



6AF4-A

# 6AF4-A

## MEDIUM-MU TRIODE

MINIATURE TYPE  
For UHF TV service

### GENERAL DATA

#### Electrical:

Heater, for Unipotential Cathode:

|                                                          |       |                |
|----------------------------------------------------------|-------|----------------|
| Voltage . . . . .                                        | 6.3   | ac or dc volts |
| Current . . . . .                                        | 0.225 | amp            |
| Resonant Frequency (Approx.) . . . . .                   | 1000  | Mc             |
| Direct Interelectrode Capacitances (No external shield): |       |                |
| Grid to Plate . . . . .                                  | 1.9   | $\mu\text{f}$  |
| Grid to Cathode and Heater . . . . .                     | 2.2   | $\mu\text{f}$  |
| Plate to Cathode and Heater . . . . .                    | 0.45  | $\mu\text{f}$  |

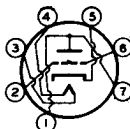
#### Characteristics - Class A<sub>1</sub> Amplifier:

|                                 |      |      |                  |
|---------------------------------|------|------|------------------|
| Plate Voltage . . . . .         | 80   | 100  | volts            |
| Cathode-Bias Resistor . . . . . | 150  | 150  | ohms             |
| Amplification Factor . . . . .  | 15   | 16   |                  |
| Plate Resistance . . . . .      | 2270 | 2130 | ohms             |
| Transconductance . . . . .      | 6600 | 7500 | $\mu\text{mhos}$ |
| Plate Current . . . . .         | 16   | 20   | ma               |

#### Mechanical:

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

Pin 1 - Plate  
Pin 2 - Grid  
Pin 3 - Heater  
Pin 4 - Heater



Pin 5 - Cathode  
Pin 6 - Grid  
Pin 7 - Plate

### OSCILLATOR IN UHF TELEVISION RECEIVERS

#### Maximum Ratings, Design-Center Values:

|                                                   |                      |       |
|---------------------------------------------------|----------------------|-------|
| DC PLATE VOLTAGE . . . . .                        | 150 max.             | volts |
| DC GRID VOLTAGE . . . . .                         | -50 max.             | volts |
| DC GRID CURRENT . . . . .                         | 8 max.               | ma    |
| PLATE INPUT . . . . .                             | 2.5 max.             | watts |
| PLATE DISSIPATION . . . . .                       | 2.25 max.            | watts |
| DC CATHODE CURRENT . . . . .                      | 28 max.              | ma    |
| PEAK HEATER-CATHODE VOLTAGE: ♦                    |                      |       |
| Heater negative with respect to cathode . . . . . | 50 max.              | volts |
| Heater positive with respect to cathode . . . . . | 50 <sup>▲</sup> max. | volts |

▲, ♦: See next page.

NOV. 5, 1954

TUBE DIVISION

RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

TENTATIVE DATA



6AF4-A

## MEDIUM-MU TRIODE

## Typical Operation as Oscillator at 950 Mc:

|                                     |       |       |
|-------------------------------------|-------|-------|
| DC Plate Voltage . . . . .          | 100   | volts |
| DC Grid Voltage . . . . .           | -4    | volts |
| From a grid resistor of . . . . .   | 10000 | ohms  |
| DC Plate Current . . . . .          | 22    | ma    |
| DC Grid Current (Approx.) . . . . . | 400   | μamp  |
| Useful Power Output . . . . .       | 160   | mW    |

## Maximum Circuit Values:

## Grid-Circuit Resistance:

|                                      |                 |
|--------------------------------------|-----------------|
| For fixed-bias operation . . . . .   | Not recommended |
| For cathode-bias operation . . . . . | 0.5 max. megohm |

♦ It is recommended that the heater be kept at cathode potential to minimize the effects of variation in the heater-to-cathode capacitance between tubes.

▲ The dc component must not exceed 25 volts.

## OPERATING CONSIDERATIONS

The *mounting arrangement* should insure that the tube is held secure by its socket. Unless this recommendation is followed, the generated frequency may change by as much as 10 megacycles per second. A conventional miniature tube shield and an external clamping arrangement are recommended.

The *base pins* of the 6AF4-A fit the miniature 7-contact socket. The *socket* should be of the mica-filled, rubber, or ceramic type.

## Medium-Mu Triode

## 7-PIN MINIATURE TYPE

## GENERAL DATA

## Electrical:

Heater, for Unipotential Cathode:

|                               |           |       |
|-------------------------------|-----------|-------|
| Voltage (AC or DC) . . . . .  | 6.3 ± 10% | volts |
| Current at 6.3 volts. . . . . | 0.225     | amp   |

Direct Interelectrode Capacitance  
(Approx.):<sup>a</sup>

|                                       |                  |    |
|---------------------------------------|------------------|----|
| Grid to plate . . . . .               | 1.9              | μf |
| Grid to cathode and heater. . . . .   | 2.2              | μf |
| Plate to cathode and heater . . . . . | 1.4              | μf |
| Heater to cathode . . . . .           | 2.2 <sup>b</sup> | μf |

