

Sylvania
TYPE 1C6
PENTAGRID
CONVERTER



CHARACTERISTICS

Filament Voltage	2.0 Volts
Filament Current	0.12 Ampere

Direct Interelectrode Capacitances:

Grid G to Plate (with tube shield)	0.3 $\mu\mu\text{f}$
Grid G to Grid Ga (with tube shield)	0.4 $\mu\mu\text{f}$
Grid G to Grid Go (with tube shield)	0.1 $\mu\mu\text{f}$
Grid Go to Grid Ga	1.3 $\mu\mu\text{f}$
Grid G to all other Electrodes (R-F Input)	10.5 $\mu\mu\text{f}$
Grid Ga to all other Electrodes (Osc. Output)	6.5 $\mu\mu\text{f}$
Grid Go to all other Electrodes (Osc. Input)	6.0 $\mu\mu\text{f}$
Plate to all other Electrodes (Mixer Output)	10.0 $\mu\mu\text{f}$
Maximum Over-all Length	4 $\frac{11}{16}$ "
Maximum Diameter	1 $\frac{1}{8}$ "
Bulb	ST-12
Cap	Small Metal
Base—Small 6-Pin	6-L

Operating Conditions and Characteristics:

Filament Voltage	2.0	2.0 Volts
Plate Voltage	135	180 Volts Max.
Control Grid Voltage (Grid G)	-3.0	-3.0 Volts
Screen Voltage (Grid Gs)	67.5	67.5 Volts
Anode Grid Voltage (Grid Ga)**	135	180 Volts
Oscillator Grid Resistor (Grid Go)	50000	50000 Ohms
Plate Current	1.7	1.5 Ma.
Screen Grid Current	2.3	2.3 Ma.
Anode Grid Current	3.0	4.5 Ma.
Oscillator Grid Current	0.25	0.4 Ma.
Total Cathode Current	7.25	9.0 Ma. Approx.
Plate Resistance	0.50	0.6 Megohm
Conversion Conductance	400	400 μmhos
Conversion Conductance*	4	4 μmhos

*With control grid voltage at -16.0 volts.

**Less drop through 20,000 ohms resistor.

CIRCUIT APPLICATION

for Types 1A6 and 1C6 as Pentagrid Converters

Sylvania 1C6 is an improved 2-volt filament type, 5-grid electron-coupled detector-oscillator tube with a high conversion gain, similar to Type 1A6. Type 1C6 was designed especially for all-wave battery receivers, and operates satisfactorily over all frequencies up to 20-24 megacycles, providing efficient coil and circuit design is followed. This tube performs the function of an oscillator-modulator and at the same time is a satisfactory volume control tube, thus eliminating the necessity for employing separate tubes for these functions.

The interchanging of Type 1A6 with Type 1C6 is recommended only in circuits where the ballast lamp or filament series resistor can be changed to accommodate the extra 0.06 ampere filament drain required by Type 1C6.

For the oscillator circuit, coils may be constructed according to conventional design as the tubes are not particularly critical. The voltages applied to the plate and to the anode-grid (#2) must be higher than the screen (Grids 3 and 5) voltage in order to insure satisfactory performance.

The circuit adjustment must be such that under no condition will the total cathode current exceed the maximum recommended value listed in the tabulated characteristics.

The extended cut-off feature of the 1A6 (Grid #4) in conjunction with the similar characteristics of super-control tubes can be utilized advantageously to adjust receiver sensitivity.

The Grid #4 to plate interelectrode capacity is somewhat higher than in usual screen grid tubes. This means that if the i-f frequency is close to the r-f frequency reaction effects can occur; if the i-f frequency is lower than the r-f frequency degeneration results, and the smaller the plate tank tuning condenser the greater this effect becomes. In extreme cases neutralization can be used to advantage; over-neutralization will, of course, reverse the effect and produce regeneration.

If the i-f frequency is greater than the r-f frequency regeneration will be present and can cause circuit instability. In general, for either case, the i-f tuning condenser should be larger than 50 $\mu\mu\text{f}$.