



4E27A

4E27A/5-125B BEAM POWER TUBE

Full Input at Frequencies up to 75 Mc

GENERAL DATA

Electrical:

Filament, Thoriated Tungsten:

Voltage 5.0 ac or dc volts
Current 7.5 amp

Transconductance (Approx.) For plate volts =

2500, grid-No.3 volts = 0, grid-No.2 volts = 500,
and plate ma. = 50 2150 μ hos

Mu-Factor, Grid No.2 to Grid No.1 5

Direct Interelectrode Capacitances:

Grid No.1 to plate* 0.08 μ mf
Input 10.5 μ mf
Output 4.7 μ mf

Mechanical:

Mounting Position Vertical, base down or up

Maximum Overall Length 5-9/16"

Seated Length 5-3/8" $\pm$ 1/4"

Maximum Diameter 2-3/4"

Plate Terminal See Dimensional Outline

Weight 6 ounces

Base Ventilated Medium-Metal-Shell Giant 7-Pin

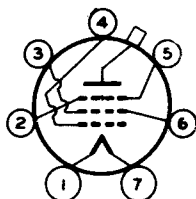
Basing Designation for BOTTOM VIEW 7BM

Pin 1-Filament

Pin 2-Grid No.3

Pin 3-Grid No.2

Pin 4-Grid No.1



Pin 5-Grid No.3

Pin 6-Grid No.2

Pin 7-Filament

Bulb Terminal-
Plate

Seal Temperature (Plate and stem) 225 max. $^{\circ}$ C

Bulb Temperature (At hottest point) 250 max. $^{\circ}$ C

Components:

Socket Johnson No.122-237, or equivalent

Heat-Radiating Plate Connector

(Supplied with tube) Eimac HR-5

AF POWER AMPLIFIER & MODULATOR - Class AB₁[†]

Maximum CCS[®] Ratings, Absolute Values:

DC PLATE VOLTAGE 4000 max. volts

DC GRID-No.2 (SCREEN) VOLTAGE 750 max. volts

DC GRID-No.1 (CONTROL-GRID) VOLTAGE -500 max. volts

[†] Subscript 1 indicates that grid-No.1 current does not flow during any part of the input cycle.

* With no external shielding and base shell connected to ground.

•: See next page.

← indicates a change.

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DC PLATE CURRENT*	200 max.	ma
PLATE DISSIPATION*	125 max.	watts
GRID-No.3 (SUPPRESSOR) DISSIPATION*	20 max.	watts
GRID-No.2 DISSIPATION*	20 max.	watts
GRID-No.1 DISSIPATION*	5 max.	watts

→ Typical Operation:

Values are for 2 tubes

DC Plate Voltage	1500	2000	2500	volts
DC Grid-No.3 Voltage	0	0	0	volts
DC Grid-No.2 Voltage	500	500	500	volts
DC Grid-No.1 (Control-Grid) Voltage [◇]	-70	-80	-85	volts
Peak AF Grid-No.1-to- Grid-No.1 Voltage	140	160	170	volts
Zero-Signal DC Plate Current	110	85	65	ma
Max.-Signal DC Plate Current	205	210	220	ma
Zero-Signal DC Grid-No.2 Current (Approx.)	0	0	0	ma
Max.-Signal DC Grid-No.2 Current (Approx.)	15	13	8	ma
Effective Load Resistance (Plate to plate)	13700	18000	20000	ohms
Max.-Signal Driving Power (Approx.)	0	0	0	watts
Max.-Signal Power Input	310	420	550	watts
Max.-Signal Power Output (Approx.)	200	250	300	watts

→ Maximum Circuit Values:

DC Resistance in Series with Grid No.1 of Each Tube	0.25 max.	megohm
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→ AF POWER AMPLIFIER & MODULATOR—Class AB₂*

Maximum CCS* Ratings, Absolute Values:

DC PLATE VOLTAGE	4000 max.	volts
DC GRID-No.2 (SCREEN) VOLTAGE	750 max.	volts
DC GRID-No.1 (CONTROL-GRID) VOLTAGE	-500 max.	volts
DC PLATE CURRENT	200 max.	ma
PLATE DISSIPATION	125 max.	watts
GRID-No.3 (SUPPRESSOR) DISSIPATION	20 max.	watts
GRID-No.2 DISSIPATION	20 max.	watts
GRID-No.1 DISSIPATION	5 max.	watts

* Averaged over any audio-frequency cycle of sine-wave form.

