



6DS5

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# BEAM POWER TUBE

7-PIN MINIATURE TYPE

## GENERAL DATA

### Electrical:

Heater, for Unipotential Cathode:

Voltage . . . . .	6.3	. . . . . ac or dc volts
Current . . . . .	0.8	. . . . . amp

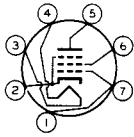
Direct Interelectrode Capacitances (Approx.):<sup>o</sup>

Grid No.1 to plate. . . . .	0.19	$\mu$ f
Grid No.1 to cathode & grid No.3, grid No.2, and heater . . . . .	9.5	$\mu$ f
Plate to cathode & grid No.3, grid No.2, and heater . . . . .	6.3	$\mu$ f

### Mechanical:

Mounting Position . . . . .	Any
Maximum Overall Length . . . . .	2-5/8"
Maximum Seated Length . . . . .	2-3/8"
Length, Base Seat to Bulb Top (Excluding tip). . . . .	2" $\pm$ 3/32"
Maximum Diameter . . . . .	3/4"
Dimensional Outline . . . . .	See General Section
Bulb . . . . .	T5-1/2
Base . . . . .	Small-Button Miniature 7-Pin (JETEC No.E7-1)
Basing Designation for BOTTOM VIEW. . . . .	7BZ

- Pin 1 - Grid No.1
- Pin 2 - Cathode,  
Grid No.3
- Pin 3 - Heater



- Pin 4 - Heater
- Pin 5 - Plate
- Pin 6 - Grid No.2
- Pin 7 - Grid No.1

### AMPLIFIER - Class A<sub>1</sub>

### Maximum Ratings, Design-Center Values:

PLATE VOLTAGE . . . . .	250 max.	volts
GRID-No.2 (SCREEN-GRID) VOLTAGE . . . . .	250 max.	volts
GRID-No.1 (CONTROL-GRID) VOLTAGE:		
Positive bias value . . . . .	0 max.	volts
GRID-No.2 INPUT . . . . .	2 max.	watts
PLATE DISSIPATION . . . . .	8 max.	watts
PEAK HEATER-CATHODE VOLTAGE:		
Heater negative with respect to cathode . . . . .	90 max.	volts
Heater positive with respect to cathode . . . . .	90 max.	volts
BULB TEMPERATURE (At hottest point on bulb surface). . . . .	250 max.	$^{\circ}$ C

### Typical Operation and Characteristics:

#### Fixed-Bias Operation

Plate Voltage . . . . .	200	250	volts
Grid-No.2 Voltage . . . . .	200	200	volts
Grid-No.1 Voltage . . . . .	-7.5	-8.5	volts
Peak AF Grid-No.1 Voltage . . . . .	7.5	8.5	volts

<sup>o</sup> without external shield.

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## BEAM POWER TUBE

Zero-Signal Plate Current . . . . .	35	29	ma
Max.-Signal Plate Current . . . . .	36	32	ma
Zero-Signal Grid-No.2 Current . . . .	3	3	ma
Max.-Signal Grid-No.2 Current . . . .	9	10	ma
Plate Resistance (Approx.) . . . . .	28000	28000	ohms
Transconductance . . . . .	6000	5800	$\mu$ hos
Load Resistance . . . . .	6000	8000	ohms
Total Harmonic Distortion . . . . .	9	10	%
Max.-Signal Power Output . . . . .	3	3.8	watts

*Cathode-Bias Operation*

Plate-Supply Voltage . . . . .	200	250	volts
Grid-No.2 Supply Voltage . . . . .	200	200	volts
Cathode Resistor . . . . .	180	270	ohms
Peak AF Grid-No.1 Voltage . . . . .	7.5	9.2	volts
Zero-Signal Plate Current . . . . .	34.5	27	ma
Max.-Signal Plate Current . . . . .	32.5	25	ma
Zero-Signal Grid-No.2 Current . . . .	3.5	3	ma
Max.-Signal Grid-No.2 Current . . . .	9	9	ma
Plate Resistance (Approx.) . . . . .	28000	28000	ohms
Transconductance . . . . .	6000	5800	$\mu$ hos
Load Resistance . . . . .	6000	8000	ohms
Total Harmonic Distortion . . . . .	10	10	%
Max.-Signal Power Output . . . . .	2.8	3.6	watts

**Maximum Circuit Values:**

Grid-No.1-Circuit Resistance:

