12DS7-A
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	μμf
Grid No.2 to grid No.1, cathode, and heater	12.7	μμf
Plate to grid No.1, cathode, and heater	2.2	μμf
Diode Units:		
Diode plate No.1 to cathode and heater	0.5	μμf
Diode plate No.2 to cathode and heater	0.5	μμf
Diode plate No.1 to diode plate No.2	0.1	μμf
Tetrode grid No.2 to diode plate No.1	0.3	μμf
Tetrode grid No.2 to diode plate No.2	0.3	μμf

Characteristics, Class A_1 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	μmhos
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" ± 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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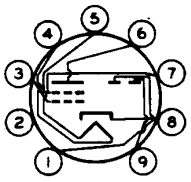
Basing Designation for BOTTOM VIEW. 9JU

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

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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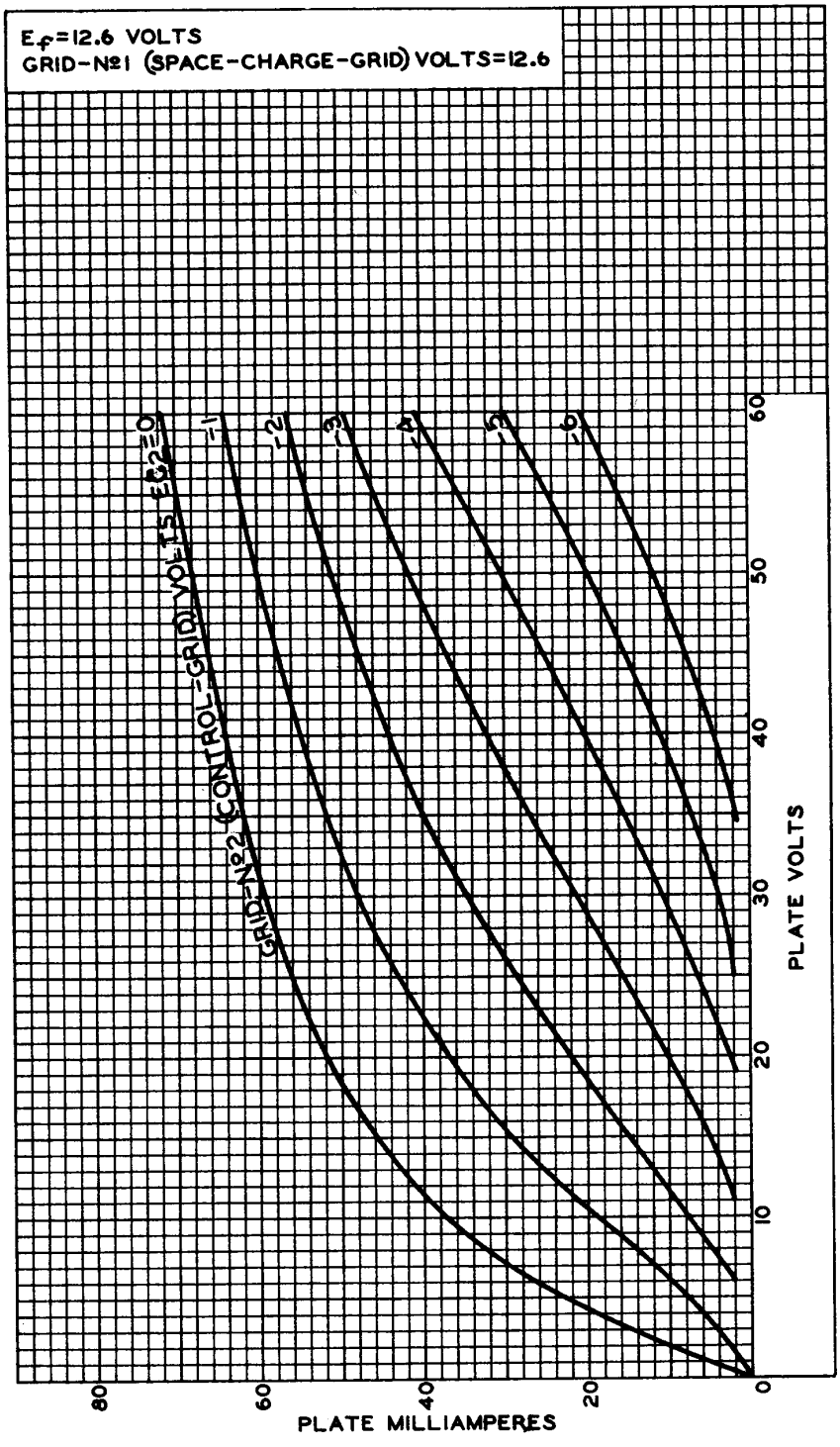
AVERAGE PLATE CHARACTERISTICS

