

# SUBMINIATURE OUTPUT PENTODE

# DL69

Subminiature output pentode suitable for battery operation with an h.t. supply of 90V.

## FILAMENT

Suitable for d.c. operation only

|       |      |    |
|-------|------|----|
| $V_f$ | 1.25 | V  |
| $I_f$ | 25   | mA |

## MOUNTING POSITION

Any

**Note**—Direct soldered connections to the leads must be at least 5mm from the seal and any bending of the leads must be at least 1.5mm from the seal.

## CAPACITANCES (shielded)

|            |     |     |
|------------|-----|-----|
| $C_{a-g1}$ | 50  | mpF |
| $C_{in}$   | 2.9 | pF  |
| $C_{out}$  | 3.2 | pF  |

## CHARACTERISTICS

|               |      |            |
|---------------|------|------------|
| $V_a$         | 90   | V          |
| $V_{g2}$      | 90   | V          |
| $I_a$         | 1.75 | mA         |
| $I_{g2}$      | 400  | $\mu A$    |
| $V_{g1}$      | -2.5 | V          |
| $g_m$         | 850  | $\mu A/V$  |
| $r_a$         | 800  | k $\Omega$ |
| $\mu_{g1-g2}$ | 15   |            |

## OPERATING CONDITIONS AS SINGLE VALVE CLASS 'A' AMPLIFIER

|                  |      |      |            |
|------------------|------|------|------------|
| $V_a$            | 67.5 | 90   | V          |
| $V_{g2}$         | 67.5 | 90   | V          |
| $I_{a(o)}$       | 0.9  | 1.3  | mA         |
| $I_{g2(o)}$      | 200  | 300  | $\mu A$    |
| $V_{g1}$         | -2.0 | -3.0 | V          |
| $R_a$            | 70   | 60   | k $\Omega$ |
| $V_{in(r.m.s.)}$ | 1.2  | 1.6  | V          |
| $P_{out}$        | 23   | 50   | mW         |
| $D_{tot}$        | 10   | 10   | %          |

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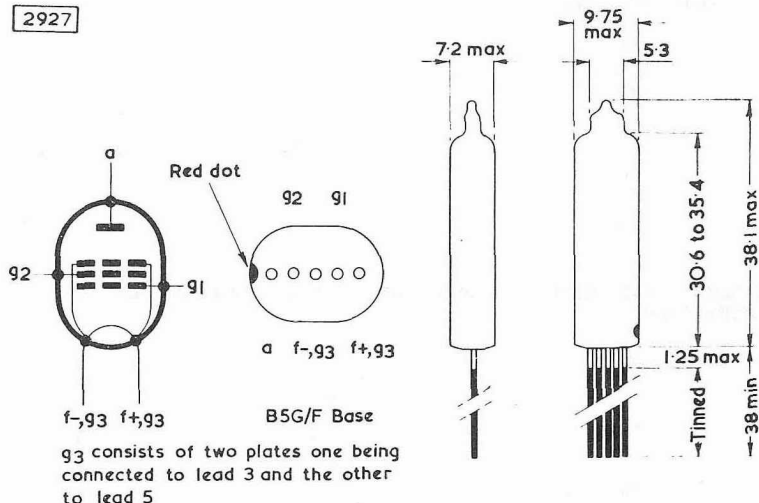
### OPERATING CONDITIONS FOR TWO VALVES IN CLASS 'AB' PUSH-PULL

|                            |                |            |
|----------------------------|----------------|------------|
| $V_{a-e}$                  | 90             | V          |
| $V_{g2-e}$                 | 90             | V          |
| $I_{a(0)}$                 | $2 \times 800$ | $\mu A$    |
| $I_a(\text{max. sig.})$    | $2 \times 1.0$ | mA         |
| $I_{g2(0)}$                | $2 \times 150$ | $\mu A$    |
| $I_{g2}(\text{max. sig.})$ | $2 \times 425$ | $\mu A$    |
| $R_k$                      | 1.8            | k $\Omega$ |
| $R_{a-a}$                  | 100            | k $\Omega$ |
| $V_{in(g1-g1) r.m.s.}$     | 8.0            | V          |
| $P_{out}$                  | 100            | mW         |
| $D_{tot}$                  | 5.0            | %          |

### LIMITING VALUES

|               |     |    |
|---------------|-----|----|
| $V_a$ max.    | 90  | V  |
| $V_{g2}$ max. | 90  | V  |
| $I_k$ max.    | 2.5 | mA |

