

Beam Power Tube— Sharp-Cutoff Pentode

For Combined FM Detector and Audio-Frequency
Output Amplifier Applications in TV Receivers

DUODECAR TYPE

Electrical:

Heater Characteristics and Ratings:

Voltage (AC or DC) 6.3 ± 0.6 volts
Current at heater volts = 6.3 0.9 amp

Peak heater-cathode voltage (Each unit):

Heater negative with respect to cathode. 200 max. volts
Heater positive with respect to cathode. 200^a max. volts

Direct Interelectrode Capacitances (Approx.):^b

Beam Power Unit:

Grid No.1 to plate. 0.26 pf
Input: G_{1B} to ($K_B + G_{3B}, G_{2B}, IS, H$). 11 pf
Output: P_B to ($K_B + G_{3B}, G_{2B}, IS, H$). 12 pf

Pentode Unit:

G_{1P} to P_P 0.034 pf
 G_{3P} to P_P 3.2 pf
 G_{1P} to ($K_P, G_{2P}, G_{3P}, IS, H$). 6.5 pf
 G_{3P} to ($K_P, G_{1P}, G_{2P}, P_P, IS, H$). 7.5 pf
 G_{1P} to G_{3P} 0.24 pf
 P_B to P_P 0.12 pf

Mechanical:

Operating Position. Any

Type of Cathodes. Coated Unipotential

Maximum Overall Length. 2.625" ←

Seated Length. 2.000" to 2.250" ←

Diameter. 1.062" to 1.188"

Dimensional Outline (JEDEC 9-59). See *General Section*

Bulb. T9

Base. Small-Button Duodecar 12-Pin (JEDEC No.E12-70)

Basing Designation for BOTTOM VIEW. 12BU

Pin 1—Heater

Pin 2—Pentode Cathode

Pin 3—Pentode Grid No.1

Pin 4—Pentode Grid No.3

Pin 5—Internal Shield

Pin 6—Pentode Plate

Pin 7—Pentode Grid No.2

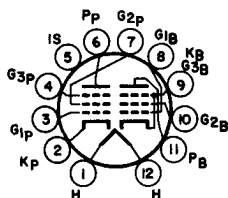
Pin 8—Beam Power Grid No.1

Pin 9—Beam Power Cathode,
Beam Power Grid No.3

Pin 10—Beam Power Grid No.2

Pin 11—Beam Power Plate

Pin 12—Heater



^a The dc component must not exceed 100 volts.

^b Without external shield.

← Indicates a change.



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Characteristics, Class A₁ Amplifier (Pentode Unit):

Plate Supply Voltage.	150	volts
Grid-No.3	Connected to cathode at socket	
Grid-No.2 Supply Voltage.	100	volts
Grid-No.1	Connected to negative end of cathode resistor	
Cathode Resistor.	560	ohms
Plate Resistance (Approx.).	0.15	megohm
Transconductance, Grid No.1 to Plate.	1000	μ mhos
Transconductance, Grid No.3 to Plate.	400	μ mhos
Plate Current	1.3	ma
Grid-No.2 Current	2.1	ma
Grid-No.1 Voltage (Approx.) for plate μ a = 30 .	-4.5	volts
Grid-No.3 Voltage (Approx.) for plate μ a = 50 .	-4.5	volts

PENTODE UNIT — FM SOUND DETECTOR

Maximum Ratings, Design-Maximum Values:

Plate Voltage	330 max.	volts
Grid-No.3 (Suppressor-Grid) Voltage	28 max.	volts
Grid-No.2 (Screen-Grid) Supply Voltage.	330 max.	volts
Grid-No.2 Voltage	See Grid-No.2 Input Rating Chart at front of Receiving Tube Section	
Grid-No.1 (Control-Grid) Voltage:		
Positive-bias value	0 max.	volts
Plate Dissipation	1.7 max.	watts
Grid-No.2 Input:		
For grid-No.2 voltages up to 165 volts.	1.1 max.	watts
For grid-No.2 voltages between 165 and 330 volts	See Grid-No.2 Input Rating Chart at front of Receiving Tube Section	

BEAM POWER UNIT — AMPLIFIER — Class A₁

Maximum Ratings, Design-Maximum Values:

Plate Voltage	275 max.	volts
Grid-No.2 (Screen-Grid) Voltage	275 max.	volts
Plate Dissipation	10 max.	watts
Grid-No.2 Input	2 max.	watts

