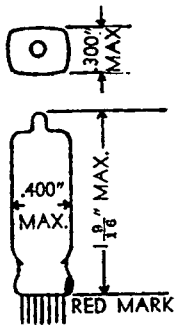
RAYTHEON
Engineering Service

TRIODE-HEPTODE SUB-MINIATURE FREQUENCY CONVERTER

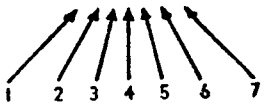
COATED FILAMENT



The 2G22 is a triode-heptode designed for use as a combined mixer and oscillator in radio receivers and other portable equipment where small size, light weight and low battery drain are important. The 2G22 is designed for plug-in use with a socket.

RATINGS

Filament Voltage	1.25	volts
Filament Current	50	ma
Maximum Heptode Plate Voltage	45	volts
Maximum Heptode Screen (G_{2H} and G_{4H}) Voltage	45	volts
Maximum Triode Plate Voltage	45	volts
Maximum Total Cathode Current	2.0	ma
Minimum External Signal Grid Bias	0	volts



T2x3 Glass Bulb

1—Filament Pos. and Heptode Grid #5
2—Heptode Grids #2 and #4
3—Heptode Grid #3
4—Filament Neg.
5—Triode Grid #1
6—Heptode Plate
7—Triode Plate

0.016" dia. pins. 0.05" center to center spacing. Pins identified by red mark over plate pin. Pin length 0.200".

DIRECT INTERELECTRODE CAPACITANCES†

G_3 to P_H (Signal Grid to Mixer Plate)	0.065	μμf
G_3 to P_T (Signal Grid to Osc. Plate)	0.022	μμf
G_3 to G_{1T} (Signal Grid to Osc. Grid)	0.14	μμf
G_{1T} to P_T (Osc. Grid to Osc. Plate)	1.3	μμf
G_3 to All (Signal Input)	3.5	μμf
P_T to All Except G_1 (Osc. Output)	3.8	μμf
G_1 to All Except P_T (Osc. Input)	3.7	μμf
P_H to All (Mixer Output)	3.6	μμf

TYPICAL FREQUENCY CONVERTER OPERATION

Plate Voltage (Heptode)	22.5	volts
Screen Voltage (Heptode Grids #2 and #4)	22.5	volts
Oscillator Plate Voltage (Triode)	22.5	volts
Signal Grid Bias (Heptode Grid #3)*	0	volts
Oscillator Grid Resistor (Triode)	50000	ohms
Plate Current (Heptode)	200	μa
Screen Current (Heptode)	300	μa
Oscillator Plate Current (Triode)	1	ma
Oscillator Grid Current (Triode)	30	μa
Conversion Transconductance	60	μmhos
Conversion Transconductance at Signal Grid Bias = −3.5	2	μmhos
Conversion Plate Resistance (Approx.)	0.5	meg.

* Grid resistance = 5 megohms.

† With close fitting capacitance adapter shield connected to negative filament.

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RADIO RECEIVING TUBE DIVISION NEWTON, MASS.

RAYTHEON MANUFACTURING COMPANY