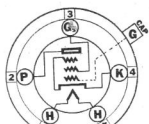
Sylvania

TYPE 38

POWER AMPLIFIER PENTODE



CHARACTERISTICS

Heater Voltage AC or DC	6.3 Volts
Heater Current	0.3 Ampere

Direct Interelectrode Capacitances:

Grid to Plate	0.3 $\mu\mu$f
Input	3.5 $\mu\mu$f
Output	7.5 $\mu\mu$f
Maximum Over-all Length	$4\frac{11}{16}$"
Maximum Diameter	$1\frac{9}{16}$"
Bulb	ST-12
Cap	Small Metal
Base—Small 5-Pin	5-F

Operating Conditions and Characteristics:

Heater Voltage	6.3	6.3	6.3	6.3 Volts
Plate Voltage	100	135	180	250 Volts Max.
Grid Voltage	−9.0	−13.5	−18.0	−25 Volts
Screen Voltage	100	135	180	250 Volts
Plate Current	7.0	9.0	14.0	22.0 Ma.
Screen Current	1.2	1.5	2.4	3.8 Ma.
Plate Resistance	0.14	0.13	0.11	0.10 Megohm
Mutual Conductance	875	925	1050	1200 μmhos
Amplification Factor	120	120	120	120
Load Resistance	15000	13500	11600	10000 Ohms
Power Output	0.27	0.55	1.0	2.5 Watts

CIRCUIT APPLICATION

Sylvania 38 is an output pentode tube designed to give considerable audio power output for small signal voltages impressed on the grid. This is made possible by the addition of a "suppressor" grid between the screen and the plate. This grid is connected to the cathode and is therefore at the same potential and practically eliminates secondary emission effects which reduce the power output of tetrodes.

This tube employs an indirectly heated cathode of special design which permits a heater voltage range of from 5.5 to 8.5 volts without appreciably affecting the performance or serviceability of the tube. No resistor in the heater circuit is required for this type operated from a 6 volt battery.

The control grid is brought out at the top of the tube. The base connections are the same as for the 36 tube.

The load impedance should be maintained fairly constant at the recommended value in order to obtain as high an output as possible consistent with a minimum of distortion.

The 38 may be used with plate and screen voltages as high as 250 volts, giving 2.5 watts output at its maximum rating. Although this output is less than that attainable from other output pentodes at these voltages, the input plate power and filament power required are less. The plate efficiency for the 38 at 250 volts is 39% compared to 30 to 35% for the larger pentodes. Thus it is possible to attain relatively high output where plate input power consumption is a consideration. This may be the case in small automobile or airplane receivers. Such service offers wide application for the 38. In line operated receivers using a series filament circuit and a voltage doubler, the 38 can be used to advantage in a push-pull output circuit, giving approximately 3.5 watts output under these conditions.