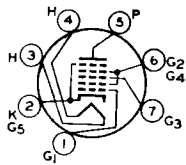


# 6CS6

## PENTAGRID AMPLIFIER

3CS6, 4CS6, 12CS6



7CH

Miniature type used as a gated amplifier in color and black-and-white television receivers. In such service, it may be used as a combined sync separator and sync clipper. **Outlines section, 5C**; requires miniature 7-contact socket. Types 3CS6, 4CS6, and 12CS6 are identical with type 6CS6 except for heater ratings.

|   | 3CS6     | 4CS6     | 6CS6     | 12CS6    |         |
|---|----------|----------|----------|----------|---------|
| Heater Voltage (ac/dc)  | 3.15     | 4.2      | 6.3      | 12.6     | volts   |
| Heater Current  | 0.6      | 0.45     | 0.3      | 0.15     | ampere  |
| Heater Warm-up Time (Average)   | 11       | 11       | 11       | —        | seconds |
| Heater-Cathode Voltage:   |          |          |          |          |         |
| Peak value  | ±200 max | ±200 max | ±200 max | ±200 max | volts   |
| Average value   | 100 max  | 100 max  | 100 max  | 100 max  | volts   |
| Direct Interelectrode Capacitances (Approx.)  |          |          |          |          |         |
| Grid No.1 to Plate  |          |          |          | 0.07 max | pF      |
| Grid No.3 to Plate  |          |          |          | 0.36 max | pF      |
| Grid No.1 to Grid No.3  |          |          |          | 0.22 max | pF      |
| Grid No.1 to Cathode, Heater, Grid No.2, Grid No.3, Grid No.4, and Grid No.5        |          |          |          | 5.5      | pF      |
| Grid No.3 to Cathode, Heater, Grid No.1, Grid No.2, Grid No.4, and Grid No.5        |          |          |          | 7        | pF      |
| Plate to Cathode, Heater, Grid No.1, Grid No.2, Grid No.3, Grid No.4, and Grid No.5 |          |          |          | 7.5      | pF      |

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

#### CHARACTERISTICS

|  |      |      |        |
|--|------|------|--------|
| Plate Voltage  | 100  | 100  | volts  |
| Grids-No.2-and-No.4 Voltage                            | 30   | 30   | volts  |
| Grid-No.3 Voltage                                      | —1   | 0    | volt   |
| Grid-No.1 Voltage                                      | 0    | —1   | volt   |
| Plate Resistance (Approx.)                             | 0.7  | 1    | megohm |
| Grid-No.3-to-Plate Transconductance                    | 1500 | —    | μmhos  |
| Grid-No.1-to-Plate Transconductance                    | —    | 1100 | μmhos  |
| Plate Current  | 0.8  | 1    | mA     |
| Grids-No.2-and-No.4 Current                            | 5.5  | 1.3  | mA     |
| Grid-No.3 Voltage (Approx.) for plate current of 50 μA | —2.2 | —    | volts  |
| Grid-No.1 Voltage (Approx.) for plate current of 50 μA | —    | —2.5 | volts  |

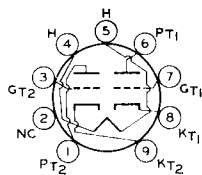
### Gated Amplifier Service

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

|  |                    |       |
|--|--------------------|-------|
| Plate Voltage  | 300                | volts |
| Grids-No.2-and-No.4 Supply Voltage                         | 300                | volts |
| Grids-No.2-and-No.4 Voltage                                | See curve page 300 |       |
| Cathode Current  | 14                 | mA    |
| Plate Dissipation  | 1                  | watt  |
| Grids-No.2-and-No.4 Input:                                 |                    |       |
| For grids-No.2-and-No.4 voltages up to 150 volts           | 1                  | watt  |
| For grids-No.2-and-No.4 voltages between 150 and 300 volts | See curve page 300 |       |

#### MAXIMUM CIRCUIT VALUES

|                              |      |         |
|------------------------------|------|---------|
| Grid-No.1-Circuit Resistance | 0.47 | megohm  |
| Grid-No.3-Circuit Resistance | 2.2  | megohms |



