

# CHATHAM ELECTRONICS CORPORATION

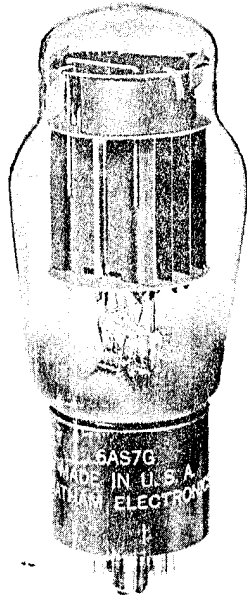
## 6AS7G

### LOW-MU TWIN POWER TRIODE

Chatham 6AS7G is a low-mu, high perveance, twin power triode of the heater-cathode type intended for use as a regulator tube in dc power supply units,

and in projection television booster scanning applications where pulsed plate voltages of high value are encountered.

The Chatham 6AS7G features triode balance within  $\pm 10\%$  at rated current, very low microphonics, absence of grid emission and greatly reduced plate current drift.



#### GENERAL DATA

Heater, for Unipotential Cathodes:

|                                |                |       |
|--------------------------------|----------------|-------|
| Voltage (AC or DC) . . . . .   | 6.3 $\pm 10\%$ | volts |
| Current at 6.3 volts . . . . . | 2.5            | amp   |

Direct Interelectrode Capacitances

|                                       |     |     |
|---------------------------------------|-----|-----|
| (Each Unit, without external shield): |     |     |
| Grid to Plate . . . . .               | 8.4 | uuf |
| Input . . . . .                       | 6.2 | uuf |
| Output . . . . .                      | 2.2 | uuf |

Heater to Cathode:

|  |      |     |
|--|------|-----|
| Triode Unit No.1 . . . . .                         | 6.5  | uuf |
| Triode Unit No.2 . . . . .                         | 6.1  | uuf |
| Grid of Unit No.1 to Grid of Unit No.2 . . . . .   | 0.50 | uuf |
| Plate of Unit No.1 to Plate of Unit No.2 . . . . . | 2.20 | uuf |

CHARACTERISTICS (Each Unit):

|                                 |      |       |
|---------------------------------|------|-------|
| Plate-Supply Voltage . . . . .  | 135  | volts |
| Cathode-Bias Resistor . . . . . | 250  | ohms  |
| Amplification Factor . . . . .  | 2    |       |
| Plate Resistance . . . . .      | 280  | ohms  |
| Transconductance . . . . .      | 7000 | umhos |
| Plate Current . . . . .         | 125  | ma    |

MECHANICAL:

|                                  |                          |
|----------------------------------|--------------------------|
| Mounting Position . . . . .      | Any                      |
| Maximum Overall Length . . . . . | 5.32"                    |
| Maximum Seated Length . . . . .  | 4.77"                    |
| Maximum Diameter . . . . .       | 2.0"                     |
| Bulb . . . . .                   | ST-16                    |
| Base . . . . .                   | Medium Shell Octal 8 Pin |

#### DC AMPLIFIER

Values are for Each Unit

#### MAXIMUM RATINGS, Absolute Values:

|   |          |                    |
|---|----------|--------------------|
| Plate Voltage . . . . .                           | 250 max. | volts              |
| Plate Current . . . . .                           | 125 max. | ma                 |
| Plate Dissipation . . . . .                       | 13 max.  | watts              |
| Peak Heater-Cathode Voltage:                      |          |                    |
| Heater negative with respect to cathode . . . . . | 300 max. | volts              |
| Heater positive with respect to cathode . . . . . | 300 max. | volts              |
| Bulb Temperature $\oplus$ . . . . .               | 200 max. | $^{\circ}\text{C}$ |

#### MAXIMUM CIRCUIT VALUES:

|  |          |        |
|--|----------|--------|
| Grid-Circuit Resistance:                                   |          |        |
| For cathode-bias operation . . . . .                       | 1.0 max. | megohm |
| For fixed-bias operation $\square$ . . . . .               | 0.1 max. | megohm |
| For combined fixed- and cathode-bias operation * . . . . . | 0.1 max. | megohm |

#### BOOSTER SCANNING SERVICE

Values are for Each Unit

#### MAXIMUM RATINGS, Absolute Values:

For operation in a 525-line, 30-frame system  $\blacktriangle$

|  |           |                    |
|--|-----------|--------------------|
| Peak Negative-Pulse Plate Voltage $\bullet$ . . . . .        | 3000 max. | volts              |
| Peak Negative-Pulse Grid Voltage . . . . .                   | 2300 max. | volts              |
| DC Plate Current . . . . .                                   | 125 max.  | ma                 |
| Plate Dissipation . . . . .                                  | 13 max.   | watts              |
| Peak Heater-Cathode Voltage:                                 |           |                    |
| Heater negative with respect to cathode $\diamond$ . . . . . | 300 max.  | volts              |
| Heater positive with respect to cathode . . . . .            | 300 max.  | volts              |
| Bulb Temperature $\oplus$ . . . . .                          | 200 max.  | $^{\circ}\text{C}$ |

#### MAXIMUM CIRCUIT VALUES

(for maximum rated conditions):

|                                      |                 |        |
|--------------------------------------|-----------------|--------|
| Grid-Circuit Resistance:             |                 |        |
| For cathode-bias operation . . . . . | 1.0 max.        | megohm |
| For fixed-bias operation . . . . .   | not recommended |        |

