

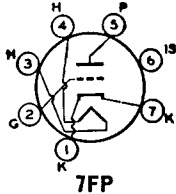
For replacement use type 6GK5/6FQ5A.

6GK5

**6GK5/  
6FQ5A**

2GK5/2FQ5A,  
3GK5, 4GK5

**HIGH-MU TRIODE**



Miniature type with frame grid used as grounded-cathode rf-amplifier tube in vhf tuners of color and black-and-white television receivers. Outlines section, 5C; requires miniature 7-contact socket. Types 2GK5/2FQ5A, 3GK5, and 4GK5 are identical with type 6GK5/6FQ5A except for heater ratings.

|  | 2GK5/2FQ5A | 3GK5     | 4GK5     | 6GK5/6FQ5A |         |
|--|------------|----------|----------|------------|---------|
| Heater Voltage (ac/dc)                         | 2.3        | 2.8      | 4        | 6.3        | volts   |
| Heater Current                                 | 0.6        | 0.45     | 0.3      | 0.18       | ampere  |
| Heater Warm-up Time (Average)                  | 11         | 11       | 11       | —          | seconds |
| Peak Heater-Cathode Voltage                    | ±100 max   | ±100 max | ±100 max | ±100 max   | volts   |
| Direct Interelectrode Capacitances (Approx.):° |            |          |          |            |         |
| Grid to Plate                                  |            |          |          | 0.52       | pF      |
| Grid to Cathode, Heater, and Internal Shield   |            |          |          | 5          | pF      |
| Plate to Cathode, Heater, and Internal Shield  |            |          |          | 3.5        | pF      |
| Heater to Cathode                              |            |          |          | 2.5*       | pF      |

- ° With external shield connected to cathode, except as noted.
- \* With external shield and internal shield connected to ground.

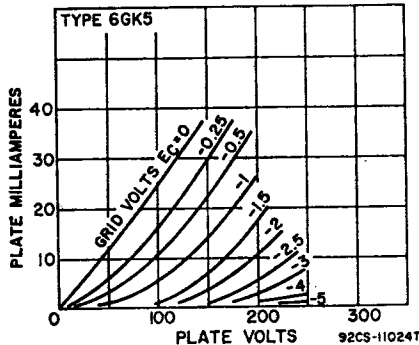
**Class A<sub>1</sub> Amplifier**

**MAXIMUM RATINGS (Design-Maximum Values)**

|                         |     |       |
|-------------------------|-----|-------|
| Plate Voltage           | 200 | volts |
| Grid Voltage:           |     |       |
| Negative-bias value     | 50  | volts |
| Positive-bias value     | 0   | volts |
| Average Cathode Current | 22  | mA    |
| Plate Dissipation       | 2.5 | watts |

**CHARACTERISTICS**

|   |       |       |
|---|-------|-------|
| Plate Voltage   | 135   | volts |
| Grid Voltage  | —1    | volts |
| Amplification Factor                                      | 78    |       |
| Plate Resistance (Approx.)                                | 5400  | ohms  |
| Transconductance  | 15000 | μmhos |
| Plate Current   | 11.5  | mA    |
| Input Resistance*   | 275   | ohms  |
| Input Capacitance*  | 11.2  | pF    |
| Noise Figure†   | 4.7   | dB    |
| Grid Voltage (Approx.) for transconductance of 150 μmhos  | —4.2  | volts |
| Grid Voltage (Approx.) for transconductance of 1500 μmhos | —2.5  | volts |

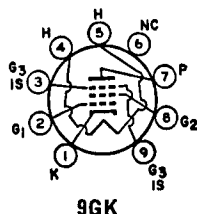


**MAXIMUM CIRCUIT VALUE**

Grid-Circuit Resistance, for cathode-bias operation ..... 1 megohm  
 \* Measured at 200 MHz with heater volts = 6.3 and plate effectively grounded for rf voltages.  
 † For a neutralized triode amplifier at a frequency of 200 MHz with signal source impedance adjusted for minimum noise output.