9EF

# 6CS7

8CS7

## MEDIUM-MU DUAL TRIODE

Miniature type used as combined vertical-deflection oscillator and vertical-deflection amplifier in television receivers. Unit No.1 is used as a conventional blocking oscillator in vertical-deflection circuits, and unit

No.2 as a vertical-deflection amplifier. **Outline section, 6E**; requires miniature 9-contact socket. Type 8CS7 is identical with type 6CS7 except for heater ratings.

|   | 6CS7      | 8CS7      |         |
|---|-----------|-----------|---------|
| Heater Voltage (ac/dc) .....                  | 6.3       | 8.4       | volts   |
| Heater Current .....                          | 0.6       | 0.45      | ampere  |
| Heater Warm-up Time (Average) .....           | 11        | 11        | seconds |
| Heater-Cathode Voltage:                       |           |           |         |
| Peak value .....                              | ±200 max  | ±200 max  | volts   |
| Average value .....                           | 100 max   | 100 max   | volts   |
| Direct Interelectrode Capacitances (Approx.): |           |           |         |
| Grid to Plate .....                           | Unit No.1 | Unit No.2 |         |
| Grid to Cathode and Heater .....              | 2.6       | 2.6       | pF      |
| Plate to Cathode and Heater .....             | 1.8       | 3         | pF      |
| Plate to Cathode and Heater .....             | 0.5       | 0.5       | pF      |

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

| CHARACTERISTICS   | Unit No.1<br>Oscillator | Unit No.2<br>Amplifier |       |
|---|-------------------------|------------------------|-------|
| Plate Voltage .....                                     | 250                     | 250                    | volts |
| Grid Voltage .....                                      | -8.5                    | -10.5                  | volts |
| Amplification Factor .....                              | 17                      | 15.5                   |       |
| Plate Resistance (Approx.) .....                        | 7700                    | 3450                   | ohms  |
| Transconductance .....                                  | 2200                    | 4500                   | μmhos |
| Plate Current .....                                     | 10.5                    | 19                     | mA    |
| Plate Current for grid voltage of -16 volts .....       | —                       | 3                      | mA    |
| Grid Voltage (Approx.) for plate current of 10 μA ..... | -24                     | —                      | volts |
| Grid Voltage (Approx.) for plate current of 50 μA ..... | —                       | -22                    | volts |

### Vertical-Deflection Oscillator and Amplifier

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

| MAXIMUM RATINGS (Design-Center Values)                      | Unit No.1<br>Oscillator | Unit No.2<br>Amplifier |       |
|---|-------------------------|------------------------|-------|
| DC Plate Voltage .....                                      | 500                     | 500                    | volts |
| Peak Positive-Pulse Plate Voltage# (Absolute Maximum) ..... | —                       | 2200 <sup>Δ</sup>      | volts |
| Peak Negative-Pulse Grid Voltage .....                      | 400                     | 250                    | volts |
| Peak Cathode Current .....                                  | 70                      | 105                    | mA    |
| Average Cathode Current .....                               | 20                      | 30                     | mA    |
| Plate Dissipation .....                                     | 1.25                    | 6.5                    | watts |

#### MAXIMUM CIRCUIT VALUES

Grid-Circuit Resistance .....

|                      |     |     |         |
|----------------------|-----|-----|---------|
| Unit No.1 Oscillator | 2.2 | 2.2 | megohms |
|----------------------|-----|-----|---------|

# Pulse duration must not exceed 15% of a vertical scanning cycle (2.5 milliseconds).

<sup>Δ</sup> Under no circumstances should this absolute value be exceeded.

### 6CT3

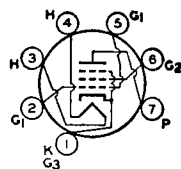
Refer to chart at end of section.