TETRODE UNIT



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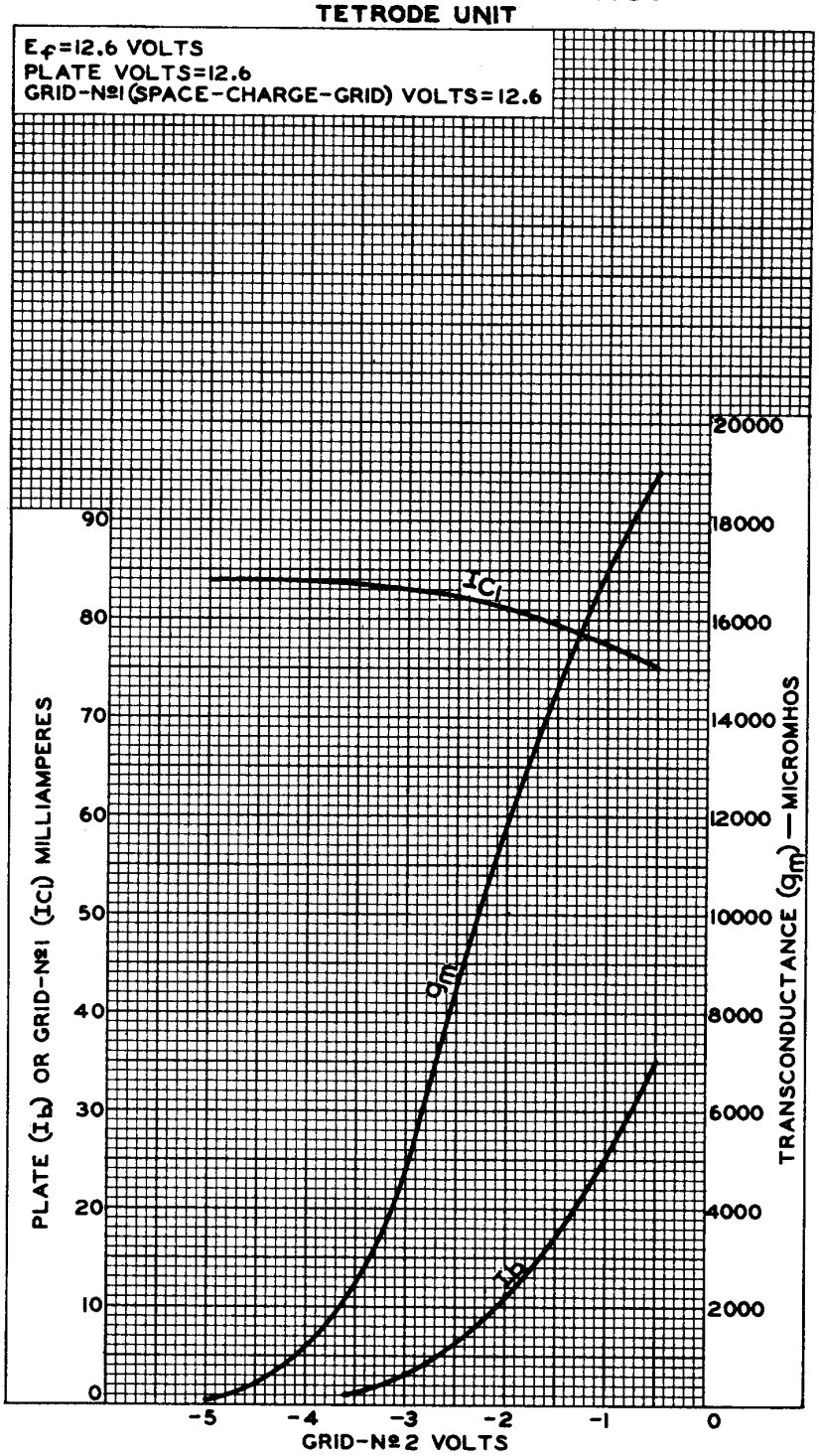
AVERAGE CHARACTERISTICS

TETRODE UNIT



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