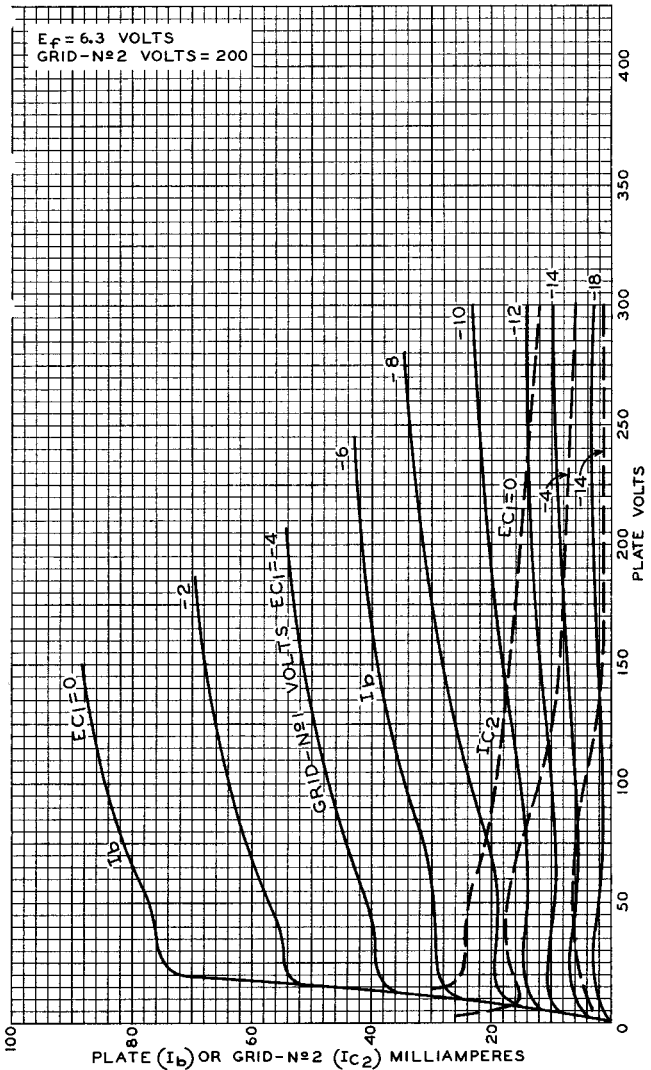
For fixed-bias operation . . . . .	0.1 max.	megohm
For cathode-bias operation . . . . .	1.0 max.	megohm



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### AVERAGE CHARACTERISTICS



ELECTRON TUBE DIVISION

RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

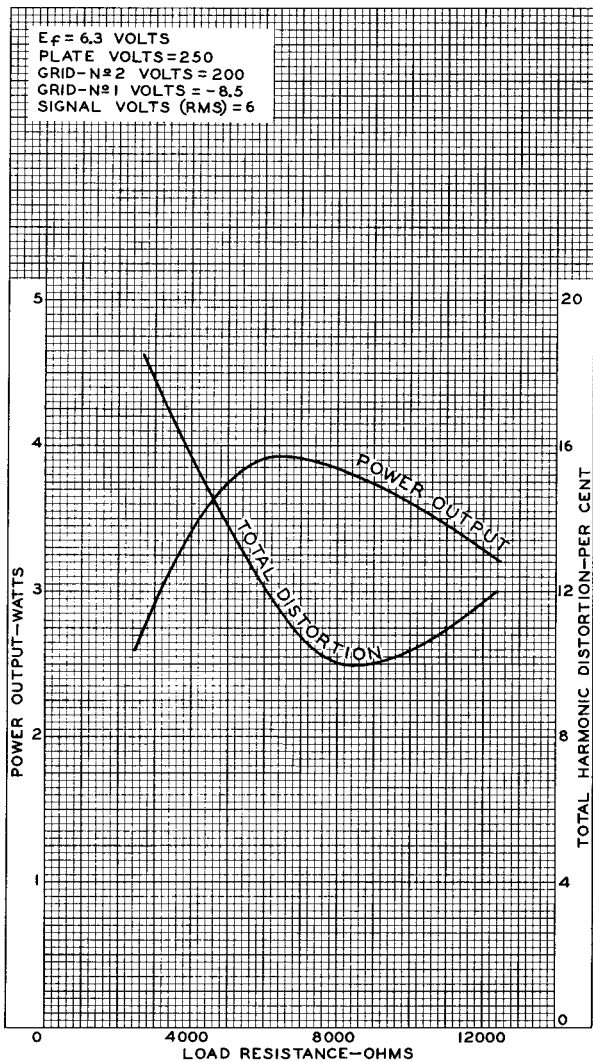
92CM-9292

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## OPERATION CHARACTERISTICS