## 6CU5

12CU5/12C5,  
17CU5/17C5

### BEAM POWER TUBE

Miniature type used in the audio output stage of television receivers. Outlines section, 5D; requires miniature 7-contact socket. Types 12CU5/12C5, and 17CU5/17C5 are identical with type 6CU5 except for heater ratings.



7CV

|  | 6CU5     | 12CU5/12C5 | 17CU5/<br>17C5 |         |
|--|----------|------------|----------------|---------|
| Heater Voltage (ac/dc) .....                                 | 6.3      | 12.6       | 16.8           | volts   |
| Heater Current .....   | 1.2      | 0.6        | 0.45           | ampere  |
| Heater Warm-up Time (Average) .....                          | —        | 11         | 11             | seconds |
| Heater-Cathode Voltage:                                      |          |            |                |         |
| Peak value .....   | ±200 max | ±200 max   | ±200 max       | volts   |
| Average value .....  | 100 max  | 100 max    | 100 max        | volts   |
| Direct Interelectrode Capacitances (Approx.):                |          |            |                |         |
| Grid No.1 to Plate .....                                     |          |            | 0.6            | pF      |
| Grid No.1 to Cathode, Heater, Grid No.2, and Grid No.3 ..... |          |            | 13             | pF      |
| Plate to Cathode, Heater, Grid No.2, and Grid No.3 .....     |          |            | 8.5            | pF      |

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

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

|   |     |       |
|---|-----|-------|
| Plate Voltage   | 150 | volts |
| Grid-No.2 (Screen-Grid) Voltage                       | 130 | volts |
| Grid-No.1 (Control-Grid) Voltage, Positive-bias value | 0   | volts |
| Plate Dissipation                                     | 7   | watts |
| Grid-No.2 Input                                       | 1.4 | watts |
| Bulb Temperature (At hottest point)                   | 220 | °C    |

**TYPICAL OPERATION**

|                                  |       |          |
|----------------------------------|-------|----------|
| Plate Voltage                    | 120   | volts    |
| Grid-No.2 Voltage                | 110   | volts    |
| Grid-No.1 Voltage                | -8    | volts    |
| Peak AF Grid-No.1 Voltage        | 8     | volts    |
| Zero-Signal Plate Current        | 49    | mA       |
| Maximum-Signal Plate Current     | 50    | mA       |
| Zero-Signal Grid-No.2 Current    | 4     | mA       |
| Maximum-Signal Grid-No.2 Current | 8.5   | mA       |
| Plate Resistance (Approx.)       | 10000 | ohms     |
| Transconductance                 | 7500  | μmhos    |
| Load Resistance                  | 2500  | ohms     |
| Total Harmonic Distortion        | 10    | per cent |
| Maximum-Signal Power Output      | 2.3   | watts    |

**MAXIMUM CIRCUIT VALUES**

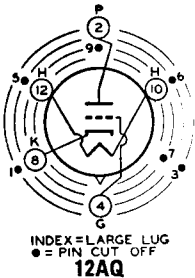
|                               |     |        |
|-------------------------------|-----|--------|
| Grid-No.1-Circuit Resistance: |     |        |
| For fixed-bias operation      | 0.1 | megohm |
| For cathode-bias operation    | 0.5 | megohm |

For replacement use type 6BQ6GTB/6CU6.

**6CU6**

Refer to chart at end of section.

**6CU8**



**6CW4**

2CW4, 13CW4

**HIGH-MU TRIODE**

Nuvistor type used as a grounded-cathode, neutralized rf amplifier in vhf tuners of color and black-and-white television and FM receivers. Outlines section, 1; requires nuvistor socket. Types 2CW4 and 13CW4 are identical with type 6CW4 except for heater ratings.

