

# DOUBLE DIODE PENTODE

# UBF80

Double diode variable- $\mu$  pentode. The pentode section is suitable for use as an r.f., i.f., or a.f. amplifier.

## HEATER

This valve is suitable for series operation a.c. or d.c.

|       |     |    |
|-------|-----|----|
| $I_h$ | 100 | mA |
| $V_h$ | 17  | V  |

## MOUNTING POSITION

Any

## CAPACITANCES

|                        |          |    |
|------------------------|----------|----|
| $C_{a'd-g_1}$          | < 0.0008 | pF |
| $C_{a'd-a}$            | < 0.2    | pF |
| $C_{a''d-g_1}$         | < 0.001  | pF |
| $C_{a''d-a}$           | < 0.05   | pF |
| <b>Pentode Section</b> |          |    |
| $C_{a-g_1}$            | < 0.0025 | pF |
| $C_{out}$              | 4.9      | pF |
| $C_{in}$               | 4.2      | pF |
| $C_{g_1-h}$            | < 0.07   | pF |
| <b>Diode Sections</b>  |          |    |
| $C_{a'd-k}$            | 2.2      | pF |
| $C_{a''d-k}$           | 2.35     | pF |
| $C_{a'd-a''d}$         | < 0.35   | pF |
| $C_{a'd-h}$            | < 0.02   | pF |
| $C_{a''d-h}$           | < 0.005  | pF |

## OPERATING CONDITIONS AS R.F. OR I.F. AMPLIFIER

|                                          |       |       |       |            |
|------------------------------------------|-------|-------|-------|------------|
| $V_a = V_b$                              | 100   | 170   | 200   | V          |
| $R_{g_2}$                                | 47    | 47    | 68    | k $\Omega$ |
| $V_{g_2}$                                | 50    | 85    | 85    | V          |
| $V_{g_3}$                                | 0     | 0     | 0     | V          |
| $R_k$                                    | 300   | 300   | 300   | $\Omega$   |
| $I_a$                                    | 2.8   | 5.0   | 5.0   | mA         |
| $I_{g_2}$                                | 1.0   | 1.75  | 1.75  | mA         |
| $V_{g_1}$                                | -1.2  | -2.0  | -2.0  | V          |
| $g_m$                                    | 1.9   | 2.2   | 2.2   | mA/V       |
| $r_a$                                    | 0.9   | 0.9   | 1.0   | M $\Omega$ |
| $\mu_{g_1-g_2}$                          | 18    | 18    | 18    |            |
| $R_{eq}$                                 | 4.6   | 6.2   | 6.2   | k $\Omega$ |
| $V_{g_1}$ for 100 : 1 reduction in $g_m$ | -15.5 | -26.5 | -31.5 | V          |

## OPERATING CONDITIONS AS RESISTANCE COUPLED A.F. AMPLIFIER

| $V_b$<br>(V) | $R_a$<br>(k $\Omega$ ) | $I_a$<br>(mA) | $R_{g_2}$<br>(k $\Omega$ ) | $I_{g_2}$<br>(mA) | $R_k$<br>(k $\Omega$ ) | $R_{g_1}$<br>(M $\Omega$ ) | $\frac{V_{out}}{V_{in}}$ | $D_{tot}^*$<br>(%) | $R_{g_1}^{**}$<br>(k $\Omega$ ) |
|--------------|------------------------|---------------|----------------------------|-------------------|------------------------|----------------------------|--------------------------|--------------------|---------------------------------|
| 100          | 220                    | 0.32          | 680                        | 0.12              | 2.7                    | 1.0                        | 82                       | 1.9                | 680                             |
| 100          | 100                    | 0.73          | 270                        | 0.29              | 1.0                    | 1.0                        | 67                       | 1.8                | 330                             |
| 100          | 220                    | 0.32          | 820                        | 0.11              | 0                      | 10                         | 100                      | 3.0                | 680                             |
| 100          | 100                    | 0.66          | 330                        | 0.25              | 0                      | 10                         | 70                       | 3.2                | 330                             |
| 170          | 220                    | 0.56          | 680                        | 0.2               | 2.7                    | 1.0                        | 85                       | 1.5                | 680                             |
| 170          | 100                    | 1.25          | 270                        | 0.5               | 1.0                    | 1.0                        | 70                       | 1.6                | 330                             |
| 170          | 220                    | 0.56          | 820                        | 0.19              | 0                      | 10                         | 140                      | 1.0                | 680                             |
| 170          | 100                    | 1.16          | 330                        | 0.46              | 0                      | 10                         | 100                      | 1.4                | 330                             |