#### CHARACTERISTICS RANGE VALUES

FOR EQUIPMENT DESIGN

|  | Note | Min. | Max. |       |
|--|------|------|------|-------|
| Heater Current . . . . .                     | 1    | 2.26 | 2.74 | amp   |
| Grid-Plate Capacitance (Each Unit) . . . . . | -    | 6.9  | 9.9  | uuf   |
| Input Capacitance (Each Unit) . . . . .      | -    | 4.7  | 7.7  | uuf   |
| Output Capacitance (Each Unit) . . . . .     | -    | 1.7  | 2.7  | uuf   |
| Heater-Cathode Capacitance:                  |      |      |      |       |
| Triode Unit No. 1 . . . . .                  | -    | 4.5  | 8.5  | uuf   |
| Triode Unit No.2 . . . . .                   | -    | 4.1  | 8.1  | uuf   |
| Amplification Factor                         |      |      |      |       |
| (Each Unit) . . . . .                        | 1,2  | 1.4  | 2.6  |       |
| Plate Current (Each Unit) . . . . .          | 1,2  | 100  | 150  | ma    |
| Transconductance                             |      |      |      |       |
| (Each Unit) . . . . .                        | 1,2  | 5800 | 8200 | umhos |
| Reverse Grid Current                         |      |      |      |       |
| (Each Unit) . . . . .                        | 1,3  | -    | 2.5  | uamp  |

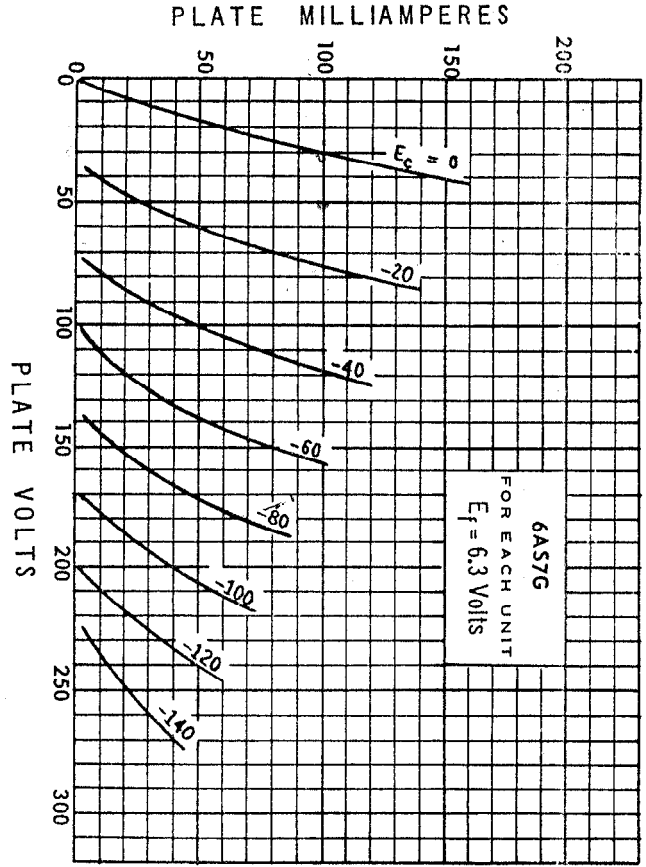
- Note 1: With 6.3 volts ac or dc on heater.
- Note 2: With plate-supply voltage of 135 volts, and cathode-bias resistor of 250 ohms in each cathode (both triode units operating).
- Note 3: With plate-supply voltage of 135 volts, and grid resistor of 1 megohm in each grid (both triode units operating).

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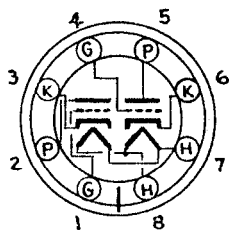
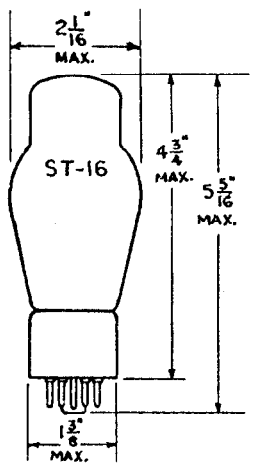
- ⊙ At hottest point on bulb surface.
- ⊙ When fixed bias is used, the plate circuit should contain a protective resistance to provide a minimum drop of 15 volts dc at the normal operating conditions.
- \* When combined fixed-and cathode-bias is used, the cathode-bias portion should have a minimum value of 7.5 volts dc at the normal operating conditions.
- ▲ As described in "Standards of Good Engineering Practice Concerning Television Broadcast Stations", Federal Communications Commission.
- The duration of the voltage pulse must not exceed 15 per cent of one horizontal scanning cycle. In a 525-line, 30-frame system, 15 per cent of one horizontal scanning cycle is 10 microseconds.
- ◆ Operation of this tube is not recommended with a damper pulse between heater and cathode.

## OPERATING NOTES

The *maximum ratings* in the tabulated data for the 6AS7G are limiting values above which the serviceability of the 6AS7G may be impaired from the viewpoint of life and satisfactory performance. Therefore, in order not to exceed these absolute ratings, the equipment designer has the responsibility of determining an average design value for each rating below the absolute value of that rating by an amount such that the absolute values will never be exceeded under any usual condition of supply-voltage variation, load variation, or manufacturing variation in the equipment itself.



## DIMENSIONAL OUTLINE



BOTTOM VIEW  
MEDIUM SHELL  
8 PIN OCTAL