A low noise triode with planar electrodes for use as an R.F. oscillator or amplifier at frequencies up to 1000 Mc/s. A1714 is the commercial equivalent of CV408.

**BASE CONNECTIONS AND VALVE DIMENSIONS**

View from underside of base.

**HEATER**

- $V_h$: 6.3 V
- $I_h$: 0.49 A

**MAXIMUM RATINGS** (design centre)

- $V_a$: 250 V
- $I_g$: 15 mA
- $P_a$: 2.5 W

**CHARACTERISTICS**

- $V_a$: 150 V
- $I_a$: 10 mA
- $\mu$: 42.5
- $r_a$: 5 kΩ
- $g_m$: 8.5 mA/V
- $r_{in}$: 20 kΩ
- $C_{in}$: 5 pF
- Noise factor*: 2 dB
- $R_{eq}$ noise ref. $g_{1}$: 500 Ω

*Taken at 45 Mc/s.

**CAPACITANCES** (of unscreened valve)

<table>
<thead>
<tr>
<th>Capacitance</th>
<th>Cold</th>
<th>Hot ($I_a=10$ mA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$C_{g-k}$</td>
<td>2.2</td>
<td>3.6 pF</td>
</tr>
<tr>
<td>$C_{g-all}$</td>
<td>2.25</td>
<td>4.0 pF</td>
</tr>
<tr>
<td>$C_{a-g}$</td>
<td>0.95</td>
<td>—</td>
</tr>
<tr>
<td>$C_{a-all}$</td>
<td>0.7</td>
<td>—</td>
</tr>
<tr>
<td>$C_{a-k}$</td>
<td>0.065</td>
<td>—</td>
</tr>
</tbody>
</table>
TYPICAL OPERATION

Neutralised R.F. amplifier (circuit: Fig. 1).

\[
\begin{align*}
V_a & \quad 150 \quad \text{V} \\
V_g & \quad -2.2 \quad \text{approx.} \quad \text{V} \\
I_a & \quad 10 \quad \text{approx.} \quad \text{mA} \\
R_k & \quad 220 \quad \Omega
\end{align*}
\]

The circuit of fig. 1 will give good signal-to-noise ratio at frequencies of the order of 45 Mc/s. Inductances L1, L2 and L3 are wound on formers with variable dust-iron cores, L2 being the neutralising coil. The coils should be tuned to the centre of the pass band, the band-width being of the order of 10-15 Mc/s.

R.F. oscillator using lumped circuit (Fig. 2).

\[
\begin{align*}
V_a & \quad 100 \quad \text{V} \\
I_a & \quad 30 \quad \text{mA} \\
I_g & \quad 14 \quad \text{max.} \quad \text{mA} \\
F_{out} & \quad 1 \quad \text{W} \\
\gamma & \quad 33 \quad \% \\
f & \quad 500 \quad \text{Mc/s}
\end{align*}
\]

The circuit layout is important. "E" is an earthed copper plate placed vertically across the valve holder and soldered to tags 1 and 5 and to the centre spigot. The capacitors "C" are of the feed-through type. For a frequency of 500 Mc/s the inductance "L" is a coil \( \frac{1}{2} \) in. diameter wound with approximately two turns of 16 or 18 s.w.g. copper wire. The R.F. choke is made from 20 s.w.g. enamelled wire, \( \frac{1}{2} \lambda \) long, (where \( \lambda \) is the wavelength in use), close wound on a \( \frac{1}{4} \) in. diameter former. \( R_k \) should be adjusted for optimum conditions.

Used with suitably designed distributed circuits, the A1714 will give appreciable outputs at frequencies up to 1,000 Mc/s.

MOUNTING

Any position.

SCREENING

A separate screening canister should be used when application demands.

RETAINING

In equipments subject to vibration or shock, the use of a retaining device is recommended.

MICROPHONY

The valve is free from microphony in normal receiver applications.
Fig. 1. Neutralised R.F. amplifier.

Fig. 2. R.F. oscillator using lumped circuit.