* Subscript 2 indicates that grid-no.1 current flows during some part of the input cycle.

*,[◇]: See next page.

→ indicates a change.

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BEAM POWER TUBE

Typical Operation:

Values are for 2 tubes

DC Plate Voltage	1500	2000	2500	volts
DC Grid-No.3 Voltage	60	0	0	volts
DC Grid-No.2 Voltage	500	500	500	volts
DC Grid-No.1 (Control-Grid) Voltage	-70	-80	-85	volts
Grid-No.1-to-Grid- No.1 Voltage	200	200	190	volts
Zero-Signal DC Plate Current . .	110	85	65	ma
Max.-Signal DC Plate Current . .	365	295	250	ma
Zero-Signal DC Grid-No.2 Current (Approx.)	0	0	0	ma
Max.-Signal DC Grid-No.2 Current (Approx.)	11	16	13	ma
Effective Load Resistance (Plate to plate)	7300	13000	20000	ohms
Max.-Signal Driving Power (Approx.)	0.5	0.3	0.2	watt
Max.-Signal Power Input	550	590	625	watts
Max.-Signal Power Output (Approx.)	300	350	400	watts

GRID No.3-MODULATED RF POWER AMPLIFIER—Class C Telephony

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

Maximum CCS® Ratings, Absolute Values:

DC PLATE VOLTAGE	4000 max.	volts
DC GRID-No.2 (SCREEN) VOLTAGE	750 max.	volts
DC GRID-No.1 (CONTROL-GRID) VOLTAGE	-500 max.	volts
DC PLATE CURRENT	200 max.	ma
PLATE DISSIPATION	125 max.	watts
GRID-No.3 (SUPPRESSOR) DISSIPATION	20 max.	watts
GRID-No.2 DISSIPATION	20 max.	watts
GRID-No.1 DISSIPATION	5 max.	watts

Typical Operation:

DC Plate Voltage	1500	2000	2500	volts
DC Grid-No.3 Voltage	-220	-260	-305	volts
Fixed DC Grid-No.2 Supply Voltage	610	645	650	volts
DC Grid-No.2 Voltage	400	400	400	volts
From a series grid-No.2 resistor of	5500	9100	10000	ohms
DC Grid-No.1 Voltage	-170	-180	-190	volts
Peak AF Grid-No.3 Voltage	220	260	305	volts
Peak RF Grid-No.1 Voltage	230	235	245	volts
DC Plate Current	59	59	59	ma

⦿ Adjust to stated zero-signal dc plate current.

←Indicates a change.



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DC Grid-No.2 Current (Approx.)	38	27	25	ma
DC Grid-No.1 Current (Approx.)	6	5	5	ma
Driving Power (Approx.)	1.4	1.3	1.2	watts
Power Output (Approx.)	35	50	61	watts

PLATE-MODULATED RF POWER AMPLIFIER—Class C Telephony

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

Maximum CCS[®] Ratings, Absolute Values:

DC PLATE VOLTAGE	3200	max.	volts
DC GRID-No.2 (SCREEN) VOLTAGE	750	max.	volts
DC GRID-No.1 (CONTROL-GRID) VOLTAGE	-500	max.	volts
DC PLATE CURRENT	160	max.	ma
PLATE DISSIPATION	85	max.	watts
GRID-No.3 (SUPPRESSOR) DISSIPATION	20	max.	watts
GRID-No.2 DISSIPATION	20	max.	watts
GRID-No.1 DISSIPATION	5	max.	watts

➤ Typical Operation with Grid No.3 Grounded

and Grid-No.2 Volts = 500:

DC Plate Voltage	1500	2000	2500	volts
DC Grid-No.2 Voltage	500	500	500	volts
DC Grid-No.1 Voltage	-195	-200	-205	volts
Peak AF Grid-No.2 Voltage	350	350	350	volts
Peak RF Grid-No.1 Voltage	265	270	275	volts
DC Plate Current	150	151	152	ma
DC Grid-No.2 Current (Approx.)	18	17	16	ma
DC Grid-No.1 Current (Approx.)	7	8	8	ma
Driving Power (Approx.)	2	2	2	watts
Power Output (Approx.)	153	220	295	watts

RF POWER AMPLIFIER & OSCILLATOR—Class C Telegraphy[□]
and
RF POWER AMPLIFIER—Class C FM TelephonyMaximum CCS[®] Ratings, Absolute Values:

DC PLATE VOLTAGE	4000	max.	volts
DC GRID-No.2 (SCREEN) VOLTAGE	750	max.	volts
DC GRID-No.1 (CONTROL-GRID) VOLTAGE	-500	max.	volts
DC PLATE CURRENT	200	max.	ma
PLATE DISSIPATION	125	max.	watts
GRID-No.3 (SUPPRESSOR) DISSIPATION	20	max.	watts
GRID-No.2 DISSIPATION	20	max.	watts
GRID-No.1 DISSIPATION	5	max.	watts

• Continuous Commercial Service.