|  | 2CW4     | 6CW4     | 13CW4    |         |
|--|----------|----------|----------|---------|
| Heater Voltage (ac/dc)                       | 2.1      | 6.3      | 13.5     | volts   |
| Heater Current                               | 0.45     | 0.135    | 0.06     | ampere  |
| Heater Warm-up Time (Average)                | 8        | —        | —        | seconds |
| Peak Heater-Cathode Voltage                  | ±100 max | ±100 max | ±100 max | volts   |
| Direct Interelectrode Capacitances (Approx.) |          |          |          |         |
| Grid to Plate                                |          |          | 0.92     | pF      |
| Grid to Cathode, Heater, and Shell           |          |          | 4.3      | pF      |
| Plate to Cathode, Heater, and Shell          |          |          | 1.8      | pF      |
| Plate to Cathode                             |          |          | 0.18     | pF      |
| Heater to Cathode                            |          |          | 1.6      | pF      |

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

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

|                      |      |       |
|----------------------|------|-------|
| Plate Supply Voltage | 300° | volts |
| Plate Voltage        | 135  | volts |
| Grid Voltage:        |      |       |
| Negative-bias value  | 55   | volts |
| Peak positive value  | 0    | volts |
| Cathode Current      | 15   | mA    |
| Plate Dissipation    | 1.5  | watt  |

## CHARACTERISTICS AND TYPICAL OPERATION

|   | Characteristics | Typical Operation |            |
|---|-----------------|-------------------|------------|
| Plate Supply Voltage .....                                | 110             | 70                | volts      |
| Grid Supply Voltage .....                                 | 0               | 0                 | volts      |
| Cathode-Bias Resistor .....                               | 130             | —                 | ohms       |
| Grid Resistor .....                                       | —               | 47000             | ohms       |
| Amplification Factor .....                                | 65              | 68                |            |
| Plate Resistance (Approx.) .....                          | 6600            | 5440              | ohms       |
| Transconductance .....                                    | 9800            | 12500             | $\mu$ mhos |
| Plate Current .....                                       | 7               | 7.2               | mA         |
| Grid Voltage (Approx.) for plate current of 10 $\mu$ A .. | -4              | —                 | volts      |

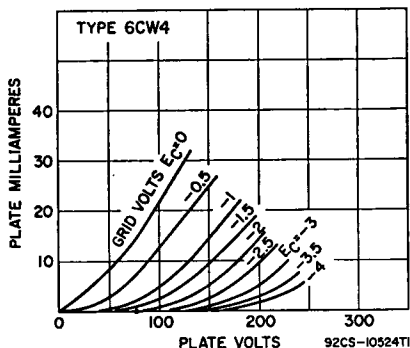
## MAXIMUM CIRCUIT VALUES

Grid-Circuit Resistance:\*

|                                  |     |         |
|----------------------------------|-----|---------|
| For fixed-bias operation .....   | 0.5 | megohm  |
| For cathode-bias operation ..... | 2.2 | megohms |

\* A plate supply voltage of 300 volts may be used provided a sufficiently large resistor is used in the plate circuit to limit the plate dissipation to 1.5 watts under any condition of operation.

\* For operation at metal-shell temperatures up to 135° C.



6CW5

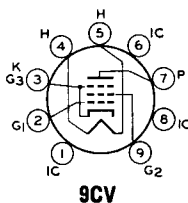
Refer to chart at end of section.

## 6CW5/ EL86

8CW5/XL86,  
10CW5/LL86,  
15CW5/PL84

## POWER PENTODE

Miniature type used for vertical-deflection amplifier service in color and black-and-white television receivers. Outlines section, 6G; requires miniature 9-contact socket. Types 8CW5/XL86, 10CW5/LL86, and 15CW5/PL84 are identical with type 6CW5/EL86 except for heater ratings.



