

12FX8A

Medium-Mu Triode— Pentagrid Converter

9-PIN MINIATURE TYPE

For Automobile Radio Receivers Operating
Directly from 6-Cell Storage Batteries

GENERAL DATA

Electrical:

Heater Characteristics and Ratings (*Design-Center Values*):

Voltage (DC)^a 12.6 $\begin{matrix} +3.3 \\ -2.6 \end{matrix}$ volts

Current at heater volts = 12.6. 0.270 amp

Peak heater-cathode voltage (Each unit):

Heater negative with
respect to cathode. 16 max. volts

Heater positive with
respect to cathode. 16 max. volts

Direct Interelectrode Capacitances:^b

Triode Unit:

Grid to plate 1.3 pf

Grid to cathode & heater. 2.2 pf

Plate to cathode & heater 0.25 pf

Heptode Unit:

Grid No.3 to plate. 0.28 max. pf

Grid No.3 to grid No.1. 0.12 max. pf

Grid No.3 to cathode & grid No.5 &
internal shield, plate, grids No.2 &
No.4, grid No.1, and heater
(RF input). 6.0 pf

Plate to cathode & grid No.5 &
internal shield, grids No.2 & No.4,
grid No.1, and heater (Mixer output). 5.0 pf

Grid No.1 to cathode & grid No.5 &
internal shield, grid No.3, grids
No.2 & No.4, and heater
(Oscillator input). 5.0 pf

Grid No.1 to cathode & grid No.5 &
internal shield 3.0 pf

Cathode & grid No.5 & internal shield
to plate, grids No.2 & No.4, grid
No.3, and heater (Oscillator output). 17.0 pf

Grid No.1 to plate. 0.16 max. pf

Triode grid to heptode grid No.3. 0.01 max. pf

Triode plate to heptode grid No.3 0.18 max. pf

Triode plate to heptode plate 0.2 max. pf

Characteristics, Class A₁ Amplifier (Triode Unit):

With heater voltage of 12.6 volts

Plate Voltage 12.6 volts

Grid Voltage developed across a
2.2-megohm grid resistor. -0.8 volt



RADIO CORPORATION OF AMERICA
Electron Tube Division

Harrison, N. J.

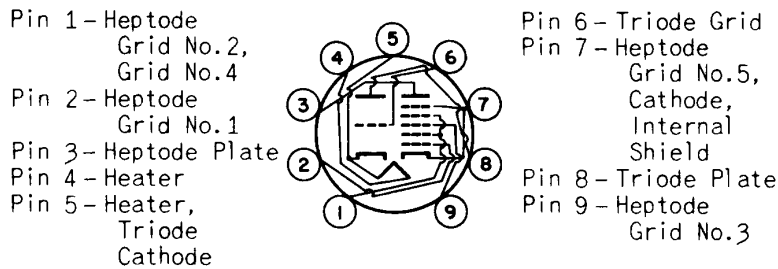
DATA 1
1-63

12FX8A

| | | |
|--|------|------------|
| Amplification Factor | 10 | |
| Plate Resistance (Approx.) | 7150 | ohms |
| Transconductance | 1400 | μ mhos |
| Plate Current | 1.3 | ma |
| Grid Voltage (Approx.) for plate μ a = 10. | -3.2 | volts |

Mechanical:

| | |
|---|---|
| Operating Position | Any |
| Type of Cathodes | Coated Unipotential |
| Maximum Overall Length | 2.440" |
| Maximum Seated Length | 2.190" |
| Length, Base Seat to Bulb Top (Excluding tip) | 1.720" to 1.910" |
| Diameter | 0.750" to 0.875" |
| Bulb | T6-1/2 |
| Base | Small-Button Noval 9-Pin (JEDEC No. E9-1) |
| Basing Designation for BOTTOM VIEW | 9KV |



- | | |
|--|---|
| Pin 1 - Heptode Grid No.2, Grid No.4 | Pin 6 - Triode Grid |
| Pin 2 - Heptode Grid No.1 | Pin 7 - Heptode Grid No.5, Cathode, Internal Shield |
| Pin 3 - Heptode Plate | Pin 8 - Triode Plate |
| Pin 4 - Heater | Pin 9 - Heptode Grid No.3 |
| Pin 5 - Heater, Triode Cathode | |