Typical Operation and Characteristics:

Plate Voltage	250	volts
Grid-No.2 Voltage	250	volts
Grid-No.1 (Control-Grid) Voltage.	-8	volts
Peak AF Grid-No.1 Voltage	8	volts
Zero-Signal Plate Current	35	ma
Max.-Signal Plate Current	39	ma
Zero-Signal Grid-No.2 Current	2.5	ma
Max.-Signal Grid-No.2 Current	7	ma
Plate Resistance (Approx.).	0.1	megohm
Transconductance.	6500	μ mhos
Load Resistance	5000	ohms
Total Harmonic Distortion	10	per cent
Max.-Signal Power Output.	4.2	watts

Maximum Circuit Values:

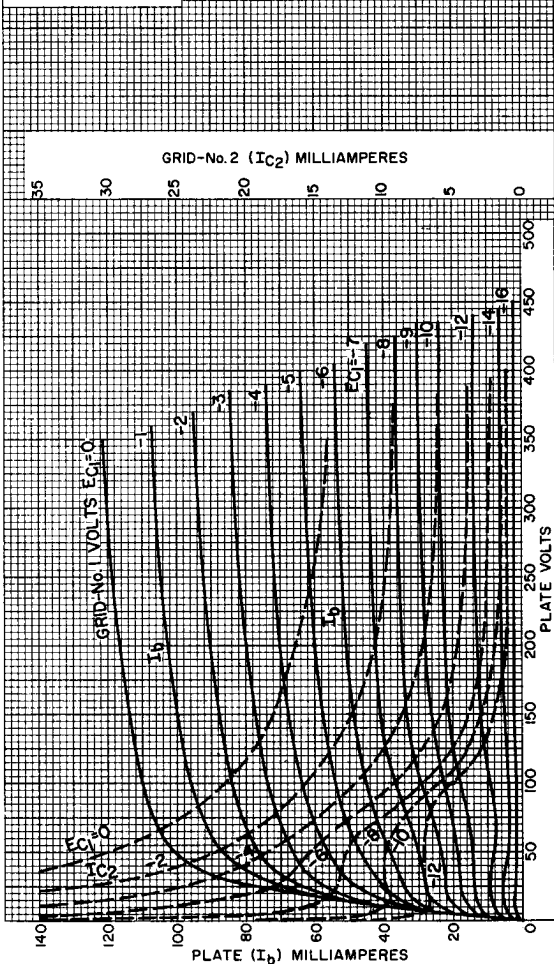
Grid-No.1-Circuit Resistance:		
For fixed-bias operation.	0.25 max.	megohm
For cathode-bias operation.	0.5 max.	megohm



AVERAGE CHARACTERISTICS Beam Power Unit

 $E_f = 6.3$ VOLTS

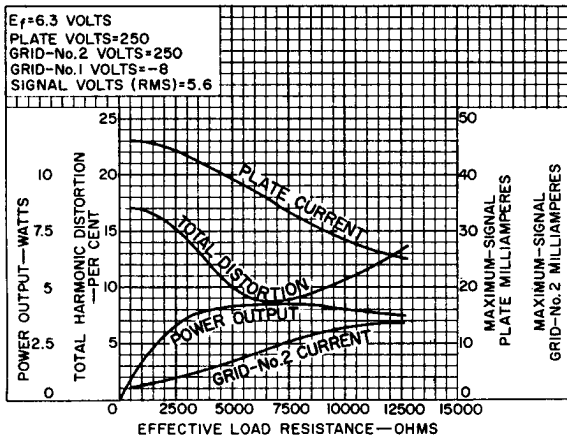
GRID-No.2 VOLTS=250



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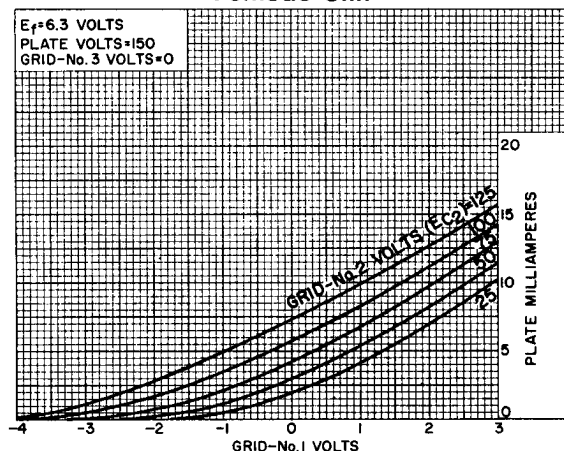