## Beam Power Tube

## 7-PIN MINIATURE TYPE

For Audio Output Service in TV and Radio Receivers

ELECTRICAL CHARACTERISTICS - Bogey Values<sup>a</sup>

Heater Voltage, ac or dc . . . . .	$E_h$	6.3		V
Heater Current . . . . .	$I_h$	0.8		A
Direct Interelectrode Capacitances: <sup>b</sup>				
Grid No.1 to plate . . . . .	$c_{g1-p}$	0.19		pF
Input: G1 to (K, G3, G2, H) . . .	$c_i$	9.5		pF
Output: P to (K, G3, G2, H) . . .	$c_o$	6.3		pF

## TYPICAL OPERATION AND CHARACTERISTICS

## Cathode-Bias Operation

For the following characteristics, see Conditions below:

Zero-Signal Plate Current . . .	$I_b$	34.5	27	mA
Max.-Signal Plate Current . . .	$I_{b(max.-sig.)}$	32.5	25	mA
Zero-Signal Grid-No.2 Current .	$I_{c2}$	3.5	3	mA
Max.-Signal Grid-No.2 Current .	$I_{c2(max.-sig.)}$	9	9	mA
Plate Resistance (Approx.) . . .	$r_p$	28000	28000	$\Omega$
Transconductance . . . . .	$g_m$	6000	5800	$\mu\text{mho}$
Load Resistance . . . . .	$R_l$	6000	8000	$\Omega$
Total Harmonic Distortion. . . .	$D_t$	10	10	%
Max.-Signal Power Output . . . .	$P_o$	2.8	3.6	W

## Conditions:

Heater Voltage . . . . .	$E_h$	6.3	6.3	V
Plate Supply Voltage . . . . .	$E_{bb}$	200	250	V
Grid-No.2 Voltage . . . . .	$E_{c2}$	200	200	V
Cathode-Bias Resistor . . . . .	$R_k$	180	270	$\Omega$
Peak AF Grid-No.1 Voltage . . .	$e_{clm}$	7.5	9.2	V

## Fixed-Bias Operation

For the following characteristics, see Conditions below:

Zero-Signal Plate Current . . .	$I_b$	35	29	mA
Max.-Signal Plate Current . . .	$I_{b(max.-sig.)}$	36	32	mA
Zero-Signal Grid-No.2 Current .	$I_{c2}$	3	3	mA
Max.-Signal Grid-No.2 Current .	$I_{c2(max.-sig.)}$	9	10	mA
Plate Resistance (Approx.) . . .	$r_p$	28000	28000	$\Omega$
Transconductance . . . . .	$g_m$	6000	5800	$\mu\text{mho}$
Load Resistance . . . . .	$R_l$	6000	8000	$\Omega$

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Total Harmonic Distortion. . . . .	$D_t$	9	10	%
Max.-Signal Power Output. . . . .	$P_o$	3	3.8	W
<i>Conditions:</i>				
Heater Voltage . . . . .	$E_h$	6.3	6.3	V
Plate Voltage . . . . .	$E_b$	200	250	V
Grid-No.2 Voltage . . . . .	$E_{c2}$	200	200	V
Grid-No.1 (Control-Grid) Voltage . . . . .	$E_{c1}$	-7.5	-8.5	V
Peak AF Grid-No.1 Voltage . . . . .	$e_{c1m}$	7.5	8.5	V

## MECHANICAL CHARACTERISTICS

Dimensional Outline . . . . .	JEDEC 5-3			
Maximum Overall Length . . . . .	2.625 in (66.67 mm)			
Maximum Seated Length. . . . .	2.375 in (60.32 mm)			
Maximum Diameter . . . . .	0.750 in (19.05 mm)			
Bulb. . . . .	T 5-1/2			
Base . . . . .	Small-Button Miniature 7-Pin (JEDEC No.E7-1)			
Terminal Connections (See <i>TERMINAL DIAGRAM</i> ) . . . . .	JEDEC Designation 7BZ			
Type of Cathode . . . . .	Coated Unipotential			
Mounting Position. . . . .	Any			

## MAXIMUM RATINGS - Design-Maximum Values<sup>c</sup>

Plate Voltage. . . . .	$E_b$	275	V
Grid-No.2 Voltage . . . . .	$E_{c2}$	275	V
Grid-No.1 Voltage:			
Positive bias value . . . . .	$E_{c1}$	0	V
Plate Dissipation . . . . .	$P_b$	9	W
Grid-No.2 Input. . . . .	$P_{g2}$	2.2	V
Heater Voltage . . . . .	$E_h$	5.7 to 6.9	V
Heater-Cathode Voltage:			
Peak . . . . .	$e_{hkm}$	+200	V
DC . . . . .	$E_{hk}$	100	V
Envelope Temperature (At hottest point on envelope surface) . . . . .	$T_E$	250	°C