\*  $V_{out} = 5 V_{(r.m.s.)}$

\*\* Grid resistor of following valve



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### OPERATING CONDITIONS AS TRIODE CONNECTED RESISTANCE COUPLED A.F. AMPLIFIER

$g_2$  connected to a,  $g_3$  connected to k

| $V_b$<br>(V) | $R_a$<br>(k $\Omega$ ) | $I_a$<br>(mA) | $R_k$<br>(k $\Omega$ ) | $R_{g1}$<br>(M $\Omega$ ) | $\frac{V_{out}}{V_{in}}$ | $D_{tot}^*$<br>(%) | $R_{g1}^{**}$<br>(k $\Omega$ ) |
|--------------|------------------------|---------------|------------------------|---------------------------|--------------------------|--------------------|--------------------------------|
| 100          | 100                    | 0.74          | 1.8                    | 1.0                       | 11                       | 4.9                | 330                            |
| 100          | 47                     | 1.4           | 1.0                    | 1.0                       | 11                       | 4.8                | 150                            |
| 100          | 100                    | 0.8           | 0                      | 10                        | 12                       | 4.7                | 330                            |
| 100          | 47                     | 1.5           | 0                      | 10                        | 12                       | 4.8                | 150                            |
| 170          | 100                    | 1.25          | 1.8                    | 1.0                       | 11                       | 3.5                | 330                            |
| 170          | 47                     | 2.4           | 1.0                    | 1.0                       | 11                       | 3.1                | 150                            |
| 170          | 100                    | 1.4           | 0                      | 10                        | 14                       | 3.8                | 330                            |
| 170          | 47                     | 2.8           | 0                      | 10                        | 14                       | 3.4                | 150                            |

\* $V_{out} = 5 V_{(r.m.s.)}$

\*\*Grid resistor of following valve.

### LIMITING VALUES

#### Pentode Section

|                                            |      |            |
|--------------------------------------------|------|------------|
| $V_{a(b)}$ max.                            | 550  | V          |
| $V_a$ max.                                 | 250  | V          |
| $p_a$ max.                                 | 1.5  | W          |
| $V_{g2(b)}$ max.                           | 550  | V          |
| $V_{g2}$ max. ( $I_a < 2mA$ )              | 250  | V          |
| $V_{g2}$ max. ( $I_a = 5mA$ )              | 125  | V          |
| $p_{g2}$ max.                              | 0.3  | W          |
| $I_k$ max.                                 | 10   | mA         |
| $V_{g1}$ max. ( $I_{g1} = \pm 0.3 \mu A$ ) | -1.3 | V          |
| * $R_{g1-k}$ max.                          | 3    | M $\Omega$ |
| $R_{h-k}$ max.                             | 20   | k $\Omega$ |
| $V_{h-k}$ max.                             | 150  | V          |

\* $R_{g1-k}$  max. = 22 M  $\Omega$  if grid current biasing is employed.

#### Diode Sections (each section)

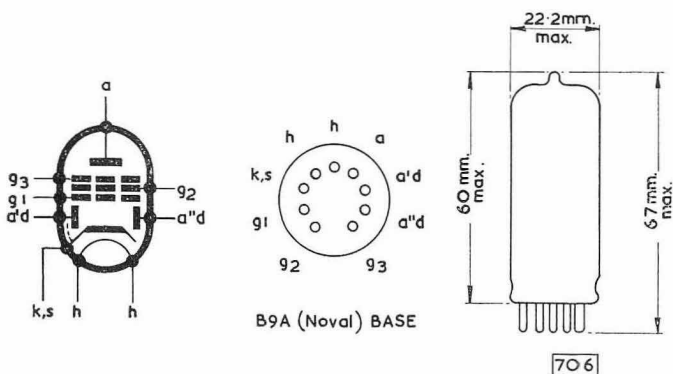
|                   |     |            |
|-------------------|-----|------------|
| P.I.V.            | 350 | V          |
| $I_{ad}$ max.     | 0.8 | mA         |
| $i_{ad(pk)}$ max. | 5   | mA         |
| $R_{h-k}$ max.    | 20  | k $\Omega$ |
| $V_{h-k}$ max.    | 150 | V          |

This valve can be used without special precautions against microphony if the input voltage,  $V_{in}$ , is not less than 25 mV for an output of 50 mW from the output valve.

