

Sylvania

TYPE 89

TRIPLE GRID

POWER AMPLIFIER



CHARACTERISTICS

Heater Voltage AC or DC	6.3 Volts
Heater Current	0.4 Ampere
Maximum Over-all Length	4 1/2"
Maximum Diameter	1 1/8"
Bulb	ST-12
Cap	Small Metal
Base—Small 6-Pin	6-F

Operating Conditions and Characteristics:

CLASS A POWER AMPLIFIER—TRIODE OPERATION

(Grids G_s and S_u tied to plate)

Heater Voltage	6.3	6.3	6.3 Volts
Plate Voltage	160	180	250 Volts Max.
Grid Voltage	-20	-22.5	-31 Volts
Plate Current	17	20	32 Ma.
Plate Resistance	3300	3000	2600 Ohms
Mutual Conductance	1425	1550	1800 μmhos
Amplification Factor	4.7	4.7	4.7
Load Resistance*	7000	6500	5500 Ohms
Power Output	0.3	0.4	0.9 Watt

CLASS B POWER AMPLIFIER—TRIODE OPERATION

(Grid S_u tied to plate; grids G_s and G connected together)

Heater Voltage	6.3 Volts
Plate Voltage	250 Volts Max.
Dynamic Peak Plate Current	90 Ma. Max.
Average Grid Dissipation (Grids G and G _s together)	0.35 Watt Max.

Typical Operation (two tubes).

Plate Voltage	180 Volts
Grid Voltage	0 Volts
Static Plate Current (per tube)	3 Ma.
Load Resistance (plate to plate)	9400 Ohms
Power Output (2 tubes)	3.5 Watts

CLASS A POWER AMPLIFIER—PENTODE OPERATION

(Grid S_u tied to cathode)

Heater Voltage	6.3	6.3	6.3 Volts
Plate Voltage	135	180	250 Volts Max.
Grid Voltage	-13.5	-18	-25 Volts
Screen Voltage	135	180	250 Volts Max.
Plate Current	14	20	32 Ma.
Screen Current	2.2	3.0	5.5 Ma.
Plate Resistance	92500	80000	70000 Ohms
Mutual Conductance	1350	1550	1800 μmhos
Amplification Factor	125	125	125
Load Resistance	9200	8000	6750 Ohms
Power Output	0.75	1.5	3.4 Watts

*Approximately twice this value is recommended for load of a driver for Class B stage.

CIRCUIT APPLICATION

Type 89 is a pentode power amplifier tube of the cathode type designed especially for use in automobile sets and similar types of receivers. The tube characteristics are somewhat like those of Type 41. The number of useful applications for the tube are increased by bringing the suppressor grid out to a separate base pin, and by special design of each of the three grids which are required to secure pentode characteristics. This construction makes it possible to use the tube not only as a pentode, but also as either a Class A or Class B power output triode.

For grid connections refer to Type 59.