

# MINIATURE HEPTODE FREQUENCY CHANGER

# DK91

Miniature heptode, primarily intended as frequency changer  
in battery-operated receivers, and suitable for A.V.C.

**FILAMENT** This valve is suitable for D.C. operation only.

|       |      |   |
|-------|------|---|
| $V_f$ | 1.4  | V |
| $I_f$ | 0.05 | A |

## CAPACITANCES

|               |       |                  |
|---------------|-------|------------------|
| $c_{g3}$ -all | 7.0   | $\mu\mu\text{F}$ |
| $c_a$ -all    | 7.5   | $\mu\mu\text{F}$ |
| $c_{g1}$ -all | 3.8   | $\mu\mu\text{F}$ |
| $c_{g3-a}$    | < 0.4 | $\mu\mu\text{F}$ |
| $c_{g3-g1}$   | < 0.2 | $\mu\mu\text{F}$ |
| $c_{a-g1}$    | < 0.1 | $\mu\mu\text{F}$ |

## OPERATING CONDITIONS

|                                      |      |      |      |      |                 |
|--------------------------------------|------|------|------|------|-----------------|
| $V$                                  | 45   | 67.5 | 90   | 90   | V               |
| $V_{g2+g4}^a$                        | 45   | 67.5 | 45   | 67.5 | V               |
| $V_{g3}$                             | 0    | 0    | 0    | 0    | V               |
| $R_{g1}$                             | 0.1  | 0.1  | 0.1  | 0.1  | M.ohm           |
| $r_a$                                | 0.6  | 0.5  | 0.8  | 0.6  | M.ohm           |
| $g_c$                                | 235  | 280  | 250  | 300  | $\mu\text{A/V}$ |
| $V_{g3}$ ( $g_c = 5 \mu\text{A/V}$ ) | -9   | -14  | -9   | -14  | V               |
| $I_a$                                | 0.7  | 1.4  | 0.8  | 1.6  | mA              |
| $I_{g2+g4}$                          | 1.9  | 3.2  | 1.9  | 3.2  | mA              |
| $I_{g1}$                             | 150  | 250  | 150  | 250  | $\mu\text{A}$   |
| $I_{k_{tot}}$                        | 2.75 | 5.0  | 2.75 | 5.0  | mA              |

## OSCILLATOR SECTION

|                             |      |      |
|-----------------------------|------|------|
| $V_{g1} = V_{g3}$           | 0    | V    |
| $V_{g2} = V_{g4} = V_a$     | 67.5 | V    |
| $g_m (g_1 - g_2 + g_4 + a)$ | 1.4  | mA/V |

## LIMITING VALUES

|                      |      |    |
|----------------------|------|----|
| $V_a$ max.           | 90   | V  |
| $V_{g2+g4} (b)$ max. | 90   | V  |
| $V_{g2+g4}$ max.     | 67.5 | V  |
| $V_{g3}$ max.        | 0    | V  |
| $I_{k_o}$ max.       | 5.5  | mA |

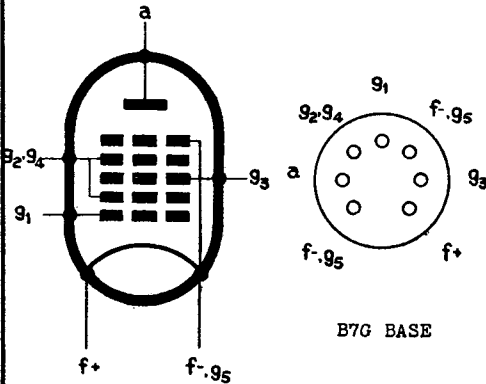


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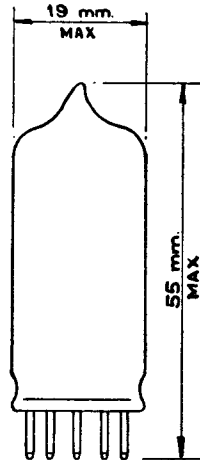
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ARRANGEMENT OF ELECTRODES  
AND BASE CONNECTIONS