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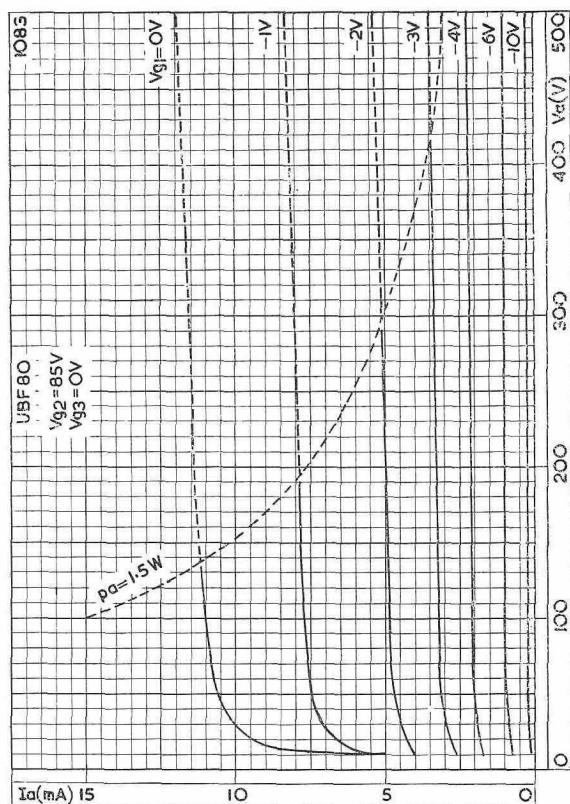
B9A (Noval) BASE

706

# UBF80

## DOUBLE DIODE PENTODE

Double diode variable-mu pentode. The pentode section is suitable for use as an r.f., i.f., or a.f. amplifier.

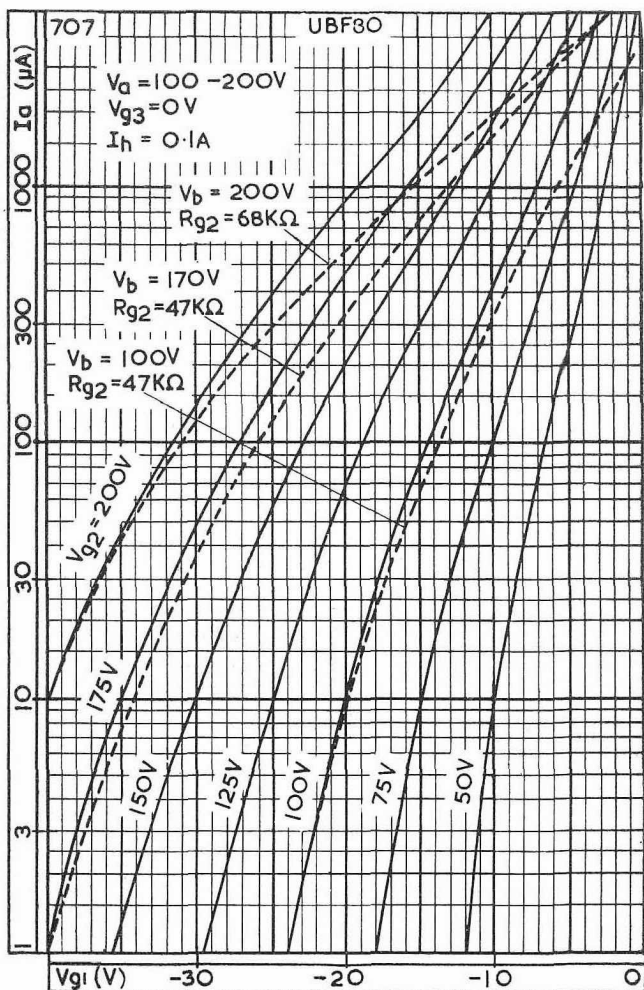


ANODE CURRENT PLOTTED AGAINST ANODE VOLTAGE WITH  
 CONTROL-GRID VOLTAGE AS PARAMETER

## DOUBLE DIODE PENTODE

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Double diode variable-mu pentode. The pentode section is suitable for use as an R.F., I.F., or A.F. amplifier.

