

DOUBLE DIODE-TRIODE

Double diode-triode. Triode intended for use as A. F. amplifier.

QUICK REFERENCE DATA

| <u>Triode section</u> | | | |
|-----------------------|-------|------|------|
| Anode current | I_a | 1.5 | mA |
| Transconductance | S | 1.65 | mA/V |
| Amplification factor | μ | 70 | - |

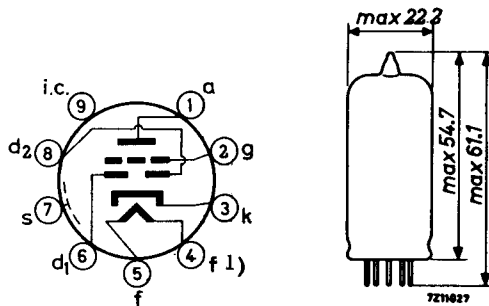
HEATING: Indirect by A. C. or D. C.; series supply

| | | | |
|----------------|-------|-----|----|
| Heater current | I_f | 100 | mA |
| Heater voltage | V_f | 14 | V |

DIMENSIONS AND CONNECTIONS

Dimensions in mm

Base: Noval



¹⁾ Earthed side of the heater circuit.

CAPACITANCES

Triode section

| | | |
|--------------------------|------------|--------------|
| Grid to all except anode | $C_{g(a)}$ | 2.3 pF |
| Anode to all except grid | $C_{a(g)}$ | 2.3 pF |
| Anode to grid | C_{ag} | 1.2 pF |
| Grid to heater | C_{gf} | max. 0.05 pF |

Diode sections

| | | |
|----------------------------|------------|--------------|
| Diode No. 1 to all | C_{d1} | 0.9 pF |
| Diode No. 2 to all | C_{d2} | 0.9 pF |
| Diode No. 1 to diode No. 2 | C_{d1d2} | max. 0.2 pF |
| Diode No. 1 to heater | C_{d1f} | max. 0.25 pF |
| Diode No. 2 to heater | C_{d2f} | max. 0.05 pF |

Between triode and diode sections

| | | |
|----------------------|-----------|---------------|
| Diode No. 1 to grid | C_{d1g} | max. 0.007 pF |
| Diode No. 2 to grid | C_{d2g} | max. 0.007 pF |
| Diode No. 1 to anode | C_{d1a} | max. 0.005 pF |
| Diode No. 2 to anode | C_{d2a} | max. 0.01 pF |

TYPICAL CHARACTERISTICS OF THE TRIODE SECTION

| | | | | |
|----------------------|-------|-------|------|------------|
| Anode voltage | V_a | 170 | 100 | V |
| Grid voltage | V_g | -1.55 | -1.0 | V |
| Anode current | I_a | 1.5 | 0.8 | mA |
| Transconductance | S | 1.65 | 1.4 | mA/V |
| Amplification factor | μ | 70 | 70 | - |
| Internal resistance | R_i | 42 | 50 | k Ω |

OPERATING CHARACTERISTICS

Triode section as A.F. amplifier, circuit Fig.1

| | | | | | | |
|----------------------------------|-----------|------|------|------|------|-----------|
| Supply voltage | V_b | 170 | 100 | 170 | 100 | V |
| Anode resistor | R_a | 0.22 | 0.22 | 0.1 | 0.1 | $M\Omega$ |
| Cathode resistor | R_k | 5.6 | 5.6 | 3.9 | 3.9 | $k\Omega$ |
| Grid resistor | R_g | 1.0 | 1.0 | 1.0 | 1.0 | $M\Omega$ |
| Grid resistor next stage | R_g | 0.68 | 0.68 | 0.33 | 0.33 | $M\Omega$ |
| Anode current | I_a | 0.28 | 0.18 | 0.45 | 0.28 | mA |
| Voltage gain | V_o/V_i | 44 | 41 | 37 | 34 | |
| Distortion at: | | | | | | |
| output voltage $V_o = 3 V_{RMS}$ | d_t | 1.1 | 1.4 | 1.1 | 2.0 | % |
| output voltage $V_o = 5 V_{RMS}$ | d_t | 1.3 | 1.9 | 1.7 | 3.5 | % |
| output voltage $V_o = 8 V_{RMS}$ | d_t | 1.85 | - | 2.6 | - | % |
| Supply voltage | V_b | 170 | 100 | 170 | 100 | V |
| Anode resistor | R_a | 0.22 | 0.22 | 0.1 | 0.1 | $M\Omega$ |
| Cathode resistor | R_k | 0 | 0 | 0 | 0 | Ω |
| Grid resistor | R_g | 22 | 22 | 22 | 22 | $M\Omega$ |
| Grid resistor next stage | R_g' | 0.68 | 0.68 | 0.33 | 0.33 | $M\Omega$ |
| Anode current | I_a | 0.46 | 0.21 | 0.82 | 0.35 | mA |
| Voltage gain | V_o/V_i | 48 | 41 | 42 | 35 | |
| Distortion at | | | | | | |
| output voltage $V_o = 3 V_{RMS}$ | d_t | 0.95 | 1.45 | 0.75 | 1.6 | % |
| output voltage $V_o = 5 V_{RMS}$ | d_t | 1.1 | 2.0 | 1.0 | 2.8 | % |
| output voltage $V_o = 8 V_{RMS}$ | d_t | 1.3 | - | 1.2 | - | % |

OPERATING CHARACTERISTICS (continued)

Microphony

No special precautions against microphony are required in circuits where the input voltage is min. 10 mV for 50 mW output of the output tube.

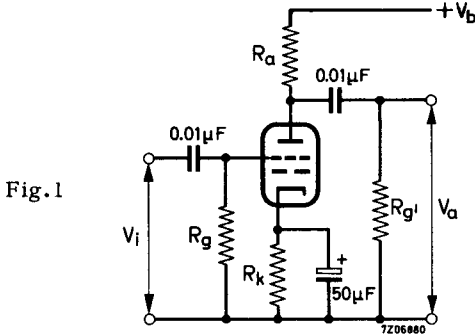


Fig. 1

LIMITING VALUES (Design centre rating system)

Triode section

| | | | |
|---------------------------|----------|------|-------|
| Anode voltage | V_{a0} | max. | 550 V |
| | V_a | max. | 250 V |
| Anode dissipation | W_a | max. | 0.5 W |
| Cathode current | I_k | max. | 5 mA |
| Grid resistor | R_g | max. | 3 MΩ |
| Cathode to heater voltage | V_{kf} | max. | 100 V |

Diode sections (each diode)

| | | | |
|------------------------------|-----------|------|--------|
| Diode voltage, negative peak | $-V_{dp}$ | max. | 350 V |
| Diode current: | | | |
| average | I_d | max. | 0.8 mA |
| peak | I_{dp} | max. | 5 mA |
| Cathode to heater voltage | V_{kf} | max. | 100 V |

PHILIPS

Data handbook



Electronic
components
and materials

UBC81

| page | sheet | date |
|-------------|--------------|-------------|
| 1 | 1 | 1970.01 |
| 2 | 2 | 1970.01 |
| 3 | 3 | 1970.01 |
| 4 | 4 | 1970.01 |
| 5 | FP | 1999.07.29 |