**6GK6****POWER PENTODE****10GK6, 16GK6**

Miniature type used in the output stage of audio amplifying equipment and also in the video output stage of color and black-and-white television receivers. Outlines section, 6G; requires miniature 9-contact socket. Types 10GK6 and 16GK6 are identical with type 6GK6 except for heater ratings.



|   | 6GK6     | 10GK6    | 16GK6    |         |
|---|----------|----------|----------|---------|
| Heater Voltage (ac/dc) .....  | 6.3      | 10       | 16       | volts   |
| Heater Current .....  | 0.76     | 0.45     | 0.3      | ampere  |
| Heater Warm-up Time (Average) .....   | —        | 11       | 11       | seconds |
| Peak Heater-Cathode Voltage .....   | ±100 max | ±100 max | ±100 max | volts   |
| Direct Interelectrode Capacitances:   |          |          |          |         |
| Grid No.1 to Plate .....  |          |          | 0.14 max | pF      |
| Grid No.1 to Cathode, Heater, Grid No.2, Grid No.3, and Internal Shield ..... |          |          | 10       | pF      |
| Plate to Cathode, Heater, Grid No.2, Grid No.3, and Internal Shield .....     |          |          | 7        | pF      |

**Class A<sub>1</sub> Amplifier****MAXIMUM RATINGS (Design-Maximum Values)**

|   |      |       |
|---|------|-------|
| Plate Supply Voltage .....                                  | 605  | volts |
| Plate Voltage .....   | 330  | volts |
| Grid-No.2 Supply Voltage .....                              | 605  | volts |
| Grid-No.2 (Screen-Grid) Voltage .....                       | 330  | volts |
| Grid-No.1 (Control-Grid) Voltage, Negative-bias value ..... | 100  | volts |
| Cathode Current .....                                       | 65   | mA    |
| Plate Dissipation .....                                     | 13.2 | watts |
| Grid-No.2 Input, Peak .....                                 | 4    | watts |
| Grid-No.2 Input, Average .....                              | 2    | watts |

**CHARACTERISTICS AND TYPICAL OPERATION**

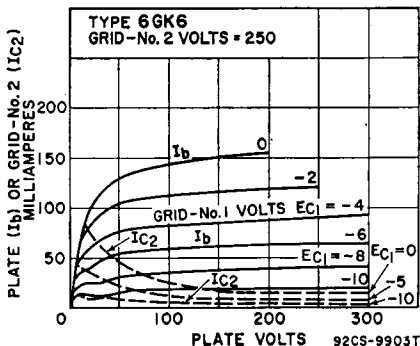
|   |       |          |
|---|-------|----------|
| Plate Supply Voltage .....              | 250   | volts    |
| Grid-No.2 Supply Voltage .....          | 250   | volts    |
| Cathode-Bias Resistor .....             | 135   | ohms     |
| Mu-Factor, Grid No.2 to Grid No.1 ..... | 19    |          |
| Plate Resistance (Approx.) .....        | 38000 | ohms     |
| Transconductance .....                  | 11300 | μmhos    |
| Peak AF Grid-No.1 Voltage .....         | 7.3   | volts    |
| Zero-Signal Plate Current .....         | 48    | mA       |
| Maximum-Signal Plate Current .....      | 50.6  | mA       |
| Zero-Signal Grid-No.2 Current .....     | 5.5   | mA       |
| Maximum-Signal Grid-No.2 Current .....  | 10    | mA       |
| Effective Load Resistance .....         | 5200  | ohms     |
| Total Harmonic Distortion .....         | 10    | per cent |
| Maximum-Signal Power Output .....       | 5.7   | watts    |