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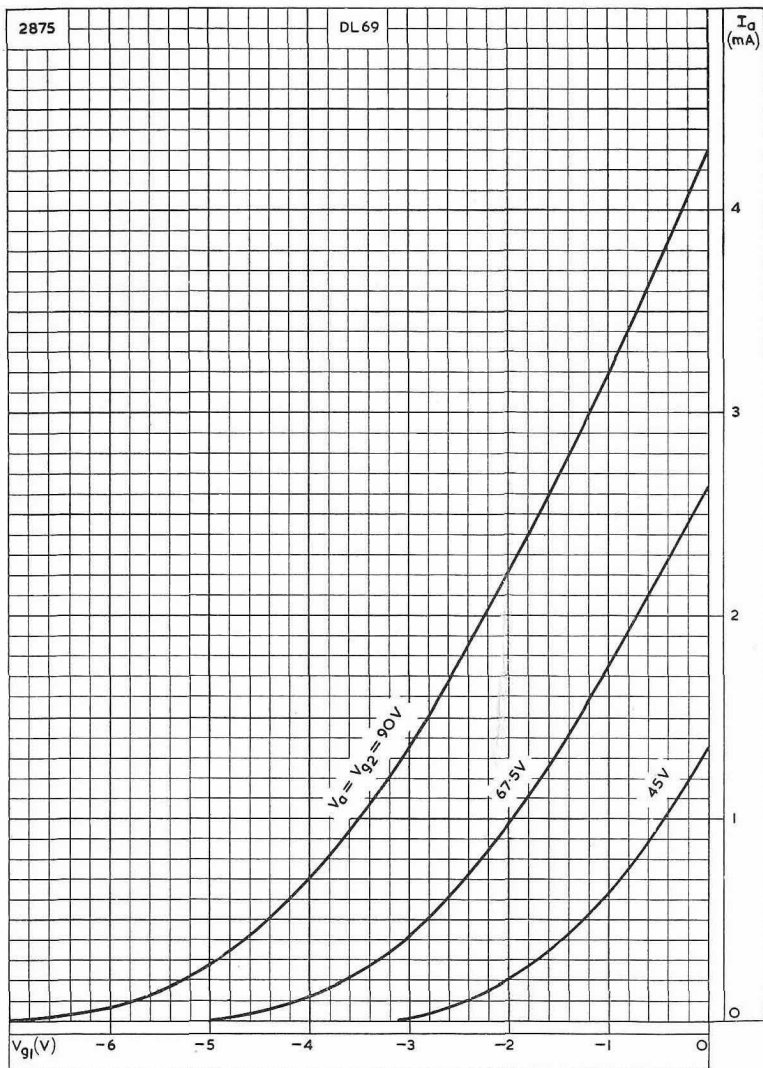


All dimensions in mm

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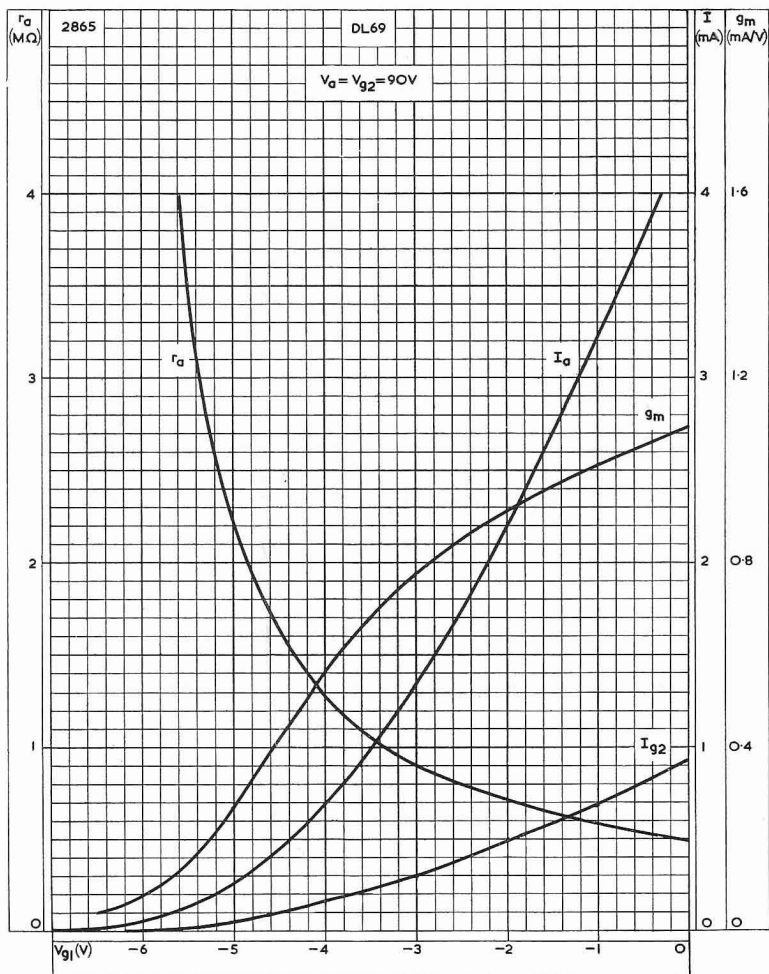


