

# Hygrade Sylvania CORPORATION

## TECHNICAL DATA SYLVANIA TYPE 6J8G Triode Heptode Converter

### CHARACTERISTICS

Heater Voltage AC or DC	6.3	Volts
Heater Current	0.3	Ampere

### DIRECT INTERELECTRODE CAPACITANCES

Grid G to Heptode Plate*	0.01	$\mu\mu\text{F}$ Max.
Grid G to Oscillator Plate*	0.015	$\mu\mu\text{F}$
Grid G to Grid Go*	0.13	$\mu\mu\text{F}$
Grid Go to Oscillator Plate	2.2	$\mu\mu\text{F}$
Grid G to all other Electrodes (R-F Input)	4.4	$\mu\mu\text{F}$
Plate Po to all other Electrodes (Osc. Output)	5.5	$\mu\mu\text{F}$
Grid Go to all other Electrodes (Osc. Input)	11.7	$\mu\mu\text{F}$
Heptode Plate to all other Electrodes (Mixer Output)	8.8	$\mu\mu\text{F}$

\* With standard tube shield (not close fitting)

### OPERATING CONDITIONS AND CHARACTERISTICS

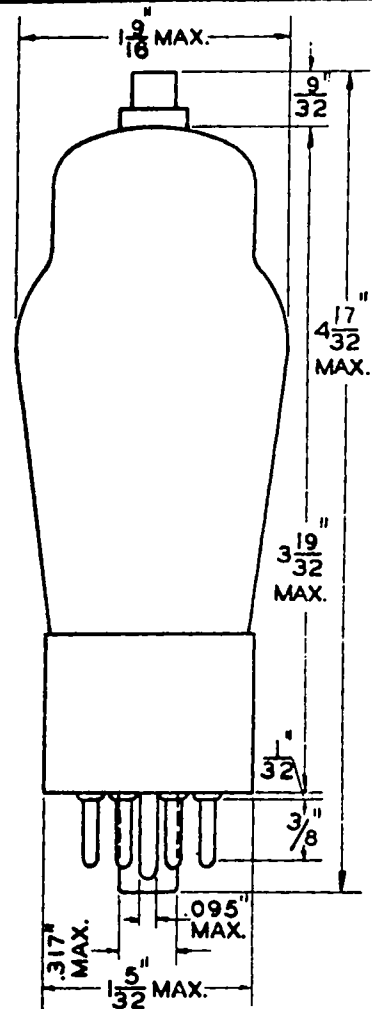
Heater Voltage	6.3	6.3	Volts
Plate Voltage (Heptode)	100	250	Volts Max.
Control Grid Voltage (Heptode)	-3	-3	Volts
Screen Voltage (Heptode)	100	100	Volts Max.
Oscillator Plate Voltage (Triode)	100	250°	Volts Max.
Oscillator Grid Resistor (Triode)	50,000	50,000	Ohms
Plate Current (Heptode)	1.4	1.3	Ma.
Screen Current (Heptode)	3.0	2.9	Ma.
Oscillator Plate Current (Triode)	3.0	5.0	Ma.
Oscillator Grid Current (Triode)	0.3	0.4	Ma.
Plate Resistance (Heptode)	0.9	4.0	Megohms App.
Conversion Conductance	250	290	$\mu\text{mhos}$
Control Grid Voltage (Heptode) for 2 $\mu\text{mhos}$ Conversion Conductance	-20	-20	Volts

°Applied through 20,000 ohm dropping resistor.

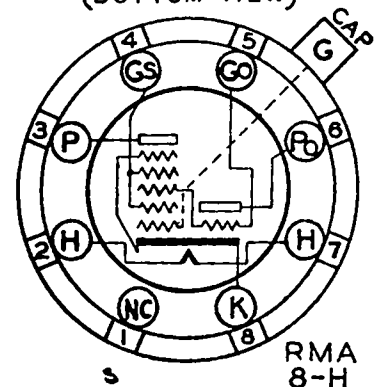
### TRIODE SECTION ONLY

Plate Voltage	100	Volts
Grid Voltage	0	Volts
Plate Current	7	Ma.
Plate Resistance	10,600	Ohms
Mutual Conductance	1,600	$\mu\text{mhos}$ (App.)
Amplification Factor	17	(Approx.)

SYLVANIA  
6J8G



TUBE AND BASE DIAGRAM  
(BOTTOM VIEW)



## SYLVANIA TYPE 6J8G (Continued)

### CIRCUIT APPLICATION

Sylvania Type 6J8G is a new converter tube consisting of a triode unit and a heptode unit having a common cathode and assembled in the same envelope. The use of a triode as an oscillator with a pentagrid mixer tube is well known. Type 6J8G is essentially this combination of tubes in a single bulb, but offers some advantages because of improved operating characteristics.

The applications of the 6J8G are quite similar to those of the separate oscillator and mixer tube combination. However, this new tube construction makes possible some circuit simplifications and improved performance at high frequencies.

Type 6J8G provides true electron coupling since the grid of the triode oscillator is directly connected to an injector grid in the mixer section. The unusually high plate resistance (4 megohms) of this tube results in very low plate loading, making it possible to use highly efficient i-f transformers to advantage. Lower frequency drift than that associated with other existing types of converter tubes should make this type especially attractive.

Because of this high frequency stability it should be possible to reduce the filtering in the oscillator plate supply of the tube and not encounter "fluttering", such as is encountered with other converters.

It will be noted that under the 100 volt operating conditions the heptode plate, heptode screen grid, and the oscillator plate may all be operated at the same d-c potential. This makes possible the elimination of the dropping resistor which is usually employed in the screen circuit when the Type 6A8G or its equivalent is used in ac-dc or d-c receivers.

Although the basing arrangement of this tube is such that in some instances it may be substituted directly for Type 6A8G, necessitating only slight realigning, it is not intended to be used in this manner. For optimum performance advantage should be taken of the low input loading together with the high plate impedance, and the circuit components (antenna coil, oscillator coil, and i-f transformer) should be designed accordingly.