**Push-Pull Class AB<sub>1</sub> and Class B Amplifier****MAXIMUM RATINGS (Same as for Class A<sub>1</sub> Amplifier)****TYPICAL OPERATION (Values are for two tubes)**

|  | Class AB <sub>1</sub> |      | Class B |       |          |
|--|-----------------------|------|---------|-------|----------|
| Plate Voltage .....                              | 250                   | 300  | 250     | 300   | volts    |
| Grid-No.2 Voltage .....                          | 250                   | 300  | 250     | 300   | volts    |
| Grid-No.1 Voltage .....                          | —                     | —    | -11.6   | -14.7 | volts    |
| Cathode-Bias Resistor .....                      | 130                   | 130  | —       | —     | ohms     |
| Peak AF Grid-No.1-to-Grid-No.1 Voltage .....     | 22.4                  | 28   | 22.4    | 28    | volts    |
| Zero-Signal Plate Current .....                  | 62                    | 72   | 20      | 15    | mA       |
| Maximum-Signal Plate Current .....               | 75                    | 92   | 75      | 92    | mA       |
| Zero-Signal Grid-No.2 Current .....              | 7                     | 8    | 2.2     | 1.6   | mA       |
| Maximum-Signal Grid-No.2 Current .....           | 15                    | 22   | 15      | 22    | mA       |
| Effective Load Resistance (plate to plate) ..... | 8000                  | 8000 | 8000    | 8000  | ohms     |
| Total Harmonic Distortion .....                  | 3                     | 4    | 3       | 4     | per cent |
| Maximum-Signal Power Output .....                | 11                    | 17   | 11      | 17    | watts    |

**MAXIMUM CIRCUIT VALUES**

|                               |     |        |
|-------------------------------|-----|--------|
| Grid-No.1-Circuit Resistance: |     |        |
| For fixed-bias operation      | 0.3 | megohm |
| For cathode-bias operation    | 1   | megohm |



For replacement use type 6AU4GTA.

**6GK17**

Refer to chart at end of section.

**6GL7**

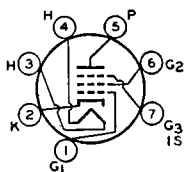
Refer to chart at end of section.

**6GM5**

**SEMIREMOTE-CUTOFF  
PENTODE**

**6GM6**

5GM6



**7CM**

Miniature type used in gain-controlled picture-if stages of color and black-and-white television receivers operating at intermediate frequencies in the order of 40 MHz. Outlines section, 5C; requires 7-contact socket. Type 5GM6 is identical with type 6GM6 except for heater ratings.

|   |            |                       |         |
|---|------------|-----------------------|---------|
| Heater Voltage (ac/dc)  | 5.6        | 6.3                   | volts   |
| Heater Current  | 0.45       | 0.4                   | ampere  |
| Heater Warm-up Time (Average)   | 11         | —                     | seconds |
| Heater-Cathode Voltage:   |            |                       |         |
| Peak value  | ±200 max   | ±200 max              | volts   |
| Average value   | 100 max    | 100 max               | volts   |
| Direct Interelectrode Capacitances:                                     | Unshielded | Shielded <sup>o</sup> |         |
| Grid No.1 to Plate  | 0.036 max  | 0.026 max             | pF      |
| Grid No.1 to Cathode, Heater, Grid No.2, Grid No.3, and Internal Shield | 10         | 10                    | pF      |
| Plate to Cathode, Heater, Grid No.2, Grid No.3, and Internal Shield     | 2.4        | 3.4                   | pF      |

<sup>o</sup> With external shield connected to cathode.

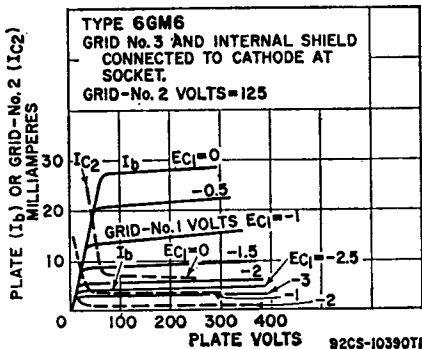
**Class A<sub>1</sub> Amplifier**

**MAXIMUM RATINGS (Design-Maximum Values)**

|   |                    |       |
|---|--------------------|-------|
| Plate Voltage   | 330                | volts |
| Grid-No.3 (Suppressor-Grid) Voltage, Positive value   | 0                  | volts |
| Grid-No.2 (Screen-Grid) Supply Voltage                | 330                | volts |
| Grid-No.2 Voltage                                     | See curve page 300 |       |
| Grid-No.1 (Control-Grid) Voltage, Positive-bias value | 0                  | volts |
| Plate Dissipation                                     | 3.1                | watts |
| Grid-No.2 Input:                                      |                    |       |
| For grid-No.2 voltages up to 165 volts                | 0.65               | watt  |
| For grid-No.2 voltages between 165 and 330 volts      | See curve page 300 |       |