9CV

|  | 6CW5/<br>EL86 | 8CW5/<br>XL86 | 10CW5/<br>LL86 | 15CW5/<br>PL84 |         |
|--|---------------|---------------|----------------|----------------|---------|
| Heater Voltage (ac/dc) .....                                 | 6.3           | 8             | 10.6           | 15             | volts   |
| Heater Current .....   | 0.76          | 0.6           | 0.45           | 0.3            | ampere  |
| Heater Warm-up Time .....                                    | —             | —             | 11             | —              | seconds |
| Heater-Cathode Voltage:                                      |               |               |                |                |         |
| Peak value .....   | $\pm 330$ max | $\pm 330$ max | $\pm 330$ max  | $\pm 330$ max  | volts   |
| Average value .....  | $\pm 220$ max | $\pm 220$ max | $\pm 220$ max  | $\pm 220$ max  | volts   |
| Direct Interelectrode Capacitances:                          |               |               |                |                |         |
| Grid No.1 to Plate .....                                     |               |               |                | 0.6            | pF      |
| Grid No.1 to Heater .....                                    |               |               |                | 0.25 max       | pF      |
| Grid No.1 to Cathode, Heater, Grid No.2, and Grid No.3 ..... |               |               |                | 13             | pF      |
| Plate to Cathode, Heater, Grid No.2, and Grid No.3 .....     |               |               |                | 6.8            | pF      |

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

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

|  |     |       |
|--|-----|-------|
| Plate Voltage                          | 275 | volts |
| Plate Supply Voltage                   | 600 | volts |
| Grid-No.2 Voltage                      | 220 | volts |
| Grid-No.2 (Screen-Grid) Supply Voltage | 600 | volts |
| Cathode Current                        | 110 | mA    |
| Plate Dissipation                      | 14  | watts |
| Grid-No.2 Input                        | 2.1 | watts |
| Peak Grid-No.2 Input                   | 7   | watts |

**CHARACTERISTICS**

|                                    |       |       |
|------------------------------------|-------|-------|
| Plate Voltage                      | 170   | volts |
| Grid-No.2 Voltage                  | 170   | volts |
| Grid-No.1 (Control-Grid) Voltage   | -12.5 | volts |
| Mu Factor (Grid No.2 to Grid No.1) | 8     |       |
| Plate Resistance                   | 26000 | ohms  |
| Transconductance                   | 11000 | umhos |
| Plate Current                      | 70    | mA    |
| Grid-No.2 Current                  | 3.5   | mA    |

**MAXIMUM CIRCUIT VALUE**

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

**Vertical-Deflection Amplifier**

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

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

|                                       |      |       |
|---------------------------------------|------|-------|
| Plate Voltage                         | 275  | volts |
| Peak Positive-Pulse Plate Voltage#    | 2200 | volts |
| Grid-No.2 Voltage                     | 275  | volts |
| Peak Negative-Pulse Grid-No.1 Voltage | 250  | volts |
| Peak Cathode Current                  | 240  | mA    |
| Average Cathode Current               | 110  | mA    |
| Plate Dissipation                     | 12   | watts |
| Grid-No.2 Input                       | 2.1  | watts |

**MAXIMUM CIRCUIT VALUE**

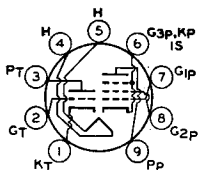
|                              |     |         |
|------------------------------|-----|---------|
| Grid-No.1-Circuit Resistance | 2.2 | megohms |
|------------------------------|-----|---------|

# Pulse duration must not exceed 6% of a vertical scanning cycle (1.2 milliseconds).

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

**6CX8**

8CX8



9DX

Miniature type used in television receiver applications. Pentode unit is used as video amplifier; triode unit is used in sound if-amplifier, sweep-oscillator, sync-separator, sync-amplifier, and sync-clipper circuits. Outlines section, 6E; requires miniature 9-contact socket. Type 8CX8 is identical with type 6CX8 except for heater ratings.