ANODE CURRENT PLOTTED AGAINST CONTROL-GRID VOLTAGE

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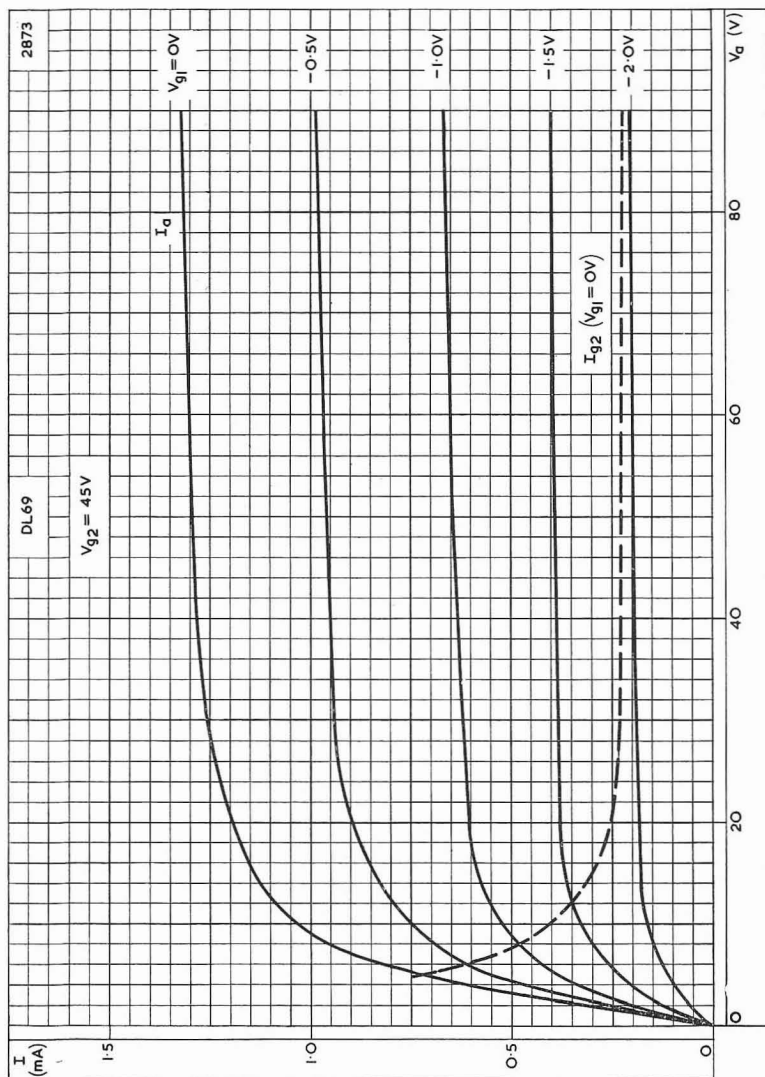