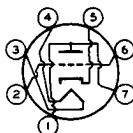
Characteristics, Class A<sub>1</sub> Amplifier:

|                                      |      |       |
|--------------------------------------|------|-------|
| Plate Supply Voltage. . . . .        | 80   | volts |
| Cathode Resistor. . . . .            | 150  | ohms  |
| Amplification Factor. . . . .        | 13.5 |       |
| Plate Resistance (Approx.) . . . . . | 2100 | ohms  |
| Transconductance. . . . .            | 6500 | μmhos |
| Plate Current . . . . .              | 17.5 | ma    |

## Mechanical:

|                                                         |                                              |
|---------------------------------------------------------|----------------------------------------------|
| Operating Position. . . . .                             | Any                                          |
| Maximum Overall Length. . . . .                         | 1-3/4"                                       |
| Maximum Seated Length . . . . .                         | 1-1/2"                                       |
| Length, Base Seat to Bulb Top (Excluding tip) . . . . . | 1-1/8" ± 3/32"                               |
| Diameter. . . . .                                       | 0.650" to 0.750"                             |
| Dimensional Outline . . . . .                           | See <i>General Section</i>                   |
| Bulb. . . . .                                           | T5-1/2                                       |
| Base. . . . .                                           | Small-Button Miniature 7-Pin (JEDEC No.E7-1) |
| Basing Designation for BOTTOM VIEW. . . . .             | 7DK                                          |

Pin 1 - Plate  
Pin 2 - Grid  
Pin 3 - Heater  
Pin 4 - Heater



Pin 5 - Cathode  
Pin 6 - Grid  
Pin 7 - Plate

## UHF OSCILLATOR

## Maximum Ratings, Design-Maximum Values:

|                                                   |                 |      |       |
|---------------------------------------------------|-----------------|------|-------|
| PLATE VOLTAGE . . . . .                           | 150             | max. | volts |
| GRID VOLTAGE:                                     |                 |      |       |
| Negative-bias value . . . . .                     | 50              | max. | volts |
| GRID CURRENT. . . . .                             | 2               | max. | ma    |
| CATHODE CURRENT . . . . .                         | 24              | max. | ma    |
| PLATE DISSIPATION . . . . .                       | 2.5             | max. | watts |
| PEAK HEATER-CATHODE VOLTAGE:                      |                 |      |       |
| Heater negative with respect to cathode . . . . . | 50              | max. | volts |
| Heater positive with respect to cathode . . . . . | 50 <sup>c</sup> | max. | volts |

<sup>c</sup> Indicates a change.

# 6AF4A

## Typical Operation:

*At frequency of 1000 Mc*

|                                 |       |         |
|---------------------------------|-------|---------|
| Plate Supply Voltage. . . . .   | 100   | volts   |
| Plate Resistor. . . . .         | 220   | ohms    |
| Grid Resistor . . . . .         | 10000 | ohms    |
| Plate Current . . . . .         | 17    | ma      |
| Grid Current (Approx.). . . . . | 750   | $\mu$ a |

## Maximum Circuit Values:

Grid-Circuit Resistance:

- For fixed-bias operation. . . . . Not recommended
- For cathode-bias operation. . . . . 0.5 max. megohm

<sup>a</sup> With external shield JEDEC No.316 connected to cathode except as noted.

<sup>b</sup> With external shield JEDEC No.316 connected to plate.

<sup>c</sup> The dc component must not exceed 25 volts.





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# AVERAGE PLATE CHARACTERISTICS



FEB. 20, 1952

TUBE DIVISION

92CM-7756

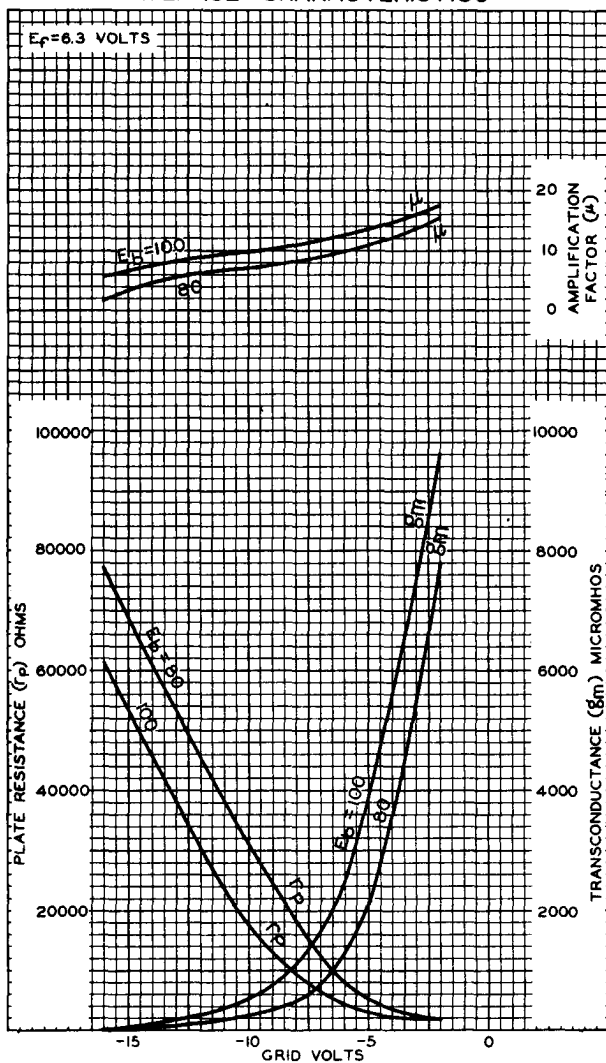
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6AF4-A

