



12DS7-A

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TWIN DIODE-POWER TETRODE

9-PIN MINIATURE TYPE

*For use in automobile radio receivers
operating directly from 6-cell storage-battery systems*

GENERAL DATA

Electrical:

Heater, for Unipotential Cathode:

Voltage range (AC or DC) 10 to 15.9 volts

This voltage range is on an absolute basis. For longest life, it is recommended that the heater be operated within the voltage range of 11 to 14 volts.

Current (Approx.) at 12.6 volts 0.4 amp

Direct Interelectrode Capacitances:^o

Tetrode Unit:

Grid No.2 to plate 13.8 μ f

Grid No.2 to grid No.1, cathode,
and heater 12.7 μ f

Plate to grid No.1, cathode,
and heater 2.2 μ f

Diode Units:

Diode plate No.1 to cathode
and heater 0.5 μ f

Diode plate No.2 to cathode
and heater 0.5 μ f

Diode plate No.1 to diode plate No.2 0.1 μ f

Tetrode grid No.2 to diode plate No.1 0.3 μ f

Tetrode grid No.2 to diode plate No.2 0.3 μ f

Characteristics, Class A₁ Amplifier (Tetrode Unit):

Heater Voltage 12.6 volts

Plate Voltage 12.6 volts

Grid-No.2 Voltage:
Developed across a 2.2-megohm resistor -0.5 volt

Grid-No.1 Voltage 12.6 volts

Plate Resistance (Approx.) 500 ohms

Amplification Factor, Grid No.2 to Plate 9.1

Transconductance, Grid No.2 to Plate 19000 μ mhos

Plate Current 35 ma

Grid-No.1 Current 75 ma

Mechanical:

Operating 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"

Diameter 0.750" to 0.875"

Dimensional Outline See General Section

Bulb T6-1/2

Base Small-Button Noval 9-Pin (JEDEC No.E9-1)

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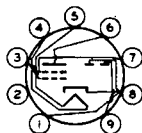


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Basing Designation for BOTTOM VIEW. 9JU

- Pin 1 - Plate of Diode Unit No.2
- Pin 2 - No Connection
- Pin 3 - Grid No.1 of Tetrode Unit
- Pin 4 - Heater
- Pin 5 - Heater



- Pin 6 - Plate of Tetrode Unit
- Pin 7 - Grid No.2 of Tetrode Unit
- Pin 8 - Cathode
- Pin 9 - Plate of Diode Unit No.1

TETRODE UNIT - AUDIO DRIVER

Maximum Ratings, Design-Maximum Values:

PLATE VOLTAGE	16 max.	volts
GRID-No.2 (CONTROL-GRID) VOLTAGE:		
Negative-bias value	16 max.	volts
GRID-No.1 (SPACE-CHARGE-GRID) VOLTAGE	16 max.	volts
PEAK HEATER-CATHODE VOLTAGE:		
Heater negative with respect to cathode.	16 max.	volts
Heater positive with respect to cathode.	16 max.	volts

Typical Operation:

Cathode Bias

Heater Voltage.	12	volts
Plate Supply Voltage.	11.2	volts
Plate Voltage	Obtained from indicated plate supply through series 100-henry choke having dc resistance of 150 ohms	
Grid-No.2 Supply Voltage.	0	volts
Grid-No.2 Resistor.	1.8	megohms
Grid-No.1 Supply Voltage.	11.2	volts
Cathode Resistor.	18	ohms
Peak AF Grid-No.2 Supply Voltage (Approx.):		
From 3.3-megohm signal source	4.25	volts
Zero-Signal Plate Current (Approx.)	20	ma
Indicated-Signal Plate Current.	7	ma
Grid-No.1 Current	58	ma
Load Resistance	1250	ohms
Total Harmonic Distortion at power output of 2.5 mw.	5	%
Indicated-Signal Power Output	10	mw

Grid-No.2-Resistor Bias

Heater Voltage.	12.6	volts
Plate Voltage	12.6	volts
Grid-No.2 Voltage:		
Obtained by rectification through a 2.2-megohm resistor	-2.5	volts



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Peak AF Grid-No.2 Voltage (Approx.):		
From 0.22-megohm signal source.	2.5	volts
Grid-No.1 Voltage	12.6	volts
Zero-Signal Plate Current (Approx.)	35	ma
Max.-Signal Plate Current	11	ma
Grid-No.1 Current	80	ma
Load Resistance	700	ohms
Total Harmonic Distortion	10	%
Max.-Signal Power Output.	45	mw

Maximum Circuit Values:

Grid-No.2-Circuit Resistance.	10 max.	megohms
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DIODE UNITS — Two

Values are for Each Unit

Maximum Ratings, Design-Maximum Values:

PLATE CURRENT	5 max.	ma
PEAK HEATER-CATHODE VOLTAGE:		
Heater negative with respect to cathode.	16 max.	volts
Heater positive with respect to cathode.	16 max.	volts

Characteristics:

Heater Voltage.	12.6	volts
Plate Current for plate volts = 10.	3	ma

^o Without external shield.

