

from RMA registration #142,  
June 15, 1938

TENTATIVE DATA SHEET  
RAYTHEON TYPE 6K8G  
TRIODE-HEXODE  
FREQUENCY CONVERTER

*Dual 6/15*

Heater Type                      Glass Bulb

The 6K8G is a duplex tube containing a triode unit and a hexode unit with a common cathode, in the same envelope. The grid of the triode unit is common with the injector grid of the hexode unit. It is designed for converter service in superheterodyne receivers and will oscillate readily with good frequency stability in the high frequency bands.

BULB: ST-12      BASE: Small Shell Octal 8-pin      CAP: Skirted Miniature  
DIMENSIONS:      Maximum Overall Length 4 15/32"      Maximum Diameter 1 9/16"

BASING (RMA Numbering)

- |                                 |                                    |
|---------------------------------|------------------------------------|
| Pin 1-No Connection             | Pin 5-Hexode Grid #1 & Triode Grid |
| Pin 2-Heater                    | Pin 6-Triode Plate                 |
| Pin 3-Hexode Plate              | Pin 7-Heater                       |
| Pin 4-Hexode Screen(Grid#2 & 4) | Pin 8-Cathode & Internal Shields   |
| Cap - Hexode Grid #3            |                                    |

RATINGS

Heater Voltage (a-c or d-c)	6.3	volts
Heater Current	0.3	amp
Maximum Hexode Plate Voltage	250	volts
Maximum Hexode Screen Voltage	100	volts
Minimum Hexode Control Grid Bias	-3	volts
Maximum Triode Plate Voltage	200	volts
Maximum Total Cathode Current	16	ma

DIRECT INTERELECTRODE CAPACITANCES (Approx.)\*

G <sub>3H</sub> to P <sub>H</sub> = Mixer Grid to Plate	0.04	µmf
G <sub>3H</sub> to P <sub>T</sub> = Mixer Grid to Oscillator Plate	0.01	µmf
G <sub>3H</sub> to G <sub>T</sub> &G <sub>1H</sub> = Mixer Grid to Oscillator Grid	0.1	µmf
G <sub>T</sub> &G <sub>1H</sub> to P <sub>T</sub> = Oscillator Grid to Plate	2.0	µmf
G <sub>3H</sub> to All Other Electrodes = R-F Input Electrode	5.5	µmf
P <sub>T</sub> to All Other Electrodes except G <sub>T</sub> &G <sub>1H</sub> = Osc. Output Elec.	4.0	µmf
G <sub>T</sub> &G <sub>1H</sub> to All Other Electrodes except P <sub>T</sub> = Osc. Input Elec.	7.0	µmf
P <sub>H</sub> to All Other Electrodes = Mixer Output Electrode	5.5	µmf

FREQUENCY CONVERTER

Hexode Plate Voltage	100	250	volts
Hexode Screen Voltage	100	100	volts
Hexode Control Grid Bias	-3	-3	volts
Triode Plate Voltage	100	100	volts
Triode Grid Resistor	50000	50000	ohms
Hexode Plate Resistance (approx.)	0.4	0.6	megohms
Conversion Transconductance	325	350	µmhos
Hexode Control Grid Bias (approx.)	-30	-30	volts
(For Conversion Transconductance 2 µmhos)			
Hexode Plate Current	2.3	2.5	ma
Hexode Screen Current	6.2	6.0	ma
Triode Plate Current	3.8	3.8	ma
Triode Grid & Hexode Grid #1 Current	0.15	0.15	ma

The transconductance of the oscillator section (not oscillating) is approximately 3000 µmhos when the triode plate voltage is 100 volts and the triode grid voltage is 0 volts.

\* With tube shield connected to cathode.

6K8G

CONVERSION TRANSCONDUCTANCE VS.  
CONTROL GRID BIAS  
6K8-6K8G

$E_f = 6.3^v$   $I_{CT} = 0.15 \text{ MA.}$   $R_{CT} = 50000^{\Omega}$

—————  $E_{g2} = 250^v$

—————  $E_{g2} = 100^v$

-----  $E_{g2} = 100^v$

-----  $E_{g2} = 100^v$

