



Sylvania  
**TYPE 6F7**  
 PENTODE  
 TRIODE

**CHARACTERISTICS**

Heater Voltage AC or DC . . . . .	6.3 Volts
Heater Current . . . . .	0.3 Ampere

**Direct Interelectrode Capacitances:**

Triode Section—Grid to Plate . . . . .	2.2 $\mu\mu\text{f}$
Grid to Cathode . . . . .	2.3 $\mu\mu\text{f}$
Plate to Cathode . . . . .	1.8 $\mu\mu\text{f}$
Pentode Section—Grid to Plate (with tube shield) . . . . .	0.008 $\mu\mu\text{f}$ Max.
Input . . . . .	3.2 $\mu\mu\text{f}$
Output . . . . .	12.5 $\mu\mu\text{f}$
Maximum Over-all Length . . . . .	4 $\frac{1}{8}$ "
Maximum Diameter . . . . .	1 $\frac{1}{8}$ "
Bulb . . . . .	ST-12
Cap . . . . .	Small Metal
Base—Small 7-Pin . . . . .	7-E

**Operating Conditions and Characteristics:**

	Triode Unit	Pentode Unit	
Heater Voltage . . . . .	6.3	6.3	6.3 Volts
Plate Voltage . . . . .	100	100	250 Volts Max.
Grid Voltage . . . . .	-3	-3	-3 Volts
Screen Voltage . . . . .	100	100	100 Volts Max.
Plate Current . . . . .	3.5	6.3	6.5 Ma.
Screen Current . . . . .	.....	1.6	1.5 Ma.
Plate Resistance . . . . .	16200	290,000	850,000 Ohms
Mutual Conductance . . . . .	525	1050	1100 $\mu\text{mhos}$
Amplification Factor . . . . .	8.5	300	900
Mutual Conductance at -35 Volts Grid Bias . . . . .	.....	9	10 $\mu\text{mhos}$

**CONVERTER SERVICE**

	Triode Unit	Pentode Unit	
Heater Voltage . . . . .	6.3	6.3	6.3 Volts
Plate Voltage . . . . .	100	100	250 Volts Max.
Grid Voltage . . . . .	.....	.....	-10 Volts
Screen Voltage . . . . .	.....	.....	100 Volts Max.
D-C Plate Current . . . . .	2.4	.....	2.8 Ma.
D-C Grid Current . . . . .	0.15	.....	0 Ma.
Screen Current . . . . .	.....	.....	0.6 Ma.
Plate Resistance . . . . .	.....	.....	2 Megohms
Oscillator Peak Input . . . . .	.....	.....	7 Volts
Conversion Transconductance . . . . .	.....	.....	300 $\mu\text{mhos}$

**CIRCUIT APPLICATION**

Sylvania 6F7 is a heater type of tube including a triode and a remote cut-off pentode in a common envelope. Except for the common cathode the two units are independent of each other and may be adapted to circuits in various ways.

The pentode may be used for r-f (or i-f) amplification and the triode section as a fixed bias detector. If a.v.c. is to be employed, or if the pentode control grid bias is to be varied, then the triode bias must be obtained from a separate source. This is necessary in order that the changing cathode current from the pentode section shall have no effect on the triode bias. For the above class of service, the triode is usually resistance coupled to the following tube. With a 250 volt B supply and 250,000 ohm load resistor, about 24 volts bias is required on the triode grid.

Frequency conversion may be accomplished with the 6F7 by using the triode as an oscillator and utilizing the pentode as a mixer tube. For this service the oscillator grid leak should return direct to cathode. **The triode plate current must not exceed 4 milliamperes if satisfactory tube life is to be obtained.** The mixer bias voltage should be adjusted so that the minimum value exceeds the peak oscillator voltage by at least 3 volts. It is preferable to utilize a 6A7 for frequency conversion service.

The triode section may be used as a grid leak detector. Bias detection (plate rectification) is to be preferred. The triode grid and plate may be tied together and used as a diode although better isolation is obtained in a tube such as the 6B7.