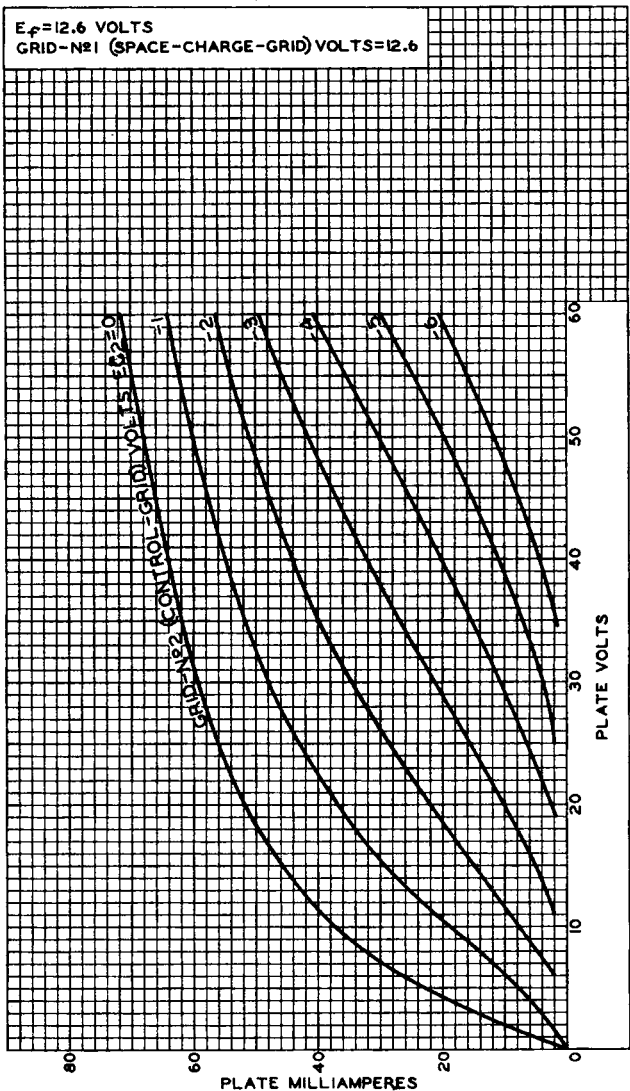
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AVERAGE PLATE CHARACTERISTICS TETRODE UNIT

$E_f = 12.6$ VOLTS
GRID-N₂ (SPACE-CHARGE-GRID) VOLTS = 12.6

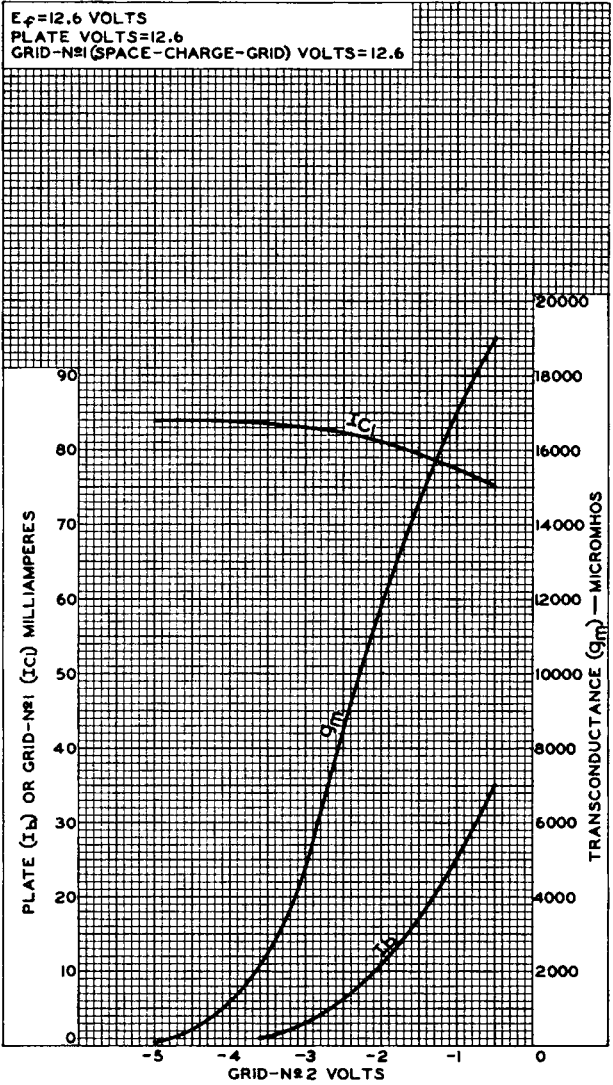




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AVERAGE CHARACTERISTICS TETRODE UNIT



ELECTRON TUBE DIVISION

92CM-10134

RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY