

Sylvania

# TYPE 34

## SUPER-CONTROL RF AMPLIFIER PENTODE



### CHARACTERISTICS

Filament Voltage . . . . .	2.0 Volts
Filament Current . . . . .	0.060 Ampere

### Direct Interelectrode Capacitances:

Grid to Plate (with tube shield) . . . . .	0.015 $\mu\mu\text{f}$
Input . . . . .	6.0 $\mu\mu\text{f}$
Output . . . . .	12.6 $\mu\mu\text{f}$
Maximum Over-all Length . . . . .	5 $\frac{3}{32}$ "
Maximum Diameter . . . . .	1 $\frac{11}{16}$ "
Bulb . . . . .	ST-14
Cap . . . . .	Small Metal
Base—Medium 4-Pin . . . . .	4-M

### Operating Conditions and Characteristics:

Filament Voltage . . . . .	2.0	2.0	2.0 Volts
Plate Voltage . . . . .	67.5	135	180 Volts Max.
Grid Voltage . . . . .	-3	-3	-3 Volts Min.
Screen Voltage . . . . .	67.5	67.5	67.5 Volts Max.
Plate Current . . . . .	2.7	2.8	2.8 Ma.
Screen Current . . . . .	1.1	1.0	1.0 Ma.
Plate Resistance . . . . .	0.4	0.6	1.0 Megohm
Mutual Conductance . . . . .	560	600	620 $\mu\text{mhos}$
Mutual Conductance* . . . . .	15	15	15 $\mu\text{mhos}$
Amplification Factor . . . . .	224	360	620

\*At—22.5 volts bias.

### CIRCUIT APPLICATION

Sylvania 34 is a pentode suitable for r-f amplifier service. This tube is provided with remote cut-off characteristics, and the filament requires 60 milliamperes at 2.0 volts.

The 34 is designed with a "suppressor" grid between the screen and plate. The suppressor grid is connected to the cathode thus operating at a much lower potential than the elements between which it is placed and retarding the interchange of secondary electrons between these elements. It is this effect in the normal screen grid tube which makes it necessary to operate the plate at voltages well above the screen grid potential in order to secure high plate resistance. With the addition of the suppressor it is possible to operate the plate at the same, or even lower, voltage than that applied to the screen without serious loss in gain.

The 34 makes it possible to obtain very good results with battery receivers so that the resulting performance is comparable to a-c operated receivers. It is very effective in reducing modulation distortion and cross-talk.

Stable operation of the 34 in radio frequency circuits designed to give maximum gain per stage requires separation of the input and output circuit elements. Complete stage shielding is required and adequate filtering must be provided if oscillation and instability are to be prevented.

The screen voltage may be obtained from a tap on the B-supply battery or from a bleeder circuit across the supply source. The use of a series resistor is not recommended to obtain the required screen grid voltage unless the tube is operated self-biased.