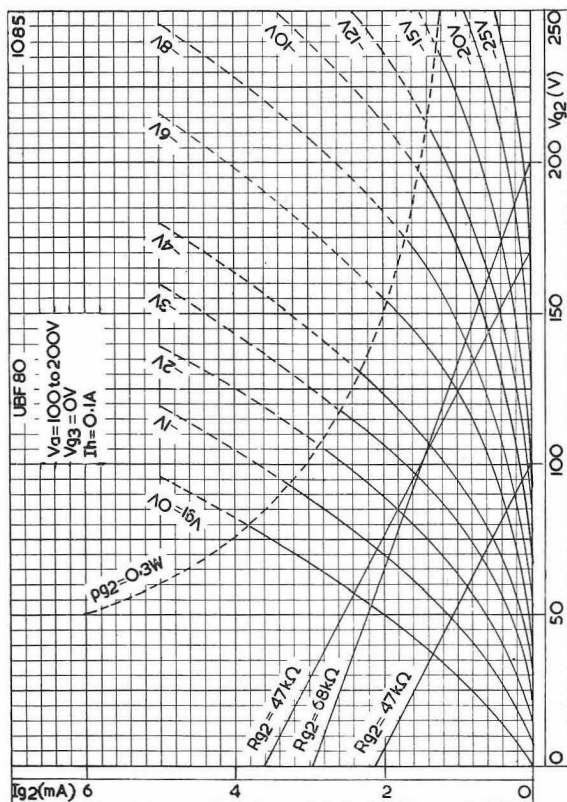


ANODE CURRENT PLOTTED AGAINST CONTROL-GRID VOLTAGE WITH  
SCREEN-GRID VOLTAGE AS PARAMETER

# UBF80

## DOUBLE DIODE PENTODE

Double diode variable-mu pentode. The pentode section is suitable for use as an R.F., I.F., or A.F. amplifier.

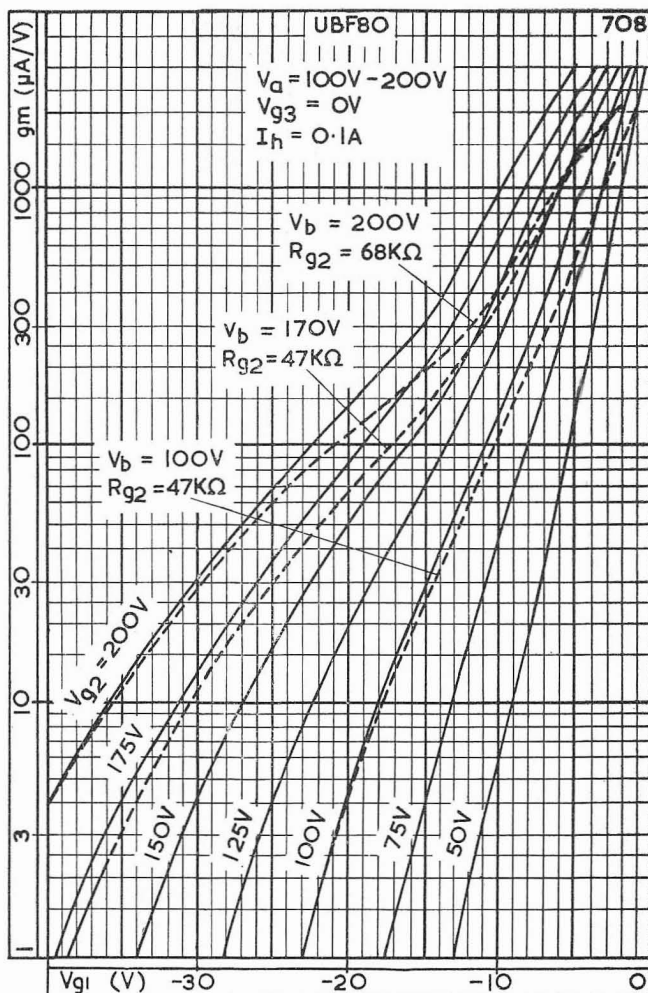


SCREEN-GRID CURRENT PLOTTED AGAINST SCREEN-GRID VOLTAGE  
 WITH CONTROL-GRID VOLTAGE AS PARAMETER

## DOUBLE DIODE PENTODE

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Double diode variable-mu pentode. The pentode section is suitable for use as an r.f., i.f., or a.f. amplifier.

