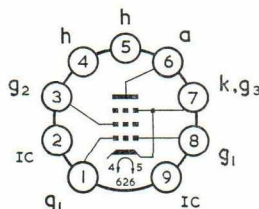


### FIELD OUTPUT PENTODE



B9D Base §

### GENERAL

This pentode is for use as a field output amplifier in colour television receivers having series connected heaters (a.c. or d.c.).

|                |       |     |   |
|----------------|-------|-----|---|
| Heater Current | $I_h$ | 0.3 | A |
| Heater Voltage | $V_h$ | 17  | V |

### DESIGN CENTRE RATINGS

|                                      |                            |      |    |
|--------------------------------------|----------------------------|------|----|
| Maximum Anode Dissipation            | $P_a(\text{max})$          | 12   | W  |
| Maximum Screen Grid Dissipation      | $P_{g2}(\text{max})$       | 3.0* | W  |
| Maximum Anode Supply Voltage         | $V_{a(b)}(\text{max})$     | 700  | V  |
| Maximum Anode Voltage                | $V_a(\text{max})$          | 400  | V  |
| Maximum Peak Anode Voltage           | $V_a(\text{pk})\text{max}$ | 2.5† | kV |
| Maximum Screen Grid Supply Voltage   | $V_{g2(b)}(\text{max})$    | 700  | V  |
| Maximum Screen Grid Voltage          | $V_{g2}(\text{max})$       | 275  | V  |
| Maximum Heater to Cathode Voltage    | $V_{h-k}(\text{max})$      | 220  | V  |
| Maximum Cathode Current              | $I_k(\text{max})$          | 100  | mA |
| Maximum Grid 1 to Cathode Resistance | $R_{g1-k}(\text{max})$     |      |    |
| Fixed Bias                           |                            | 1.0  | MΩ |
| Self Bias                            |                            | 2.2  | MΩ |

All voltages referred to cathode.

\* The Design Maximum rating is 4.0W max.

† Maximum pulse duration 5% of one cycle with a maximum of 1 ms.

### INTER-ELECTRODE CAPACITANCES

|                  |            |      |    |
|------------------|------------|------|----|
| Anode to Grid 1  | $C_{a-g1}$ | <1.6 | pF |
| Grid 1 to Heater | $C_{g1-h}$ | <0.2 | pF |

### CHARACTERISTICS

|                            |               |            |     |      |
|----------------------------|---------------|------------|-----|------|
| Anode Voltage              | $V_a$         | 50         | 190 | V    |
| Screen Grid Voltage        | $V_{g2}$      | 190        | 190 | V    |
| Control Grid Voltage       | $V_{g1}$      | -1.0       | -17 | V    |
| Anode Current              | $I_a$         | 320        | 60  | mA   |
| Screen Grid Current        | $I_{g2}$      | approx. 60 | 5.0 | mA   |
| Mutual Conductance         | $g_m$         | —          | 9.0 | mA/V |
| Inner Amplification Factor | $\mu_{g1-g2}$ | —          | 8.0 |      |

‡ Measured under pulse conditions.

§ Some valves have the pumping stem in the base and for such valves the maximum seated height is 71.4 mm.

**CIRCUIT DESIGN**

Note: The curves on page 4 can be used to derive the minimum  $I_a$  to be expected as a result of the spread of the valve characteristics, valve deterioration during life and decrease of the mains voltages to 10% below the nominal value by decreasing by 40% the  $I_a$  values on the curve A-B at the  $V_{g2}$  occurring at the decreased mains voltage.

In order that the maximum permissible value of screen grid dissipation is not exceeded, the circuit should be designed in such a way that the anode voltage should never be lower than the value determined by curve A-B at the relevant  $V_{g2}$  value.

**TYPICAL OPERATION****(End of scan values)**

|                      |             |      |    |
|----------------------|-------------|------|----|
| Anode Voltage        | $V_a$       | 70   | V  |
| Screen Grid Voltage  | $V_{g2}$    | 200  | V  |
| Control Grid Voltage | $V_{g1}$    | -5.0 | V  |
| Peak Anode Current   | $i_{a(pk)}$ | 230  | mA |

**MICROPHONY**

The maximum peak acceleration to which the valve may be subjected under the most unfavourable conditions is 1.5g at frequencies <600Hz and 0.2g at frequencies >600Hz. The equivalent interference voltage at the control grid voltage will then be <25mV.