## AVERAGE CHARACTERISTICS



FEB. 26, 1952

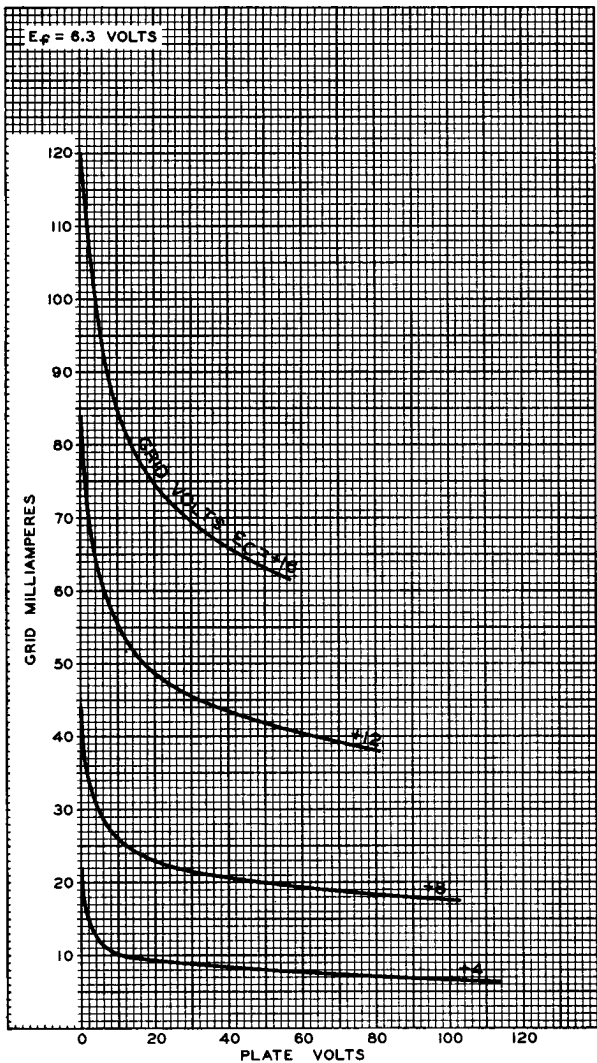
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# AVERAGE CHARACTERISTICS

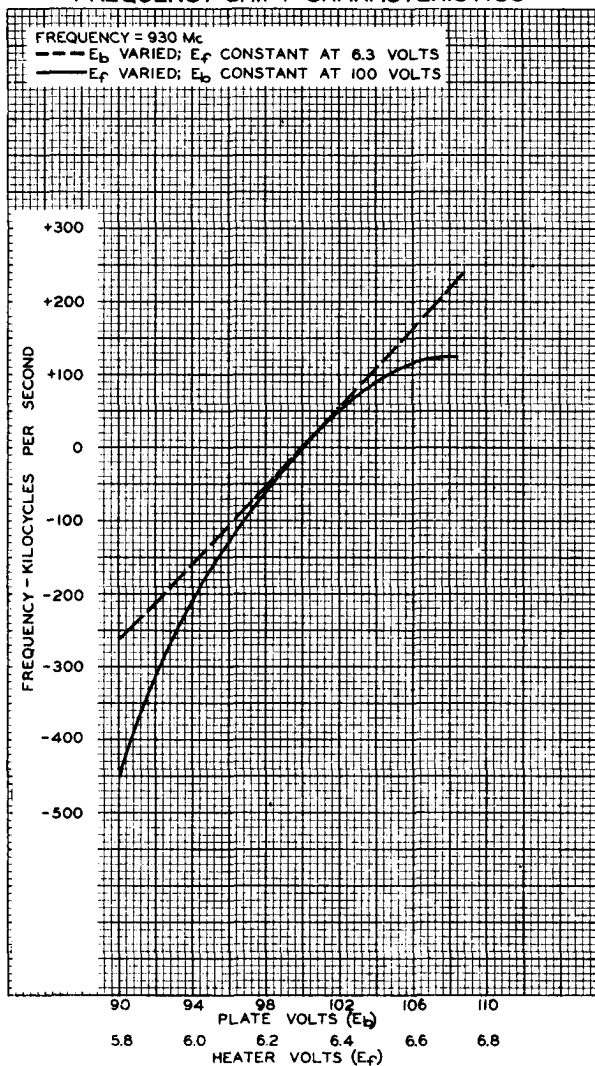


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## FREQUENCY SHIFT CHARACTERISTICS



FEB. 29, 1952

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