ANODE AND SCREEN-GRID CURRENTS, MUTUAL CONDUCTANCE AND ANODE IMPEDANCE PLOTTED AGAINST CONTROL-GRID VOLTAGE

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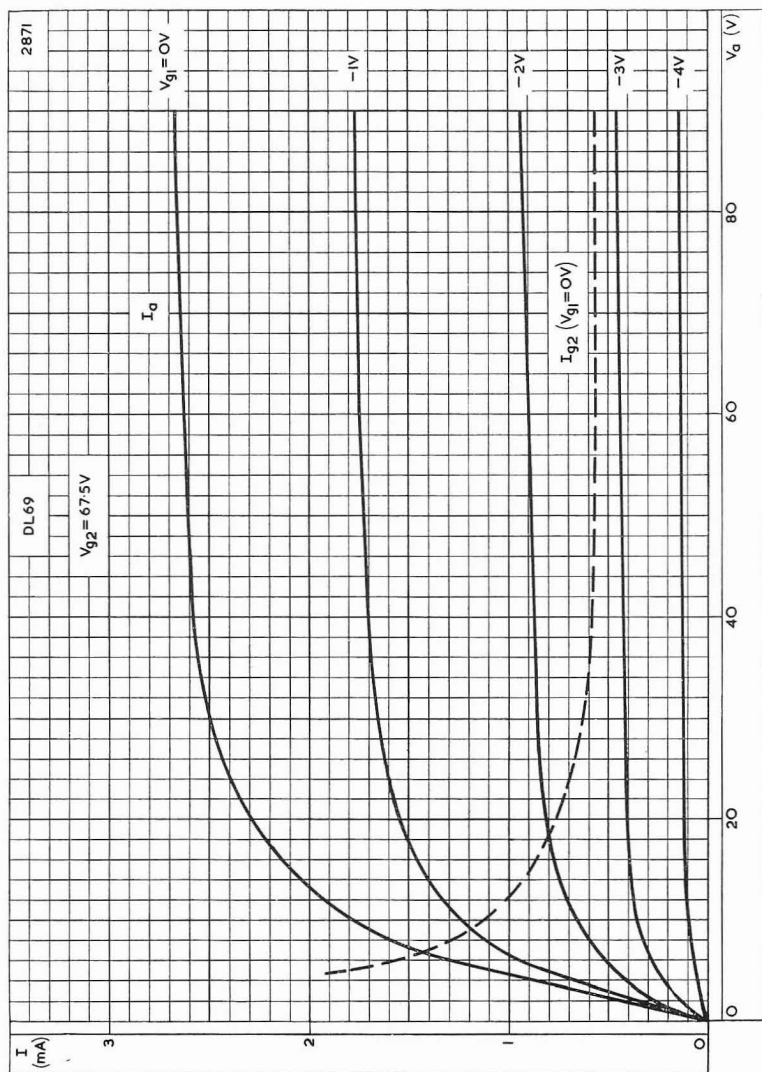


ANODE CURRENT PLOTTED AGAINST ANODE VOLTAGE.  $V_{g2} = 45V$

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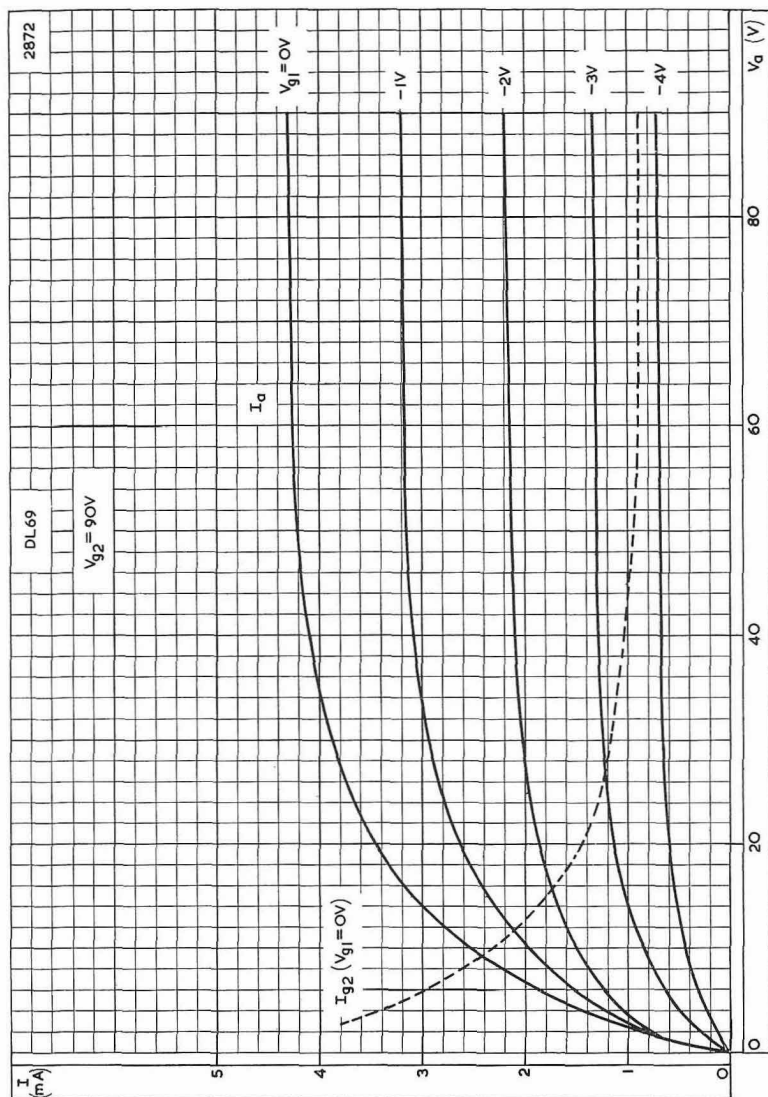


