

# High-Mu Triode— Sharp-Cutoff Pentode

## 9-PIN MINIATURE TYPE

For Use in Sync-Separator, Sync-Clipper, Voltage Amplifier, Phase-Inverter, and Video Output Amplifier Circuits in TV Receivers

### Electrical:

#### Heater Characteristics and Ratings:

|  |                  |            |
|--|------------------|------------|
| Current . . . . .  | 0.450 ± 0.030    | amp        |
| Voltage (AC or DC) at heater<br>amperes = 0.450 . . . . .  | 10.5             | volts      |
| Warm-up time (Average) . . . . .   | 11               | sec        |
| Peak heater-cathode voltage (Each Unit):<br>Heater negative with respect<br>to cathode . . . . . | 200              | max. volts |
| Heater positive with respect<br>to cathode . . . . .   | 200 <sup>a</sup> | max. volts |

#### Direct Interelectrode Capacitances:<sup>b</sup>

##### Triode Unit:

|   |     |    |
|---|-----|----|
| $G_T$ to $P_T$ . . . . .                                | 4.0 | pf |
| Input: $G_T$ to ( $K_T, K_p+G_{3p}+I_S, H$ ) . . . . .  | 2.6 | pf |
| Output: $P_T$ to ( $K_T, K_p+G_{3p}+I_S, H$ ) . . . . . | 2.6 | pf |

##### Pentode Unit:

|  |            |    |
|--|------------|----|
| $G_{1p}$ to $P_p$ . . . . .                                  | 0.1 max.   | pf |
| Input: $G_{1p}$ to ( $K_p+G_{3p}+I_S, G_{2p}, H$ ) . . . . . | 11         | pf |
| Output: $P_p$ to ( $K_p+G_{3p}+I_S, G_{2p}, H$ ) . . . . .   | 4.4        | pf |
| $G_{1p}$ to $P_T$ . . . . .                                  | 0.005 max. | pf |
| $P_p$ to $G_T$ . . . . .                                     | 0.018 max. | pf |
| $P_p$ to $P_T$ . . . . .                                     | 0.17 max.  | pf |

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

|   | Triode Unit |       |       |
|---|-------------|-------|-------|
| Plate Voltage . . . . .   | 135         | 200   | volts |
| Grid Voltage . . . . .  | -2          | -2    | volts |
| Amplification Factor . . . . .                                  | 60          | 70    |       |
| Plate Resistance (Approx.) . . . . .                            | 39000       | 19000 | ohms  |
| Transconductance . . . . .                                      | 1550        | 3700  | μmhos |
| Plate Current . . . . .   | 1           | 3.5   | ma    |
| Grid-No.1 Voltage (Approx.)<br>for plate $\mu_a = 10$ . . . . . | -4.8        | -7    | volts |

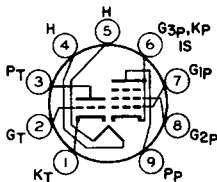
|   | Pentode Unit    |       |       |       |
|---|-----------------|-------|-------|-------|
| Plate Voltage . . . . .   | 30              | 135   | 200   | volts |
| Grid-No.2 Voltage . . . . .                                     | 135             | 135   | 135   | volts |
| Grid-No.1 Voltage . . . . .                                     | 0               | -1.5  | -1.5  | volts |
| Plate Resistance (Approx.) . . . . .                            | -               | 66000 | 70000 | ohms  |
| Transconductance . . . . .                                      | -               | 12600 | 14000 | μmhos |
| Plate Current . . . . .   | 32 <sup>c</sup> | 17    | 18    | ma    |
| Grid-No.2 Current . . . . .                                     | 14 <sup>c</sup> | 4.2   | 4     | ma    |
| Grid-No.1 Voltage (Approx.)<br>for plate $\mu_a = 10$ . . . . . | -               | -5    | -5    | volts |



# 10JA8

## Mechanical:

|  |   |
|--|---|
| Operating Position. . . . .  | Any                                       |
| Types of Cathodes . . . . .  | Coated Unipotential                       |
| Maximum Overall Length. . . . .                                    | 2-5/8"                                    |
| Maximum Seated Length. . . . .                                     | 2-3/8"                                    |
| Length, Base Seat to Bulb Top<br>(Excluding tip) . . . . .         | 2" $\pm$ 3/32"                            |
| Diameter. . . . .  | 0.750" to 0.875"                          |
| Dimensional Outline . . . . .                                      | See <i>General Section</i>                |
| Bulb. . . . .  | T6-1/2                                    |
| Base. . . . .  | Small-Button Noval 9-Pin (JEDEC No. E9-1) |
| Basing Designation for BOTTOM VIEW. . . . .                        | 9DX                                       |
| Pin 1 - Triode Cathode   |   |
| Pin 2 - Triode Grid  |   |
| Pin 3 - Triode Plate   |   |
| Pin 4 - Heater   |   |
| Pin 5 - Heater   |   |
| Pin 6 - Pentode Cathode,<br>Pentode Grid No. 3,<br>Internal Shield |   |
| Pin 7 - Pentode Grid No. 1   |   |
| Pin 8 - Pentode Grid No. 2   |   |
| Pin 9 - Pentode Plate  |   |



