
DC Grid No. 2 Current	50	40	30	Milliamperes
DC Grid No. 1 Current, approximate	12	12	9	Milliamperes
Plate Dissipation	125	125	125	Watts
Grid No. 2 Dissipation	18	14	10.5	Watts
Grid No. 1 Dissipation	1.6	2	1.2	Watts
Driving Power, approximate	2.8	3.8	2.5	Watts
Power Input	400	500	500	Watts
Power Output, approximate	275	375	375	Watts

† The effective grid-circuit resistance must not exceed 250,000 ohms.

¶ Modulation essentially negative may be used if the positive peak of the envelope does not exceed 115 per cent of the carrier conditions.

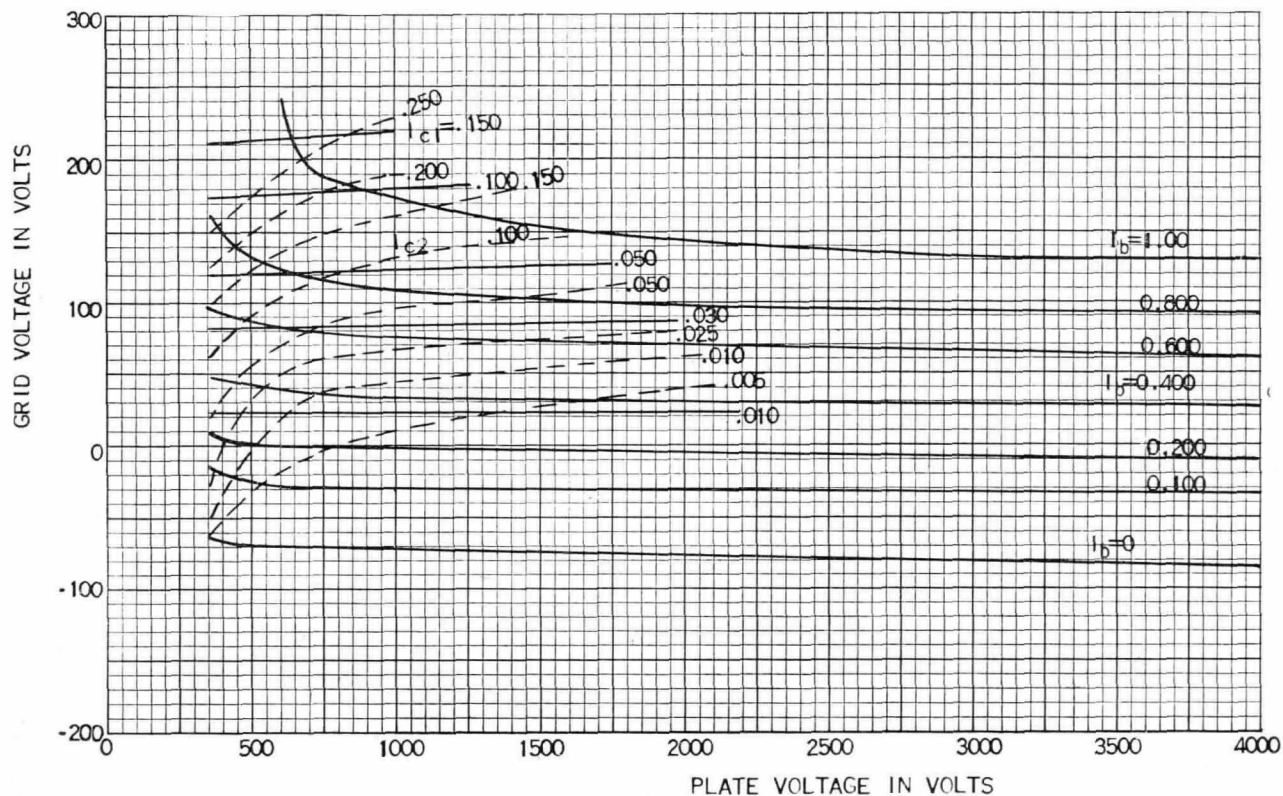
‡ Supersedes pages 3 and 4 dated 9-47.

APPLICATION NOTES

Maximum ratings apply up to 120 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 maxi-

um ratings are the same as shown above). Special attention should be given to adequate ventilation of the bulb at these frequencies.

Frequency.....	120	150	200	250 Megacycles
Percentage of Maximum Rated Plate Voltage and Plate Input				
Class C Plate Modulated.....	100	84	64	— Percent
Class C Unmodulated.....	100	80	64	54 Percent



CONSTANT CURRENT CHARACTERISTICS

⊕ SCREEN VOLTAGE = 350 VOLTS

K-69087-72A115

⊕ Denotes a change.

3-24-47



GL-4D21/4-125A OUTLINE

Electronics Department
GENERAL ELECTRIC
Schenectady, N. Y.