□ key-down conditions per tube without amplitude modulation. Amplitude modulation essentially negative may be used if the positive peak of the audio-frequency envelope does not exceed 115% of the carrier conditions.

•, □: See next page.

➔ Indicates a change.



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**Typical Operation with Grid No.3 Grounded
and Grid-No.2 Volts = 500:**

DC Plate Voltage	1000	2000	3000	volts
DC Grid-No.2 Voltage	500	500	500	volts
DC Grid-No.1 Voltage	-120	-150	-200	volts
Peak RF Grid-No.1 Voltage	170	240	270	volts
DC Plate Current	145	200	167	ma
DC Grid-No.2 Current (Approx.)	17	23	12	ma
DC Grid-No.1 Current (Approx.)	6	11	7	ma
Driving Power (Approx.)	1	2.6	1.9	watts
Power Output (Approx.)	90	275	375	watts

**Typical Operation with Grid No.3 Grounded
and Grid-No.2 Volts = 750:**

DC Plate Voltage	1000	2000	3000	volts
DC Grid-No.2 Voltage	750	750	750	volts
DC Grid-No.1 Voltage	-170	-200	-250	volts
Peak RF Grid-No.1 Voltage	205	257	290	volts
DC Plate Current	160	200	167	ma
DC Grid-No.2 Current (Approx.)	21	22	9	ma
DC Grid-No.1 Current (Approx.)	3	6	3	ma
Driving Power (Approx.)	0.6	1.5	0.9	watts
Power Output (Approx.)	115	300	375	watts

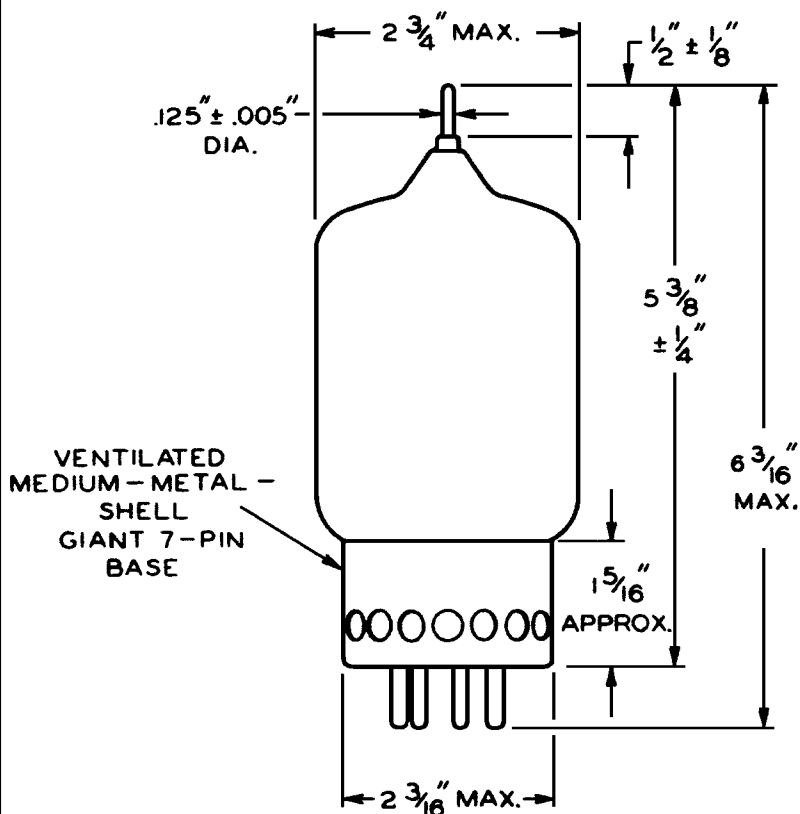
**Typical Operation with Grid-No.3 Volts = 60
and Grid-No.2 Volts = 500:**