HEPTODE UNIT — CONVERTER

Maximum Ratings, Design-Center Values:

| | | |
|---|---------|-------|
| PLATE VOLTAGE | 16 max. | volts |
| GRID-No.3 (CONTROL-GRID) VOLTAGE: | | |
| Negative-bias value | 16 max. | volts |
| Positive-bias value | 0 max. | volts |
| GRIDS-No.2 & No.4 (SCREEN-GRID) VOLTAGE | 16 max. | volts |

Typical Operation and Characteristics:

With self-excitation and heater voltage of 12.6 volts

| | | |
|---|-------|------------|
| Plate Voltage | 12.6 | volts |
| Grid-No.3 Voltage developed across a 2.2-megohm grid-No.3 resistor | -0.5 | volt |
| Grids-No.2 & No.4 Voltage | 12.6 | volts |
| RMS Grid-No.1 (Oscillator-Grid) Voltage | 1.6 | volts |
| Grid-No.1 Resistor | 33000 | ohms |
| Plate Resistance (Approx.) | 0.5 | megohm |
| Conversion Transconductance | 300 | μ mhos |
| Grid-No.3 Voltage (Approx.) for conversion transconductance (μ mhos) = | | |
| 10 | -3 | volts |
| 1 | -8 | volts |
| Plate Current | 290 | μ a |
| Grids-No.2 & No.4 Current | 1.25 | ma |



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Oscillator Characteristics (Not Oscillating):

*With grids No.2 & No.4 connected to plate
and with heater voltage of 12.6 volts*

| | | |
|--|------|------------|
| Plate and Grids-No.2 & No.4 Voltage . . . | 12.6 | volts |
| Grid-No.3 Voltage | 0 | volts |
| Grid-No.1 Voltage | 0 | volts |
| Amplification Factor between grid No.1 and grids No.2 & No.4 connected to plate. | 9 | |
| Transconductance between grid No.1 and grids No.2 & No.4 connected to plate. . | 3600 | μ mhos |
| Cathode Current | 4.4 | ma |
| Grid-No.1 Voltage (Approx.) for plate μ a = 10 | -4.5 | volts |

Maximum Circuit Values:

| | | |
|---------------------------------------|---------|---------|
| Grid-No.3-Circuit Resistance. | 10 max. | megohms |
|---------------------------------------|---------|---------|

TRIODE UNIT — AMPLIFIER — Class A₁

Maximum Ratings, Design-Center Values:

| | | |
|-------------------------|---------|-------|
| PLATE VOLTAGE | 16 max. | volts |
|-------------------------|---------|-------|

Maximum Circuit Values:

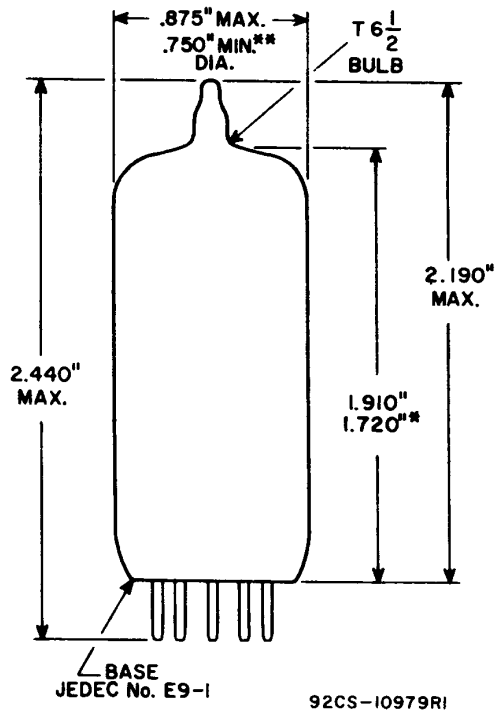
| | | |
|-----------------------------------|---------|---------|
| Grid-Circuit Resistance | 10 max. | megohms |
|-----------------------------------|---------|---------|

^a For longest life, it is recommended that the heater be operated within the range of 11.0 to 14.0 volts.

^b Without external shield.



12FX8A



* MEASURED FROM BASE SEAT TO BULB-TOP LINE AS DETERMINED BY A RING GAUGE OF 0.438" INSIDE DIAMETER.

** APPLIES IN ZONE STARTING 0.375" FROM BASE SEAT.