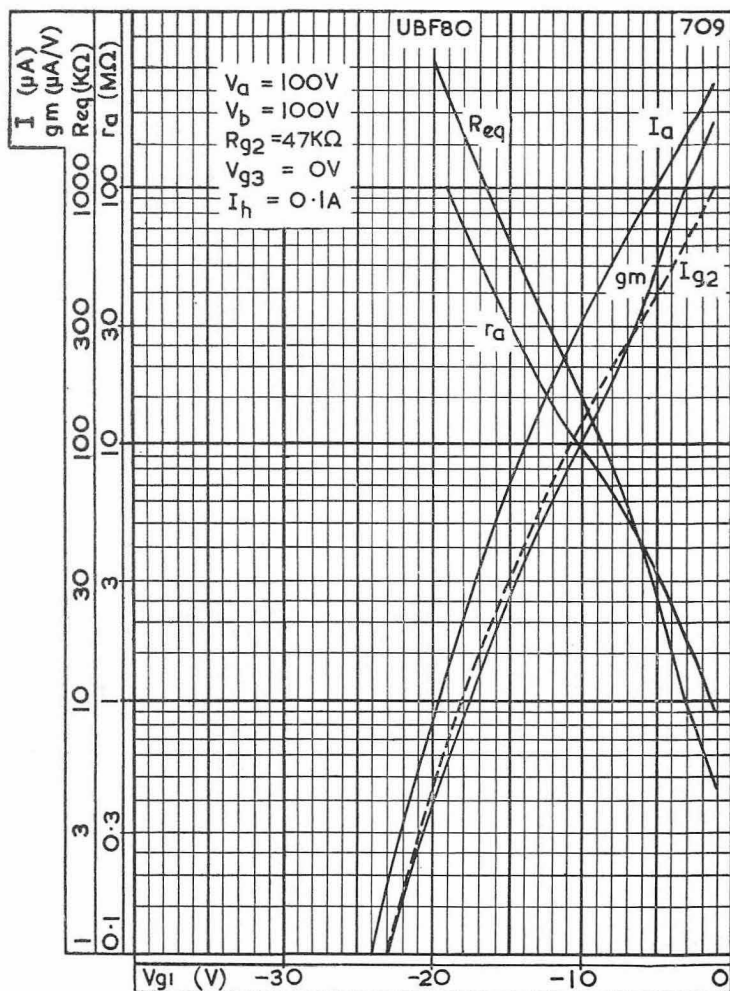


MUTUAL CONDUCTANCE PLOTTED AGAINST CONTROL-GRID VOLTAGE  
 WITH SCREEN-GRID VOLTAGE AS PARAMETER

# UBF80

## DOUBLE DIODE PENTODE

Double diode variable- $\mu$  pentode. The pentode section is suitable for use as an r.f., i.f., or a.f. amplifier.