## MAXIMUM CIRCUIT VALUES

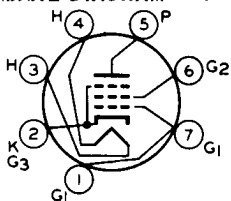
Grid-No.1-Circuit Resistance:	$\bar{R}_{g1(ckt)}$		
For fixed-bias operation . . . . .		0.1	MΩ
For cathode-bias operation . . . . .		1.0	MΩ

<sup>a</sup> Unless otherwise specified.

<sup>b</sup> Without external shield. Measured in accordance with the current issue of EIA Standard RS-191.

<sup>c</sup> As defined in the current issue of EIA Standard RS-239.

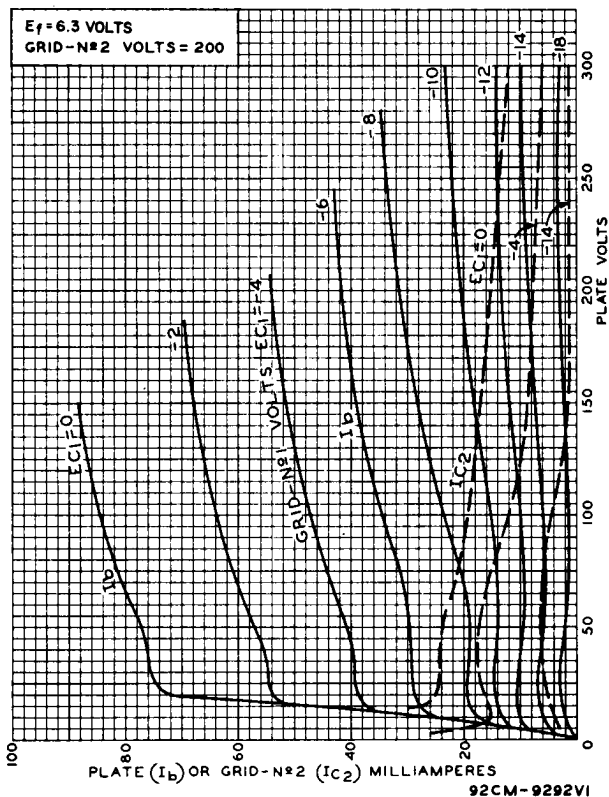
## TERMINAL DIAGRAM - Bottom View



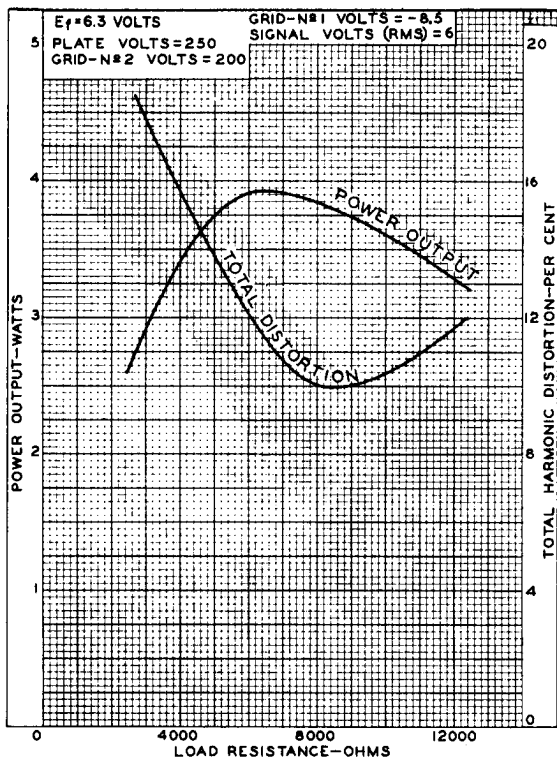
JEDEC 7BZ

- Pin 1 - Grid No.1
- Pin 2 - Cathode,  
Grid No.3
- Pin 3 - Heater
- Pin 4 - Heater
- Pin 5 - Plate
- Pin 6 - Grid No.2
- Pin 7 - Grid No.1

## AVERAGE CHARACTERISTICS



## OPERATION CHARACTERISTICS



92CM-9293VI