|   | 6CX8     | 8CX8      |        |
|---|----------|-----------|--------|
| Heater Voltage (ac/dc)  | 6.3      | 8         | volts  |
| Heater Current  | 0.75     | 0.6       | ampere |
| Heater Warm-up Time (Average)   | —        | 11        | volts  |
| Heater-Cathode Voltage:   |          |           |        |
| Peak value  | ±200 max | ±200 max  | volts  |
| Average value   | 100 max  | 100 max   | volts  |
| Direct Interelectrode Capacitances:                                     |          |           |        |
| Triode Unit:  |          |           |        |
| Grid to Plate   |          | 4.4       | pF     |
| Grid to Cathode and Heater  |          | 2.2       | pF     |
| Plate to Cathode and Heater   |          | 0.38      | pF     |
| Pentode Unit:   |          |           |        |
| Grid No.1 to Plate  |          | 0.06      | pF     |
| Grid No.1 to Cathode, Heater, Grid No.2, Grid No.3, and Internal Shield |          | 9         | pF     |
| Plate to Cathode, Heater, Grid No.2, Grid No.3, and Internal Shield     |          | 4.4       | pF     |
| Triode Grid to Pentode Plate  |          | 0.018 max | pF     |
| Pentode Grid No.1 to Triode Plate                                       |          | 0.005 max | pF     |
| Pentode Plate to Triode Plate   |          | 0.17 max  | pF     |

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

## CHARACTERISTICS

|  |      |       |            |
|--|------|-------|------------|
| Plate Supply Voltage   | 150  | 200   | volts      |
| Grid-No.2 Supply Voltage                                     | —    | 125   | volts      |
| Cathode-Bias Resistor  | 150  | 68    | ohms       |
| Amplification Factor   | 40   | —     |            |
| Plate Resistance (Approx.)                                   | 8700 | 70000 | ohms       |
| Transconductance   | 4600 | 10000 | $\mu$ mhos |
| Plate Current  | 9.2  | 24    | mA         |
| Grid-No.2 Current  | —    | 5.2   | mA         |
| Grid-No.1 (Voltage Approx.) for plate current of 100 $\mu$ A | -5   | -8.5  | volts      |

## MAXIMUM CIRCUIT VALUES

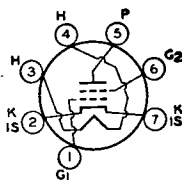
|                               |     |      |        |
|-------------------------------|-----|------|--------|
| Grid-No.1-Circuit Resistance: |     |      |        |
| For fixed-bias operation      | 0.5 | 0.25 | megohm |
| For cathode-bias operation    | 1   | 1    | megohm |

## 6CY5

2CY5, 3CY5

## SHARP-CUTOFF TETRODE

Miniature type used as rf amplifier in vhf tuners of television receivers. Outlines section, 5C; requires miniature 7-contact socket. Types 2CY5 and 3CY5 are identical with type 6CY5 except for heater ratings.



7EW

|   | 2CY5          | 3CY5          | 6CY5          |         |
|---|---------------|---------------|---------------|---------|
| Heater Voltage (ac/dc)                                      | 2.4           | 2.9           | 6.3           | volts   |
| Heater Current  | 0.6           | 0.45          | 0.2           | ampere  |
| Heater Warm-up Time (Average)                               | 11            | 11            | —             | seconds |
| Peak Heater-Cathode Voltage                                 | $\pm 100$ max | $\pm 100$ max | $\pm 100$ max | volts   |
| Direct Interelectrode Capacitances (Approx.): <sup>a</sup>  |               |               |               |         |
| Grid-No.1 to Plate  |               |               | 0.03          | pF      |
| Grid-No.1 to Cathode, Heater, Grid No.2 and Internal Shield |               |               | 4.5           | pF      |
| Plate to Cathode, Heater, Grid No.2, and Internal Shield    |               |               | 3             | pF      |

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

Class A<sub>1</sub> Amplifier

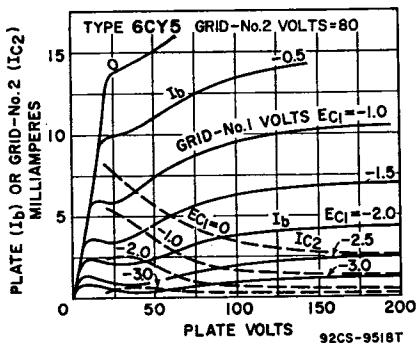
| MAXIMUM RATINGS (Design-Maximum Values)               |                    |       |
|---|--------------------|-------|
| Plate Voltage   | 180                | volts |
| Grid-No.2 (Screen-Grid) Supply Voltage                | 180                | volts |
| Grid-No.2 Voltage                                     | See curve page 300 |       |
| Grid-No.1 (Control-Grid) Voltage, Positive-bias value | 0                  | volts |
| Cathode Current                                       | 20                 | mA    |
| Plate Dissipation                                     | 2                  | watts |
| Grid-No.2 Input:                                      |                    |       |
| For grid-No.2 voltages up to 90 volts                 | 0.5                | watt  |
| For grid-No.2 voltages between 90 and 180 volts       | See curve page 300 |       |