DC Plate Voltage.	1000	2000	3000	volts
DC Grid-No.3 Voltage.	60	60	60	volts
DC Grid-No.2 Voltage.	500	500	500	volts
DC Grid-No.1 Voltage.	-120	-150	-200	volts
Peak RF Grid-No.1 Voltage	170	222	260	volts
DC Plate Current.	167	200	167	ma
DC Grid-No.3 Current (Approx.)	6	4	3	ma
DC Grid-No.2 Current (Approx.)	11	11	5	ma
DC Grid-No.1 Current (Approx.)	6	8	6	ma
Driving Power (Approx.)	1	1.8	1.6	watts
Power Output (Approx.)	120	300	375	watts

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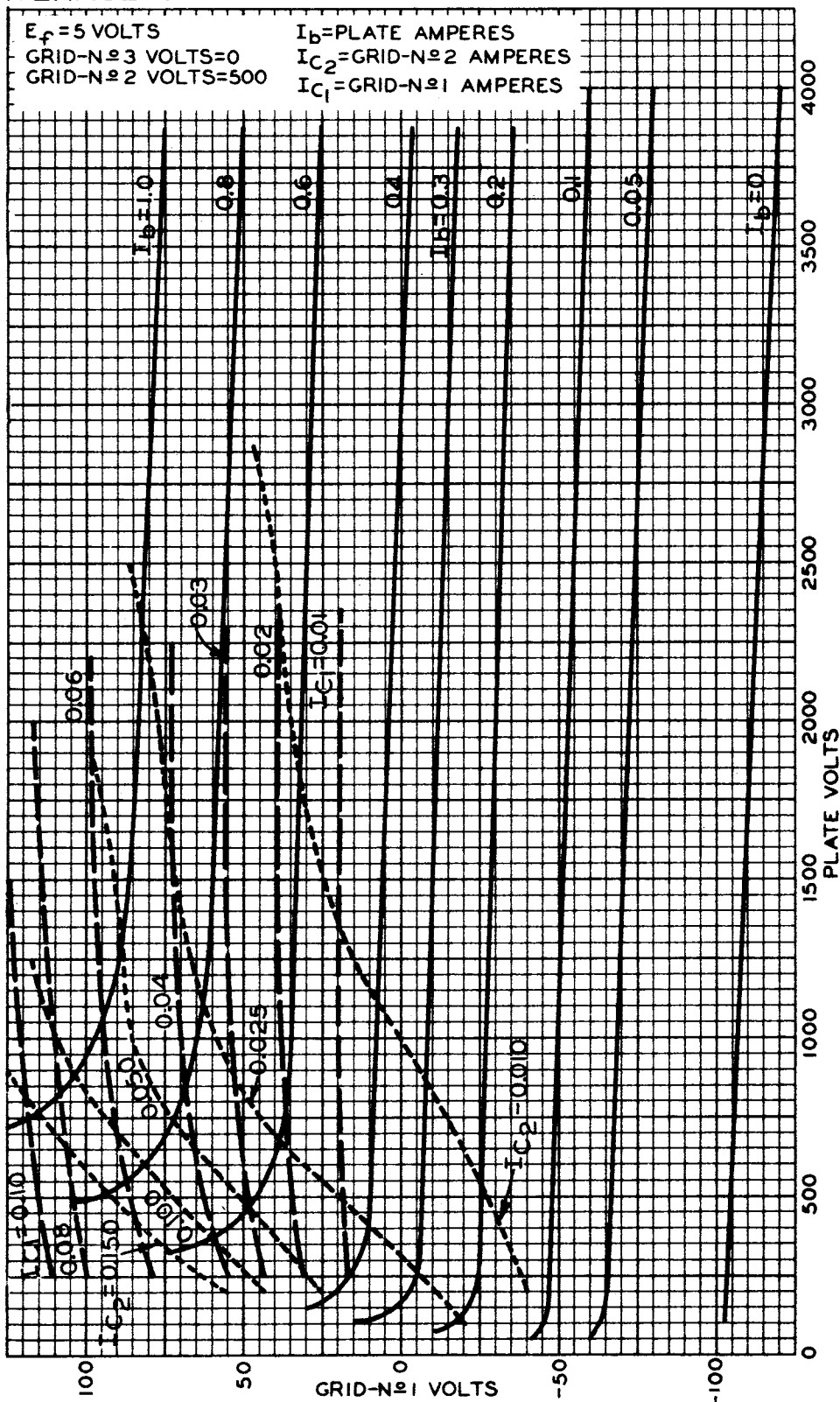
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AVERAGE CONSTANT-CURRENT CHARACTERISTICS



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