HEPTODE FREQUENCY CHANGER

Miniature heptode, primarily intended as a frequency changer in battery-operated receivers, and suitable for a.v.c. It combines a high conversion conductance for this type of valve with a low oscillator drive voltage.

FILAMENT

Suitable for series or parallel operation, d.c. only

<table>
<thead>
<tr>
<th></th>
<th>Series</th>
<th>Parallel</th>
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</thead>
<tbody>
<tr>
<td>$V_f$</td>
<td>1.3</td>
<td>1.4</td>
</tr>
<tr>
<td>$I_f$</td>
<td>48</td>
<td>50</td>
</tr>
</tbody>
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CAPACITANCES

- $C_{a-all}$: 8.5 pF
- $C_{g3-all}$: 7.5 pF
- $C_{g2-all}$: 5.0 pF
- $C_{g1-all}$: 4.0 pF
- $C_{a-g3}$: ≤400 mμF
- $C_{g2-g3}$: 1.6 pF
- $C_{g1-g3}$: ≤200 mμF
- $C_{g1-g2}$: 3.0 pF

OPERATING CONDITIONS

- $V_a = V_b$: 85 V
- $V_{g3}$: 0 V
- $R_{g3}$: 180 kΩ
- $R_{g2}$: 33 kΩ
- $R_{g1-t+i}$: 27 kΩ
- $V_{g4}$ (approx.): 60 V
- $V_{g2}$ (approx.): 30 V
- $V_{g1}$ (r.m.s.): 4.0 V
- $I_k$: 2.55 mA
- $I_a$: 700 μA
- $I_{g1}$: 150 μA
- $I_{g2}$: 1.6 mA
- $I_{g1}$: 100 μA
- $γ_c$: 325 μA/V
- $γ_a$: 650 kΩ
- $V_{g3}$ (for 100:1 reduction in $g_c$): –6.0 V

*Optimum value. In a typical circuit, $I_{g1}$ should be between 50μA and 250μA.

Oscillator Section (with $g_1$ connected to f+)

- $V_a$: 85 V
- $V_{g4}$: 60 V
- $V_{g3}$: 0 V
- $V_{g2}$: 30 V
- $I_{g2}$: 2.5 mA
- $γ_{m(g1-g2)}$: 900 μA/V
- $γ_{g1-g2}$: 7.5 μA/V

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LIMITING VALUES

- $V_b$ max. (absolute)  140 V
- $V_b$ max.  120 V
- $V_a$ max.  90 V
- $V_{G4}$ max.  90 V
- $V_{G2}$ max.  60 V
- $I_k$ max.  4.0 mA
- $R_{G3-f}$ max.  3.0 MΩ
- $R_{G1-f}$ max.  35 kΩ

All dimensions in mm