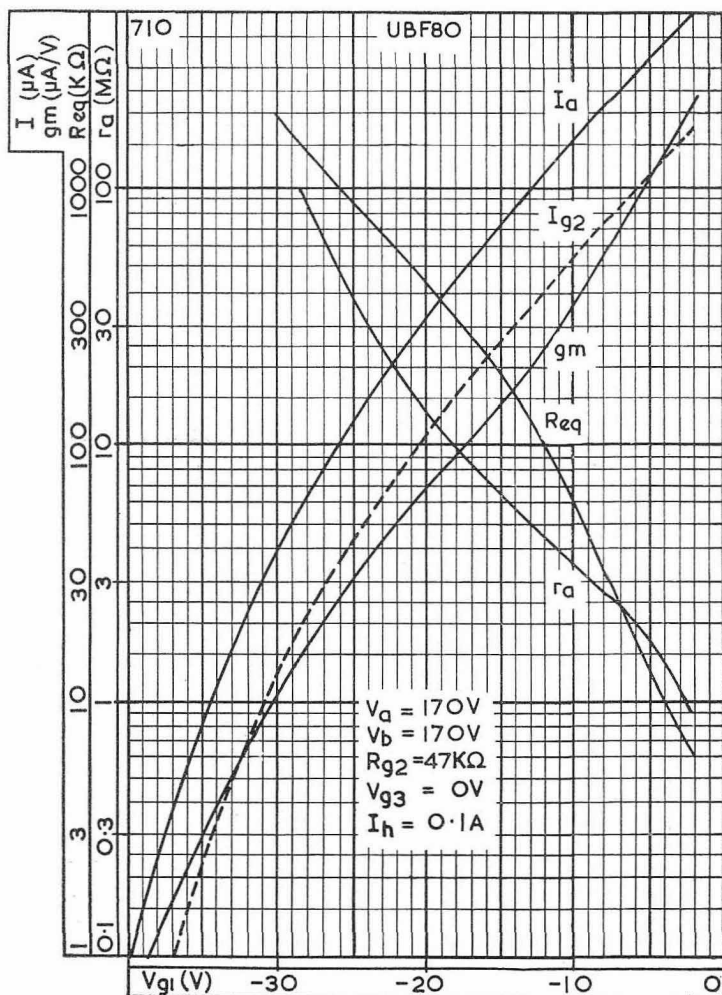


ANODE CURRENT, SCREEN-GRID CURRENT, MUTUAL CONDUCTANCE, INTERNAL RESISTANCE AND EQUIVALENT NOISE RESISTANCE PLOTTED AGAINST CONTROL-GRID VOLTAGE FOR ANODE VOLTAGE OF 100 V

# DOUBLE DIODE PENTODE

# UBF80

Double diode variable- $\mu$  pentode. The pentode section is suitable for use as an r.f., i.f., or a.f. amplifier.

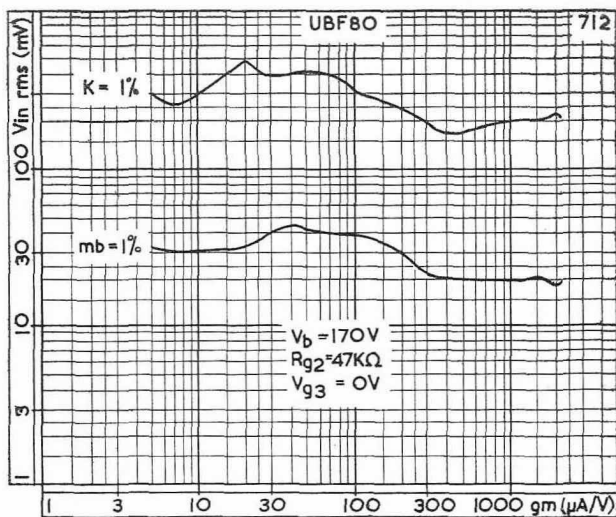
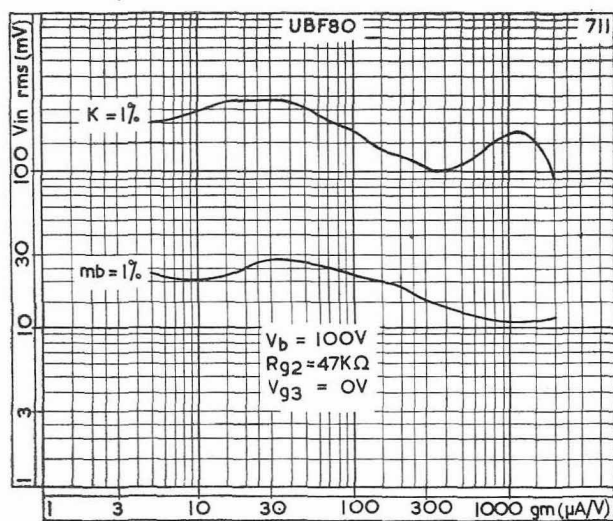


ANODE CURRENT, SCREEN-GRID CURRENT, MUTUAL CONDUCTANCE, INTERNAL RESISTANCE AND EQUIVALENT NOISE RESISTANCE PLOTTED AGAINST CONTROL-GRID VOLTAGE FOR ANODE VOLTAGE OF 170 V

# UBF80

## DOUBLE DIODE PENTODE

Double diode variable-mu pentode. The pentode section is suitable for use as an r.f., i.f., or a.f. amplifier.



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