OPERATION CHARACTERISTICS Beam Power Unit



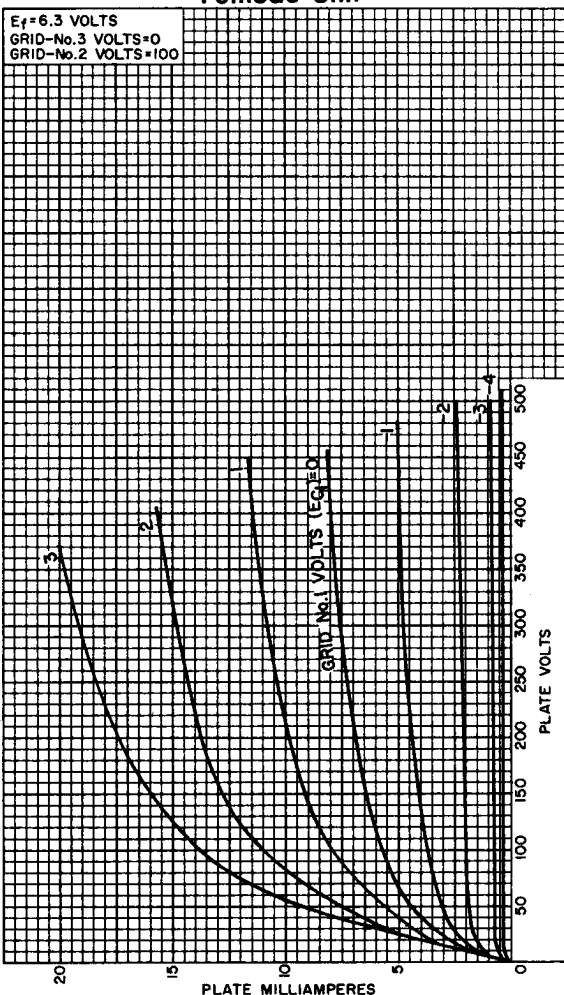
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AVERAGE CHARACTERISTICS Pentode Unit



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AVERAGE PLATE CHARACTERISTICS Pentode Unit

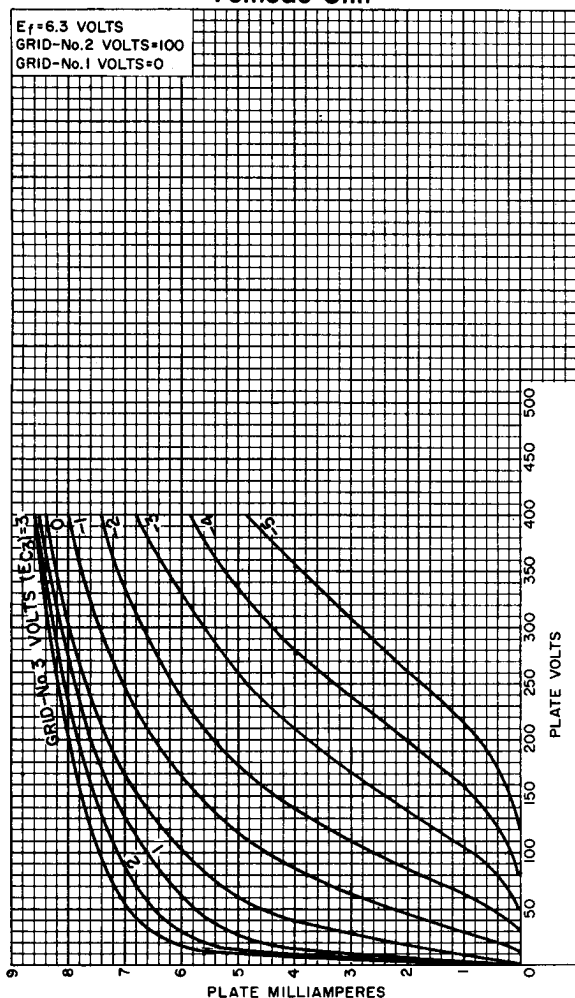


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AVERAGE PLATE CHARACTERISTICS Pentode Unit



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