**CHARACTERISTICS**

|  |                                |            |
|--|--------------------------------|------------|
| Plate Supply Voltage .....   | 125                            | volts      |
| Grid No.3 .....  | Connected to cathode at socket |            |
| Grid-No.2 Supply Voltage .....                                       | 125                            | volts      |
| Cathode-Bias Resistor .....  | 56                             | ohms       |
| Plate Resistance (Approx.) .....                                     | 0.2                            | megohm     |
| Transconductance .....   | 13000                          | $\mu$ mhos |
| Plate Current .....  | 1.4                            | mA         |
| Grid-No.2 Current .....  | 3.4                            | mA         |
| Grid-No.1 Voltage (Approx.) for transconductance of 60 $\mu$ mhos .. | -15                            | volts      |

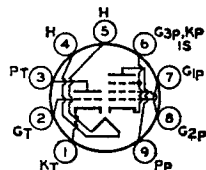


**6GN8**

8GN8/8EB8  
10GN8

**HIGH-MU TRIODE—  
SHARP-CUTOFF PENTODE**

Miniature type used in color and black-and-white television receiver applications. Triode unit is used as sync-separator, sync-clipper, phase inverter, or sound-if amplifier. Pentode unit is used in output stage of video amplifier. Outlines section, 6E; requires miniature 9-contact socket. For direct interelectrode capacitances, refer to type 6EB8; curve for average plate characteristics of triode unit is same as for type 6EB8. Types 8GN8/8EB8, and 10GN8 are identical with type 6GN8 except for heater ratings.



**9DX**

|                                     |               |               |               |         |
|-------------------------------------|---------------|---------------|---------------|---------|
| Heater Voltage (ac/dc) .....        | 6.3           | 8             | 10.5          | volts   |
| Heater Current .....                | 0.75          | 0.6           | 0.45          | ampere  |
| Heater Warm-up Time (Average) ..... | —             | 11            | 11            | seconds |
| Heater-Cathode Voltage:             |               |               |               |         |
| Peak value .....                    | $\pm 200$ max | $\pm 200$ max | $\pm 200$ max | volts   |
| Average value .....                 | 100 max       | 100 max       | 100 max       | volts   |

**Class A<sub>1</sub> Amplifier**

**MAXIMUM RATINGS (Design-Maximum Values)**

|   | Triode Unit | Pentode Unit       |       |
|---|-------------|--------------------|-------|
| Plate Voltage .....   | 330         | 330                | volts |
| Grid-No.2 (Screen-Grid) Supply Voltage .....                | —           | 330                | volts |
| Grid-No.2 Voltage .....                                     | —           | See curve page 300 |       |
| Grid-No.1 (Control-Grid) Voltage, Positive-bias value ..... | 0           | 0                  | volt  |
| Plate Dissipation .....                                     | 1           | 5                  | watts |
| Grid-No.2 Input:  |             |                    |       |
| For grid-No.2 voltages up to 165 volts .....                | —           | 1.1                | watts |
| For grid-No.2 voltages between 165 and 330 volts .....      | —           | See curve page 300 |       |

