

DOUBLE DIODE – PENTODE

Double diode-pentode. Pentode intended for use as R.F. or I.F. amplifier.

QUICK REFERENCE DATA

Pentode section

Variable transconductance

Anode current I_a 9 mA

Transconductance S 4.5 mA/V

Amplification factor $\mu_{g_2g_1}$ 20 ..

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

Heater voltage

V_f 6.3 V

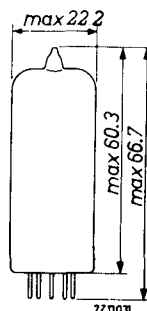
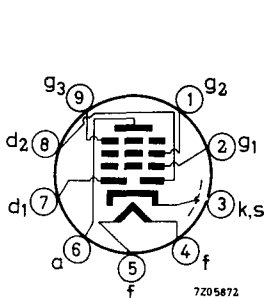
Heater current

I_f 300 mA

DIMENSIONS AND CONNECTIONS

Dimensions in mm

Base: Noval



CAPACITANCESPentode section

Anode to all except grid No. 1	$C_{a(g_1)}$	5.2 pF
Grid No. 1 to all except anode	$C_{g_1(a)}$	5.0 pF
Anode to grid No. 1	C_{ag_1}	max. 0.0025 pF
Grid No. 1 to heater	C_{g_1f}	max. 0.05 pF

Diode sections

Diode No. 1 to all	C_{d_1}	2.5 pF
Diode No. 2 to all	C_{d_2}	2.5 pF
Diode No. 1 to diode No. 2	$C_{d_1d_2}$	max. 0.25 pF
Diode No. 1 to heater	C_{d_1f}	max. 0.015 pF
Diode No. 2 to heater	C_{d_2f}	max. 0.003 pF

Between diode and pentode sections

Diode No. 1 to grid No. 1	$C_{d_1g_1}$	max. 0.0008 pF
Diode No. 2 to grid No. 1	$C_{d_2g_1}$	max. 0.001 pF
Diode No. 1 to anode	C_{d_1a}	max. 0.15 pF
Diode No. 2 to anode	C_{d_2a}	max. 0.025 pF

TYPICAL CHARACTERISTICS

Pentode section

Anode voltage	V_a	250	250	200	170	V
Grid No. 2 voltage	V_{g2}	100	80	100	100	V
Grid No. 3 voltage	V_{g3}	0	0	0	0	V
Grid No. 1 voltage	V_{g1}	-2	-1 ¹⁾	-1.5	-1 ¹⁾	V
Anode current	I_a	9	9	11	12	mA
Grid No. 2 current	I_{g2}	2.7	2.7	3.3	4	mA
Transconductance	S	3.8	4.5	4.5	5	mA/V
Amplification factor	μ_{g2g1}	20	20	20	20	-
Internal resistance	R_i	1.0	0.9	0.6	0.4	M Ω

OPERATING CHARACTERISTICS

Pentode section as R.F. or I.F. amplifier

Supply voltage	V_b	250	200	250	V
Anode resistor	R_a	0	0	0	Ω
Grid No.3 voltage	V_{g_3}	0	0	0	V
Grid No.2 resistor	R_{g_2}	56	30	62	k Ω
Grid No.1 voltage	V_{g_1}	$\overbrace{-2.0 \quad -20}$	$\overbrace{-1.5 \quad -20}$	$\overbrace{-1 \quad 1) \quad -20}$	V
Anode current	I_a	9 -	11 -	9 -	mA
Grid No.2 current	I_{g_2}	2.7 -	3.3 -	2.7 -	mA
Transconductance	S	3.8 0.2	4.5 0.12	4.5 0.2	mA/V
Internal resistance	R_i	1.0 -	0.6 -	0.9 -	M Ω

¹⁾ To avoid grid No. 1 current the negative grid No. 1 voltage should be min. 1.5 V.

LIMITING VALUES (Design centre rating system)Pentode section

Anode voltage	V_{a0}	max. 550 V
	V_a	max. 300 V ¹⁾
Anode dissipation	W_a	max. 2.25 W
Grid No.2 voltage	V_{g20}	max. 550 V
Grid No.2 voltage		
at anode current I_a max. 4 mA	V_{g2}	max. 300 V ¹⁾
at anode current I_a min. 8 mA	V_{g2}	max. 125 V
Grid No.2 dissipation	W_{g2}	max. 0.45 W
Cathode current	I_k	max. 16.5 mA
Grid No.1 resistor	R_{g1}	max. 3 M Ω
Grid No.3 resistor	R_{g3}	max. 10 k Ω
Cathode to heater voltage	V_{kf}	max. 100 V

Diode sections (each diode)

Diode voltage, <i>negative peak</i>	$-V_{dp}$	max. 200 V
Diode current, average	I_d	max. 0.8 mA
<i>peak</i>	I_{dp}	max. 5 mA
Cathode to heater voltage	V_{kf}	max. 100 V

¹⁾ With supply from a storage battery and vibrator the max. voltage is 250 V.

PHILIPS

Data handbook



**Electronic
components
and materials**

EBF89

page	sheet	date
1	1	1970.01
2	2	1970.01
3	3	1970.01
4	4	1970.01
5	FP	1999.08.14