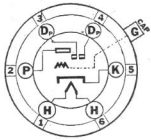


Sylvania

# TYPE 85

## DUODIODE TRIODE

### CHARACTERISTICS

| | |
|---|---|
| Heater Voltage AC or DC | 6.3 Volts |
| Heater Current | 0.30 Ampere |

**Direct Interelectrode Capacitances (Triode Unit):**

| | |
|---|---|
| Grid to Plate | 1.5 μμf |
| Input | 1.5 μμf |
| Output | 4.3 μμf |
| Maximum Over-all Length | $4\frac{13}{32}$" |
| Maximum Diameter | $1\frac{7}{16}$" |
| Bulb | ST-12 |
| Cap | Small Metal |
| Base—Small 6-Pin | 6-G |

CLASS A AMPLIFIER (TRIODE UNIT)

| | | | | |
|---|---|---|---|---|
| Heater Voltage | 6.3 | 6.3 | 6.3 | Volts |
| Plate Voltage | 135 | 180 | 250 | Volts |
| Grid Voltage | −10.5 | −13.5 | −20.0 | Volts |
| Plate Current | 3.7 | 6.0 | 8.0 | Ma. |
| Plate Resistance | 11000 | 8500 | 7500 | Ohms |
| Mutual Conductance | 750 | 975 | 1100 | μmhos |
| Amplification Factor | 8.3 | 8.3 | 8.3 | |
| Load Resistance | 25000 | 20000 | 20000 | Ohms |
| Power Output | 75 | 160 | 350 | Mw. |

### CIRCUIT APPLICATION

Sylvania 85 is a heater type tube designed for AC, DC, or storage battery operation. It consists of two diodes and a triode in a single bulb, and may be used as a combined diode detector, triode amplifier, and for securing the requisite voltage for automatic volume control.

The independence of operation of the two diodes and the triode permits unusual flexibility in circuit arrangement and design. For example, the diodes of this tube can perform at the same time the functions of detection and of automatic volume control with sensitivity control and time delay action confined to the a-v-c circuit; while at the same time the triode may be used as an amplifier under its own optimum conditions.

Two diodes may be used for full-wave rectification or their plates may be connected in parallel (with decreased tube resistance) for half-wave rectification. With full-wave rectification, the circuit may be balanced for carrier input so that no carrier frequency is supplied to the grid of the following amplifier and no carrier frequency filtering is theoretically necessary. Half-wave rectification as compared with full-wave rectification provides approximately twice the signal output but requires carrier frequency filtering.

For automatic volume control the controlling bias voltage may be obtained by either of two general methods. In one case, the required voltage is obtained from the detector circuit by utilizing the voltage drop caused by the rectified current flowing through a resistor in the detector circuit. In the other case, the required voltage is obtained by utilizing one diode for the sole purpose of a.v.c. This latter method is of particular interest since it confines the sensitivity and time delay function to the a-v-c circuit. Time delay action is, of course, determined by the use of a resistance and condenser combination having the desired time constant. The sensitivity control action is determined by applying a negative voltage to the a-v-c diode plate of such a value as to accomplish the desired reduction.

For amplification, the triode may be employed in conventional circuit arrangements. Grid bias for the triode, depending upon circuit design, may be obtained from a fixed voltage tap on the d-c power supply or may be obtained by utilizing the variable voltage drop caused by the rectified current flowing through a resistor in the detector circuit.