**CHARACTERISTICS**

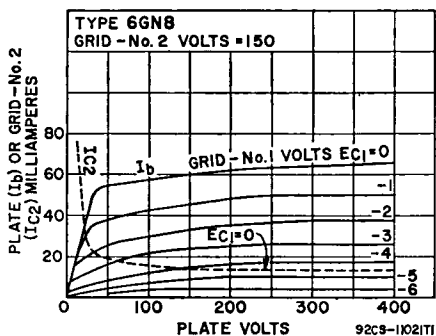
|                                  | Triode Unit | Pentode Unit |       |
|----------------------------------|-------------|--------------|-------|
| Plate Supply Voltage .....       | 250         | 60           | 200   |
| Grid-No.2 Supply Voltage .....   | —           | 150          | 150   |
| Grid-No.1 Voltage .....          | -2          | 0            | —     |
| Cathode-Bias Resistor .....      | —           | —            | 100   |
| Amplification Factor .....       | 100         | —            | —     |
| Plate Resistance (Approx.) ..... | 37000       | —            | 60000 |
|                                  |             |              | ohms  |

|  | Triode Unit | Pentode Unit        |            |
|--|-------------|---------------------|------------|
| Transconductance .....   | 2700        | — 11500             | $\mu$ mhos |
| Plate Current .....  | 2           | 55 <sup>a</sup> 25  | mA         |
| Grid-No.2 Current .....  | —           | 18 <sup>a</sup> 5.5 | mA         |
| Grid Voltage (Approx.) for plate current of 20 $\mu$ A .....       | -5          | —                   | volts      |
| Grid-No.1 Voltage (Approx.) for plate current of 100 $\mu$ A ..... | —           | -10                 | volts      |

**MAXIMUM CIRCUIT VALUES**

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

<sup>a</sup> This value can be measured by a method involving a recurrent waveform such that the maximum ratings of the tube will not be exceeded.



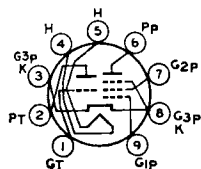
Refer to chart at end of section.

**6GQ7**

**MEDIUM-MU TRIODE—  
SHARP-CUTOFF PENTODE**

**6GS7**

5GS7, 7GS7



**9GF**

Miniature type used as a frequency changer in vhf television tuners. Outlines section, 6B; requires 9-contact socket. Types 5GS7 and 7GS7 are identical with type 6GS7 except for heater ratings. Heater: volts, 7.6; ampere, 0.3; maximum heater-cathode volts,  $\pm 100$  peak, 100 average.

|                         | 5GS7          | 6GS7          | 7GS7          |        |
|-------------------------|---------------|---------------|---------------|--------|
| Heater Voltage .....    | 5.4           | 6.3           | 7.6           | volts  |
| Heater Current .....    | 0.45          | 0.375         | 0.3           | ampere |
| Heater-Cathode Voltage: |               |               |               |        |
| Peak value .....        | $\pm 200$ max | $\pm 200$ max | $\pm 200$ max | volts  |
| Average value .....     | 100 max       | 100 max       | 100 max       | volts  |

**Class A<sub>1</sub> Amplifier**

**MAXIMUM RATINGS (Design-Center Values)**

|                                       | Triode Unit | Pentode Unit |       |
|---------------------------------------|-------------|--------------|-------|
| Plate Voltage .....                   | 125         | 250          | volts |
| Grid-No.2 (Screen-Grid) Voltage ..... | —           | 150          | volts |
| Plate Dissipation .....               | 1.5         | 2            | watts |
| Grid-No.2 Input .....                 | —           | 0.5          | watt  |
| Cathode Current .....                 | 15          | 18           | mA    |

**CHARACTERISTICS**

|  | Triode Unit | Pentode Unit |            |
|--|-------------|--------------|------------|
| Plate Voltage .....                    | 100         | 170          | volts      |
| Grid-No.2 Voltage .....                | —           | 150          | volts      |
| Grid-No.1 (Control-Grid) Voltage ..... | -3          | -1.2         | volts      |
| Plate Current .....                    | 14          | 10           | mA         |
| Grid-No.2 Current .....                | —           | 3.3          | mA         |
| Transconductance .....                 | 5500        | 12000        | $\mu$ mhos |
| Plate Resistance .....                 | —           | 0.35 min     | megohm     |
| Amplification Factor .....             | 17          | —            |            |