## CHARACTERISTICS

|   |      |            |
|---|------|------------|
| Plate Voltage   | 125  | volts      |
| Grid-No.2 Voltage   | 80   | volts      |
| Grid-No.1 Voltage   | -1   | volt       |
| Plate Resistance (Approx.)                                  | 0.1  | megohm     |
| Transconductance  | 8000 | $\mu$ mhos |
| Plate Current   | 10   | mA         |
| Grid-No.2 Current   | 1.5  | mA         |
| Grid-No.1 Voltage (Approx.) for plate current of 20 $\mu$ A | -6   | volts      |

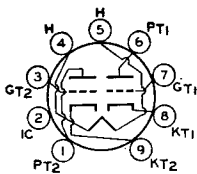
## MAXIMUM CIRCUIT VALUE

|                              |     |        |
|------------------------------|-----|--------|
| Grid-No.1-Circuit Resistance | 0.5 | megohm |
|------------------------------|-----|--------|



DUAL TRIODE

6CY7



9LG

Miniature type used as combined vertical oscillator and vertical-deflection amplifier in television receivers. Unit No.1 is used as a blocking oscillator in vertical-deflection circuits, and unit No.2 is used as a vertical-deflection amplifier. Outlines section, 6E; requires miniature 9-contact socket.

|                         |          |        |
|-------------------------|----------|--------|
| Heater Voltage (ac/dc)  | 6.3      | volts  |
| Heater Current          | 0.75     | ampere |
| Heater-Cathode Voltage: |          |        |
| Peak value              | ±200 max | volts  |
| Average value           | 100 max  | volts  |

Class A<sub>1</sub> Amplifier

| CHARACTERISTICS                                    | Unit No.1 | Unit No.2 |       |
|--|-----------|-----------|-------|
| Plate Supply Voltage                               | 250       | 150       | volts |
| Grid Voltage                                       | -3        | —         | volts |
| Cathode-Bias Resistor                              | —         | 620       | ohms  |
| Amplification Factor                               | 68        | 5         |       |
| Plate Resistance (Approx.)                         | 52000     | 920       | ohms  |
| Transconductance                                   | 1300      | 5400      | μmhos |
| Plate Current                                      | 1.2       | 30        | mA    |
| Plate Current for grid voltage of -30 volts        | —         | 3.5       | mA    |
| Grid Voltage (Approx.) for plate current of 10 μA  | -5.5      | —         | volts |
| Grid Voltage (Approx.) for plate current of 200 μA | —         | -40       | volts |

Vertical-Deflection Oscillator and Amplifier

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

| MAXIMUM RATINGS (Design-Maximum Values) | Unit No.1<br>Oscillator | Unit No.2<br>Amplifier |       |
|---|-------------------------|------------------------|-------|
| DC Plate Voltage                        | 350                     | 350                    | volts |
| Peak Positive-Pulse Plate Voltage#      | —                       | 1800                   | volts |
| Peak Negative-Pulse Grid Voltage        | -400                    | -250                   | volts |
| Peak Cathode Current                    | —                       | 120                    | mA    |
| Average Cathode Current                 | —                       | 35                     | mA    |
| Plate Dissipation                       | 1                       | 5.5                    | watts |

MAXIMUM CIRCUIT VALUES

|                         |     |      |         |
|-------------------------|-----|------|---------|
| Grid-Circuit Resistance | 2.2 | 2.2† | megohms |
|-------------------------|-----|------|---------|

# Pulse duration must not exceed 15% of a vertical scanning cycle (2.5 milliseconds).

† For cathode-bias operation.