ANODE CURRENT PLOTTED AGAINST ANODE VOLTAGE.  $V_{g2} = 67.5V$

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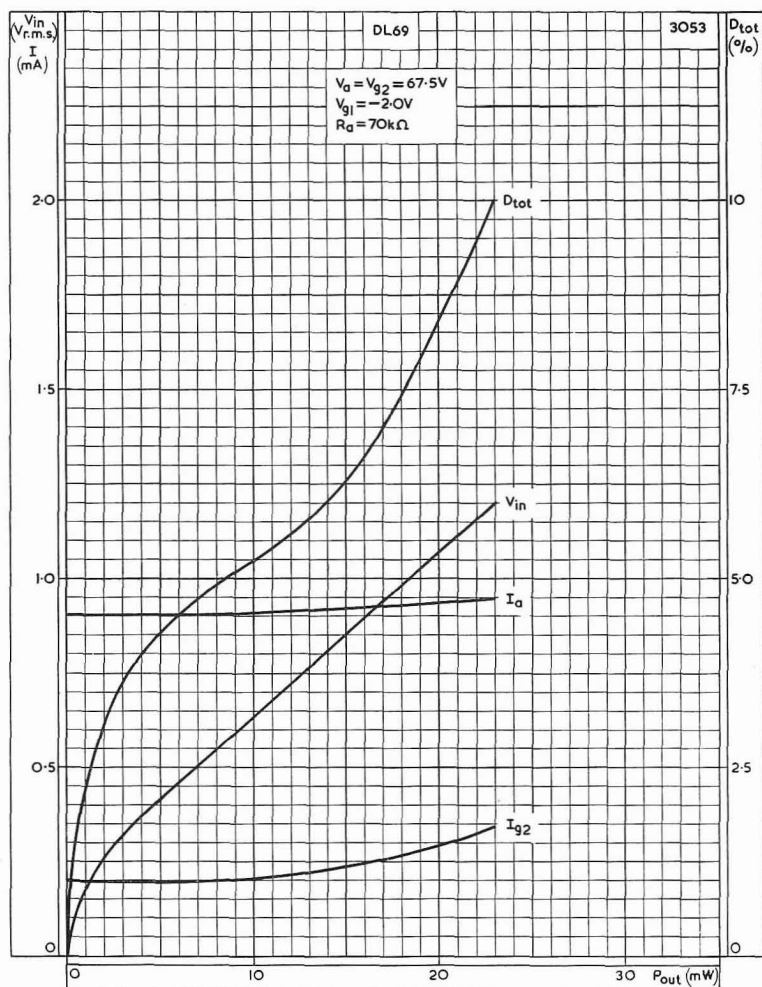