**MAXIMUM CIRCUIT VALUES**

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

**Pentode Unit as Frequency Changer****CHARACTERISTICS**

|                                    |       |             |
|------------------------------------|-------|-------------|
| Plate Voltage .....                | 190   | volts       |
| Grid-No.2 Supply Voltage .....     | 190   | volts       |
| Oscillator Voltage .....           | 2.3   | volts (rms) |
| Grid-No.2 Circuit Resistance ..... | 0.018 | megohm      |
| Grid-No.1 Circuit Resistance ..... | 0.1   | megohm      |
| Plate Current .....                | 8.5   | mA          |
| Grid-No.2 Current .....            | 2.7   | mA          |
| Grid-No.1 Current .....            | 30    | $\mu$ A     |
| Plate Resistance .....             | 0.6   | megohm      |
| Conversion Transconductance .....  | 4500  | $\mu$ mhos  |

**Triode Unit as Oscillator****CHARACTERISTICS**

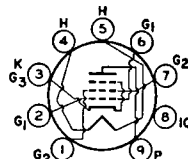
|                                |       |             |
|--------------------------------|-------|-------------|
| Plate Supply Voltage .....     | 190   | volts       |
| Plate Circuit Resistance ..... | 8200  | ohms        |
| Grid Circuit Resistance .....  | 10000 | ohms        |
| Oscillator Voltage .....       | 4.5   | volts (rms) |
| Plate Current .....            | 12    | mA          |
| Transconductance .....         | 3500  | $\mu$ mhos  |

**6GT5**

Refer to chart at end of section.

**6GT5A****17GT5A****BEAM POWER TUBE**

Novar type used as horizontal-deflection amplifier in television receivers. Outlines section, 31A; requires novar 9-contact socket. For curve of average characteristics, refer to type 6GW6. Type 17GT5A is identical with type 6GT5A except for heater ratings.

**9NZ**

|  | 6GT5A         | 17GT5A        |         |
|--|---------------|---------------|---------|
| Heater Voltage (ac/dc) .....                                 | 6.3           | 16.8          | volts   |
| Heater Current .....   | 1.2           | 0.45          | ampere  |
| Heater Warm-up Time (Average) .....                          | —             | 11            | seconds |
| Heater-Cathode Voltage:                                      |               |               |         |
| Peak value .....   | $\pm 200$ max | $\pm 200$ max | volts   |
| Average value .....  | 100 max       | 100 max       | volts   |
| Direct Interelectrode Capacitances (Approx.):                |               |               |         |
| Grid No.1 to Plate .....                                     |               | 0.26          | pF      |
| Grid No.1 to Cathode, Heater, Grid No.2, and Grid No.3 ..... |               | 15            | pF      |
| Plate to Cathode, Heater, Grid No.2, and Grid No.3 .....     |               | 6.5           | pF      |

**Class A<sub>1</sub> Amplifier****CHARACTERISTICS**

|   | Triode Connection | Pentode Connection |            |
|---|-------------------|--------------------|------------|
| Plate Voltage .....   | 150               | 60 250             | volts      |
| Grid-No.2 (Screen-Grid) Voltage .....                       | 150               | 150 150            | volts      |
| Grid-No.1 (Control-Grid) Voltage .....                      | -22.5             | 0 -22.5            | volts      |
| Mu Factor, Grid No.2 to Grid No.1 .....                     | 4.4               | —                  |            |
| Plate Resistance (Approx.) .....                            | —                 | 15000              | ohms       |
| Transconductance .....                                      | —                 | 7100               | $\mu$ mhos |
| Plate Current .....   | —                 | 390*               | 70         |
| Grid-No.2 Current .....                                     | —                 | 32*                | 2.1        |
| Grid-No.1 Voltage (Approx.) for plate current of 1 mA ..... | —                 | —                  | -42        |
|   |                   |                    | volts      |

\* This value can be measured by a method involving a recurrent waveform such that the maximum ratings of the tube will not be exceeded.

