



Sylvania  
**TYPE 15**  
TWO VOLT  
RF PENTODE

**CHARACTERISTICS**

Heater Voltage DC . . . . .	2.0	Volts
Heater Current . . . . .	0.22	Ampere

**Direct Interelectrode Capacitances:**

Grid to Plate (with tube shield) . . . . .	0.01	$\mu\text{f}$
Input . . . . .	2.35	$\mu\text{f}$
Output . . . . .	7.80	$\mu\text{f}$
Maximum Over-all Length. . . . .	$4\frac{11}{32}$ "	
Maximum Diameter . . . . .	$1\frac{9}{16}$ "	
Bulb . . . . .		ST-12
Cap . . . . .		Small Metal
Base—Small 5-Pin . . . . .		5-F

**Operating Conditions and Characteristics:**

Heater Voltage . . . . .	2.0		2.0 Volts
Plate Voltage . . . . .	67.5		135 Volts
Grid Voltage . . . . .	-1.5		-1.5 Volts
Screen Voltage . . . . .	67.5		67.5 Volts
Plate Current . . . . .	1.85		1.85 Ma.
Screen Current . . . . .	0.30		0.30 Ma.
Plate Resistance . . . . .	0.63		0.8 Megohm
Mutual Conductance . . . . .	710		750 $\mu\text{mhos}$
Amplification Factor . . . . .	450		600

**CIRCUIT APPLICATION**

The first heater type tube with heater current consumption low enough to bring it into the class of battery operated tubes has been made available in Sylvania Type 15, a pentode designed for r-f amplification and detection.

Limitations as to physical size of cathode make it necessary to take a higher current than is required for a filament type tube of equivalent characteristics, and it is not anticipated that Type 15 will be used in more than one or two sockets of the receiver where circuit design requirements are such as to make an independent cathode connection desirable.

The heater power required has been reduced to 20 per cent of the amount taken by the efficient 6.3 volt cathode used in Types 36, 37 and 39/44, and is only .45 watt. The average heater current required is .22 ampere, or somewhat more than three times that taken by Type 32.

Some of the important applications of this tube are as follows:

- 1—Combined first detector-oscillator tube in superheterodyne receivers where an oscillator coupling coil is placed between cathode and ground.
- 2—Second detector where pentode characteristics and self-bias may be used to extend detector operating range, permitting increased output voltages to be obtained.
- 3—In any circuit where self-bias or a separate cathode connection is of importance.
- 4—Type 15 may be used on a.c. in applications where heater cathode bias is not high and power consumption is of importance.