



# Sylvania

## TYPE 6F6

### POWER AMPLIFIER

### CHARACTERISTICS

Heater Voltage AC or DC . . . . .	6.3 Volts
Heater Current . . . . .	0.7 Ampere
Maximum Over-all Length . . . . .	3 1/4"
Maximum Diameter . . . . .	1 5/8"
Base—Small Octal 7-Pin . . . . .	7-S

### Operating Conditions and Characteristics:

#### CLASS A POWER AMPLIFIER\* (Single Tube)

	Pentode	Triode	
Heater Voltage . . . . .	6.3	6.3	6.3 Volts
Plate Voltage . . . . .	250	315 Max.	250 Max. Volts
Screen Voltage . . . . .	250	315 Max.	. . . . Volts
Grid Voltage . . . . .	-16.5	-22	-20 Volts
Plate Current . . . . .	34	42	31 Ma.
Screen Current . . . . .	6.5	8	. . . . Ma.
Plate Resistance . . . . .	75000†	70000†	2600 Ohms
Mutual Conductance . . . . .	2500	2650	2700 μmhos
Amplification Factor . . . . .	185†	185†	7
Load Resistance . . . . .	7000	7000	4000 Ohms
Power Output . . . . .	3	5	0.85 Watts
Total Harmonic Distortion . . . . .	7	7	5 Per Cent

†Approximate Values.

#### PUSH-PULL CLASS AB AMPLIFIER\* (Pentode Connection)

	Fixed-Bias	Self-Bias
Heater Voltage . . . . .	6.3	6.3 Volts
Plate Voltage . . . . .	375 Max.	375 Max. Volts
Screen Voltage . . . . .	250 Max.	250 Max. Volts
Grid Voltage . . . . .	-26	. . . Volts
Self-Biasing Resistor . . . . .	. . .	340 Min. Ohms
Plate Current per tube for Esig=0 . . . . .	17	27 Ma.
Screen Current per tube for Esig=0 . . . . .	2.5	4 Ma.
Load Resistance (plate to plate) . . . . .	10000	10000 Ohms
Inter-stage Transformer Ratio Prim/1/2 Sec., . . . . .	3.32	2.5
Power Output . . . . .	19 (approx.)	19 (approx.) Watts
Total Harmonic Distortion . . . . .	5	5 Per Cent

\*See Circuit Application Notes for special circuit requirements.

#### PUSH-PULL CLASS AB AMPLIFIER\* (Triode Connection)

	Fixed-Bias	Self-Bias
Heater Voltage . . . . .	6.3	6.3 Volts
Plate Voltage . . . . .	350 Max.	350 Max. Volts
Grid Voltage . . . . .	-38	. . . Volts
Self-Biasing Resistor . . . . .	. . . . .	730 Min. Ohms
Plate Current per tube for Esig=0 . . . . .	22.5	25 Ma.
Load Resistance (plate to plate) . . . . .	6000	10000 Ohms
Inter-stage Transformer Ratio Prim/1/2 Sec., . . . . .	1.67	1.29
Power Output . . . . .	18 (approx.)	14 (approx.) Watts
Total Harmonic Distortion . . . . .	7	7 Per Cent

\*See Circuit Application notes for special circuit requirements.

## CIRCUIT APPLICATION

Sylvania 6F6 is a cathode type power output pentode provided with a 6.3 volt heater. The electrical characteristics are almost identical to those of Type 42. The 6F6 may be employed either singly or in a push-pull arrangement. Although the tube is constructed as a pentode it may be operated as a triode by connecting the screen grid to the plate at the socket. As such it is a very desirable driver tube for a push-pull Class AB amplifier employing Type 6F6 tubes, furnishing a maximum of 0.85 watt driving power.

For single tube Class A amplifier service either transformer or impedance input-coupling devices are recommended. The 6F6 may also be resistance coupled from either the detector tube or the first audio stage if diode detection is used. If resistance coupling is employed the grid resistor must not exceed 500,000 ohms. This value can be utilized only when the tube is operated entirely self-biased. When the tube is used with a fixed bias, or partially so, the resistor should not exceed 250,000 ohms.

Reference to the characteristics indicates that the mutual conductance, plate resistance and amplification factor of the 6F6 make the tube ideally suited for use in Class AB circuits utilizing one Type 6F6 connected as a triode for the driver tube and two Type 6F6 tubes in the push-pull output stage.

For either triode or pentode push-pull Class AB amplifier service, operated under the maximum voltage conditions as specified on the rating sheets, transformer or impedance input-coupling devices must be used.

The driver stage should be carefully designed in order to realize maximum output with minimum distortion. In each of the four arrangements listed the recommended driver tube is a single Type 6F6, triode connected. It should be operated under the following conditions:

Plate Voltage . . . . .	250 Volts
Grid Voltage . . . . .	-20 Volts
Minimum Plate Load . . . . .	10000 Ohms

The plate, screen and grid voltage supplies should have negligible resistance.