**Horizontal-Deflection Amplifier**

For operation in a 525-line, 30-frame system

**MAXIMUM RATINGS (Design-Maximum Values)**

|  |      |       |
|--|------|-------|
| DC Plate Supply Voltage .....            | 770  | volts |
| Peak Positive-Pulse Plate Voltage# ..... | 6500 | volts |

|   |      |       |
|---|------|-------|
| Peak Negative-Pulse Plate Voltage .....     | 1500 | volts |
| DC Grid-No.2 Voltage .....                  | 220  | volts |
| DC Grid-No.1 Voltage .....                  | -55  | volts |
| Peak Negative-Pulse Grid-No.1 Voltage ..... | 330  | volts |
| Peak Cathode Current .....                  | 550  | mA    |
| Average Cathode Current .....               | 175  | mA    |
| Plate Dissipation* .....                    | 17.5 | watts |
| Grid-No.2 Input .....                       | 3.5  | watts |
| Bulb Temperature (At hottest point) .....   | 240  | °C    |

**MAXIMUM CIRCUIT VALUE**

Grid-No.1-Circuit Resistance, for grid-resistor-bias operation\* ..... 1 megohm

# Pulse duration must not exceed 15% of a horizontal scanning cycle (10 microseconds).

\* A bias resistor or other means is required to protect the tube in absence of excitation.

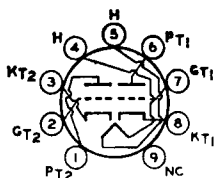
Refer to chart at end of section.

**6GU5**

**MEDIUM-MU TWIN TRIODE**

**6GU7**

8GU7



9LP

Miniature type used in the matrixing circuits of color and black-and-white television receivers and in phase-inverter, multivibrator, and general-purpose amplifier applications. Outlines section, 6E; requires miniature 9-contact socket. Type 8GU7 is identical with type 6GU7 except for heater ratings.

|  |           |           |         |
|--|-----------|-----------|---------|
| Heater Voltage (ac/dc) .....                   | 6GU7      | 8GU7      |         |
| Heater Current .....                           | 6.3       | 8.4       | volts   |
| Heater Warm-up Time (Average) .....            | 0.6       | 0.45      | ampere  |
| Heater-Cathode Voltage:                        |           |           | seconds |
| Peak value .....                               | ±200 max  | ±200 max  | volts   |
| Average value .....                            | 100 max   | 100 max   | volts   |
| Direct Interelectrode Capacitances (Approx.):  | Unit No.1 | Unit No.2 |         |
| Grid to Plate .....                            | 3         | 3         | pF      |
| Grid to Cathode and Heater .....               | 3.4       | 3.6       | pF      |
| Plate to Cathode and Heater .....              | 0.44      | 0.34      | pF      |
| Plate of Unit No.1 to Plate of Unit No.2 ..... | 1         |           | pF      |

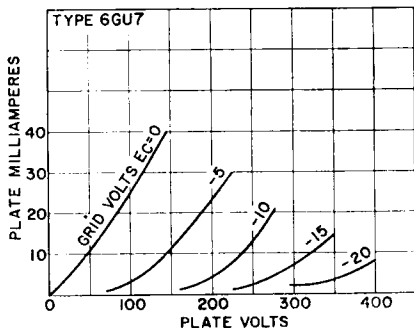
**Class A<sub>1</sub> Amplifier**

**MAXIMUM RATINGS (Design-Maximum Values)**

|   |     |       |
|---|-----|-------|
| Plate Voltage .....                     | 330 | volts |
| Grid Voltage, Positive-bias value ..... | 0   | volts |
| Plate Dissipation .....                 | 3   | watts |

**CHARACTERISTICS**

|                                  |       |       |
|----------------------------------|-------|-------|
| Plate Voltage .....              | 250   | volts |
| Grid Voltage .....               | -10.5 | volts |
| Amplification Factor .....       | 17    |       |
| Plate Resistance (Approx.) ..... | 5500  | ohms  |
| Transconductance .....           | 3100  | μmhos |