## AMPLIFIER — Class A<sub>1</sub>

### Maximum Ratings, Design-Maximum Values:

|   | Triode<br>Unit  | Pentode<br>Unit |       |
|---|---|-----------------|-------|
| Plate Voltage. . . . .  | 300 max.  | 330 max.        | volts |
| Grid-No.2 (Screen-Grid)<br>Supply Voltage . . . . .             | -   | 330 max.        | volts |
| Grid-No.2 Voltage. . . . .                                      | See <i>Grid-No.2 Input Rating Chart</i><br>at front of Receiving Tube Section |                 |       |
| Grid-No.1 (Control-Grid)<br>Voltage:                            |   |                 |       |
| Positive-bias value. . . . .                                    | 0 max.  | 0 max.          | volts |
| Plate Dissipation. . . . .                                      | 1 max.  | 5 max.          | watts |
| Grid-No.2 Input:  |   |                 |       |
| For grid-No.2 voltages<br>up to 165 volts. . . . .              | -   | 1.5 max.        | watts |
| For grid-No.2 voltages<br>between 165 and<br>330 volts. . . . . | See <i>Grid-No.2 Input Rating Chart</i><br>at front of Receiving Tube Section |                 |       |

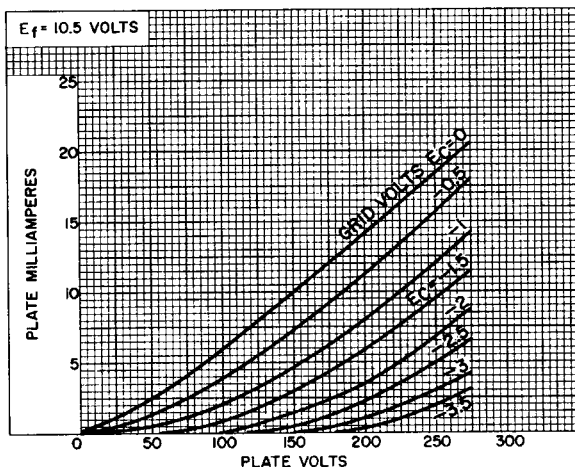
### Maximum Circuit Values:

|                                     | Triode<br>Unit | Pentode<br>Unit |        |
|-------------------------------------|----------------|-----------------|--------|
| Grid-No.1 Circuit Resistance:       |                |                 |        |
| For cathode-bias operation. . . . . | 1.0 max.       | 1.0 max.        | megohm |
| For fixed-bias operation. . . . .   | 0.5 max.       | 0.25 max.       | megohm |



- a The dc component must not exceed 100 volts.  
 b Without external shield.  
 c This value can be measured by a method involving a recurrent waveform such that the maximum ratings of the tube will not be exceeded.

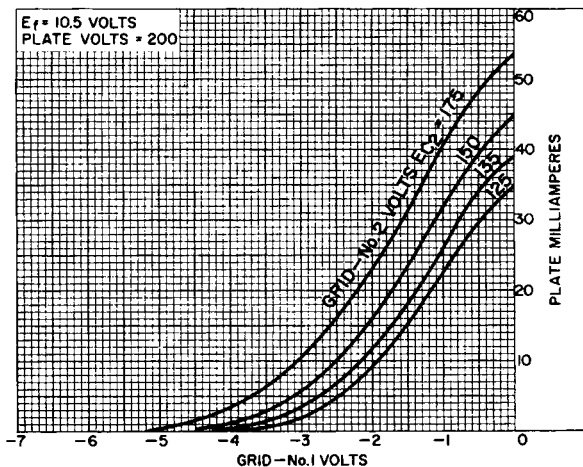
## AVERAGE PLATE CHARACTERISTICS Triode Unit



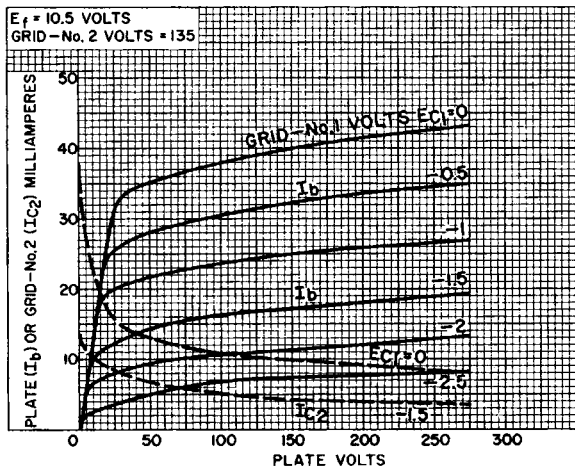
92CS-12158



## AVERAGE CHARACTERISTICS Pentode Unit



92CS-12160



92CS-12159