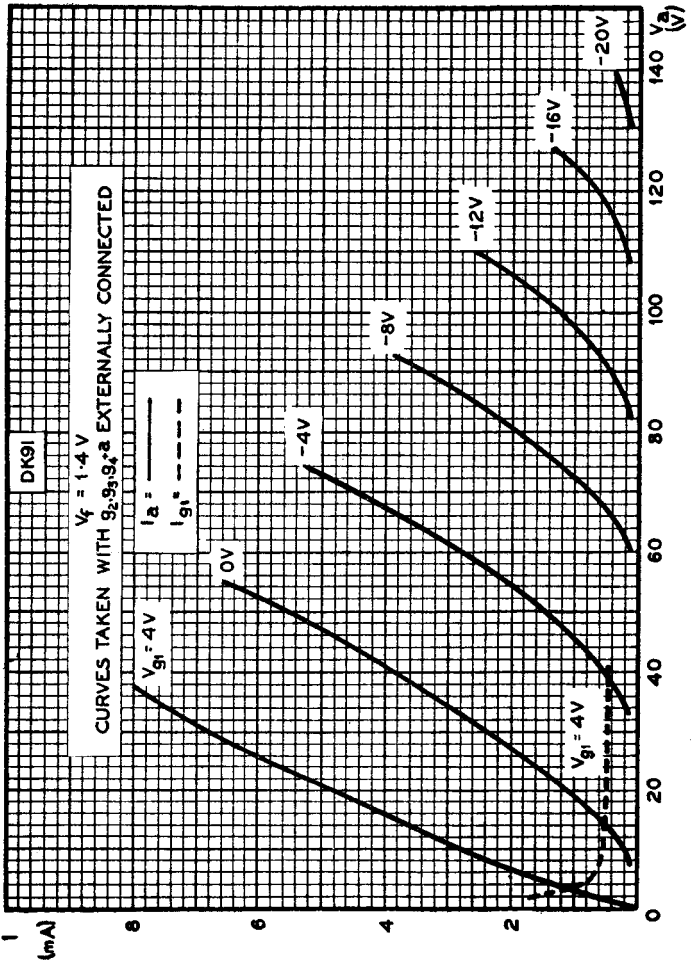
DIMENSIONS



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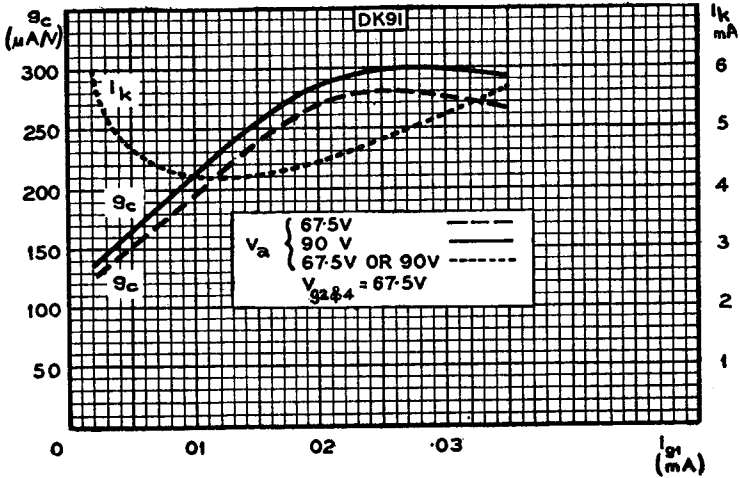
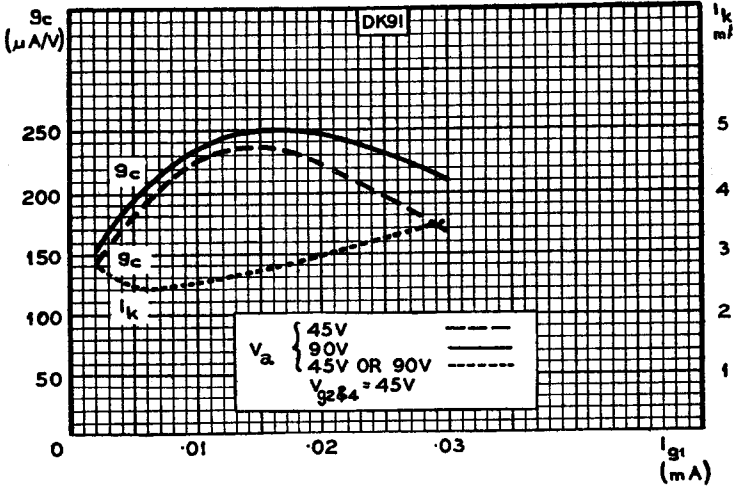
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$$V_f = 1.4V$$

$$V_{g2} = 0V$$

$$R_{g1} = 0.1 M\Omega$$

$I_{g1}$  VARIED BY ADJUSTING  $V_{osc}$   
RECOMMENDED MINIMUM VALUE =  $200 \mu A$



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