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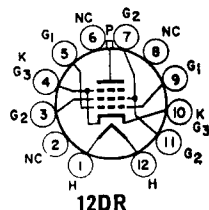
|  |      |        |
|--|------|--------|
| Plate Current .....  | 11.5 | mA     |
| Grid Voltage (Approx.) for plate current of 50 $\mu$ A ..... | -23  | volts  |
| Plate Current for grid voltage of -14 volts .....            | 4    | mA     |
| <b>MAXIMUM CIRCUIT VALUE</b>                                 |      |        |
| Grid-Circuit Resistance, for fixed-bias operation .....      | 1    | megohm |

## 6GV5

### 17GV5

## BEAM POWER TUBE

Duodecar type used as horizontal-deflection amplifier in television receivers. **Outlines section, 39A**; requires duodecar 12-contact socket. Type 17GV5 is identical with type 6GV5 except for heater ratings.



|                                     |               |               |         |
|-------------------------------------|---------------|---------------|---------|
| Heater Voltage (ac/dc) .....        | 6.3           | 16.8          | volts   |
| Heater Current .....                | 1.2           | 0.45          | amperes |
| Heater Warm-up Time (Average) ..... | —             | 11            | seconds |
| <b>Heater-Cathode Voltage:</b>      |               |               |         |
| Peak value .....                    | $\pm 200$ max | $\pm 200$ max | volts   |
| Average value .....                 | 100 max       | 100 max       | volts   |

### Class A<sub>1</sub> Amplifier

| CHARACTERISTICS   | Pentode Connection  |      | Triode* Connection |       |            |
|---|---------------------|------|--------------------|-------|------------|
|   | Plate Voltage ..... | 5000 | 60                 | 250   |            |
| Grid-No.2 (Screen-Grid) Voltage .....                       | 150                 | 150  | 150                | 150   | volts      |
| Grid-No.1 (Control-Grid) Voltage .....                      | —                   | 0    | -22.5              | -22.5 | volts      |
| Plate Resistance (Approx.) .....                            | —                   | —    | 18000              | —     | ohms       |
| Transconductance .....                                      | —                   | —    | 7300               | —     | $\mu$ mhos |
| Amplification Factor .....                                  | —                   | —    | —                  | 4.4   |            |
| Plate Current .....   | —                   | 345* | 65                 | —     | mA         |
| Grid-No.2 Current .....                                     | —                   | 27*  | 1.8                | —     | mA         |
| Grid-No.1 Voltage (Approx.) for plate current of 1 mA ..... | -100                | —    | -42                | —     | volts      |

\* Grid No.2 tied to plate.

† This value can be measured by a method involving a recurrent waveform such that the maximum ratings of the tube will not be exceeded.

### Horizontal-Deflection Amplifier

For operation in a 525-line, 30-frame system

#### MAXIMUM RATINGS (Design-Maximum Values)

|   |      |              |
|---|------|--------------|
| DC Plate Supply Voltage .....               | 770  | volts        |
| Peak Positive-Pulse Plate Voltage# .....    | 6500 | volts        |
| Peak Negative-Pulse Plate Voltage .....     | 1500 | volts        |
| DC Grid-No.2 Voltage .....                  | 220  | volts        |
| Peak Negative-Pulse Grid-No.1 Voltage ..... | 330  | volts        |
| DC Grid-No.1 Voltage .....                  | -55  | volts        |
| Peak Cathode Current .....                  | 550  | mA           |
| Average Cathode Current .....               | 175  | mA           |
| Plate Dissipation† .....                    | 17.5 | watts        |
| Grid-No.2 Input .....                       | 3.5  | watts        |
| Bulb Temperature (At hottest point) .....   | 220  | $^{\circ}$ C |

#### MAXIMUM CIRCUIT VALUE

|                                    |   |        |
|------------------------------------|---|--------|
| Grid-No.1-Circuit Resistance ..... | 1 | megohm |
|------------------------------------|---|--------|

# Pulse duration must not exceed 15% of a horizontal scanning cycle (10 microseconds).  
 † A bias resistor or other means is required to protect the tube in absence of excitation.

## 6GV8

Refer to chart at end of section.