ANODE CURRENT PLOTTED AGAINST ANODE VOLTAGE.  $V_{g2} = 90V$

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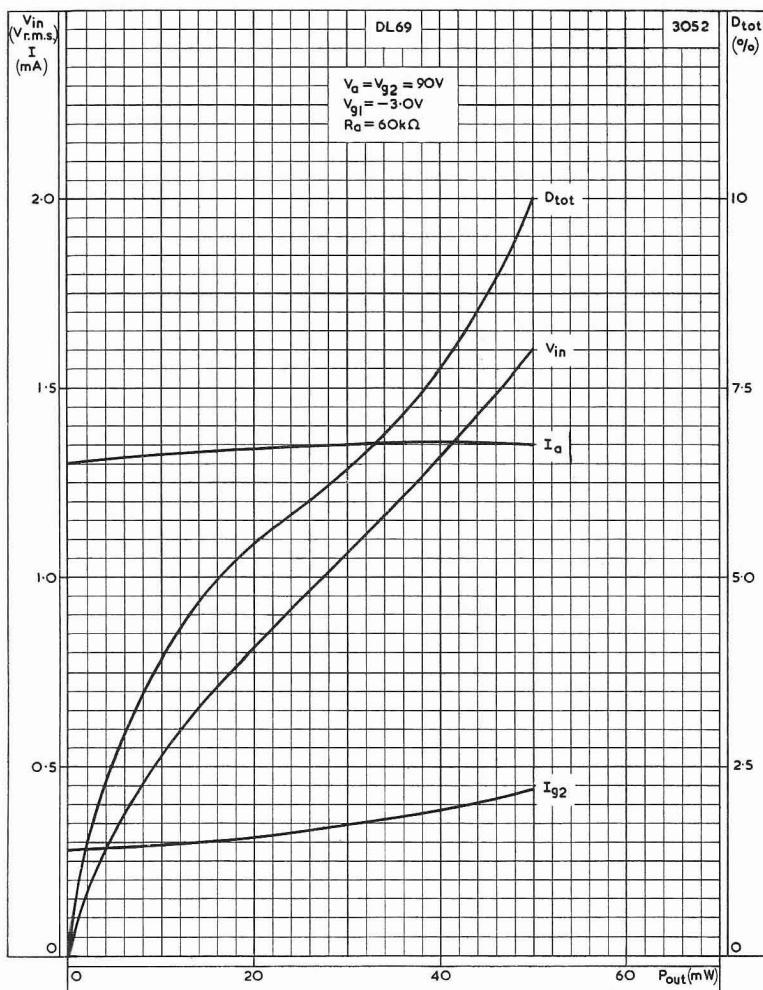


PERFORMANCE OF DL69 AS CLASS 'A' AMPLIFIER.  $V_a = V_{g2} = 67.5V$

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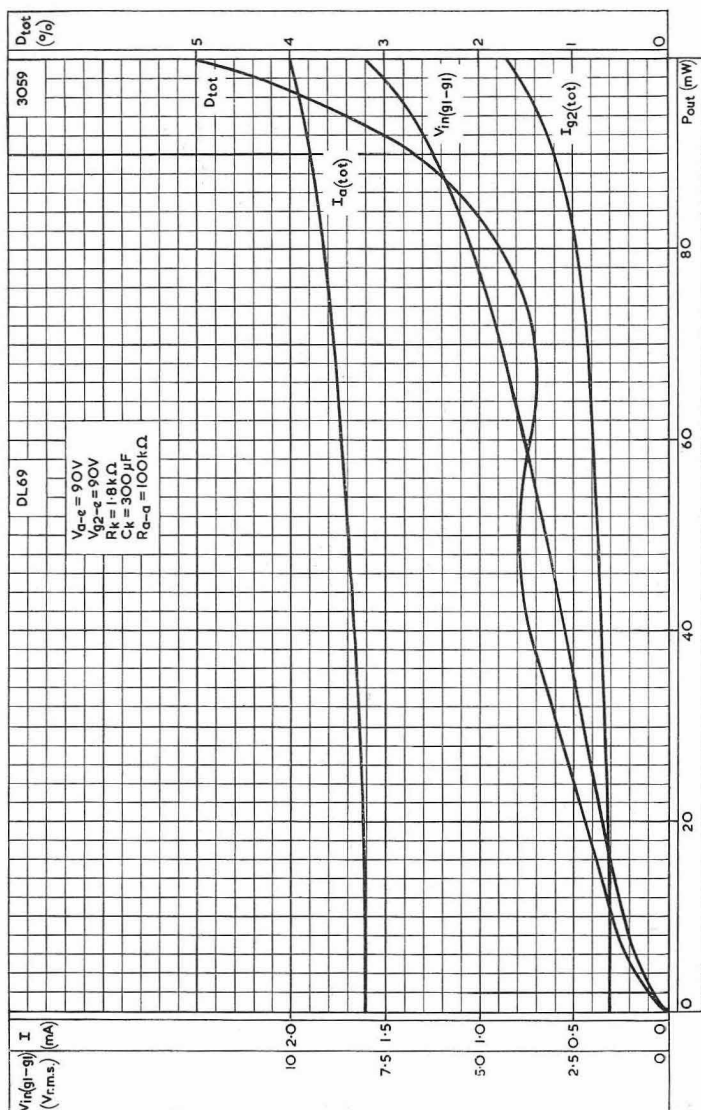


PERFORMANCE OF DL69 AS CLASS 'A' AMPLIFIER.  $V_a = V_{g2} = 90V$

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## SUBMINIATURE OUTPUT PENTODE

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PERFORMANCE OF TWO DL69 IN PUSH-PULL