DOUBLE DIODE - PENTODE

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

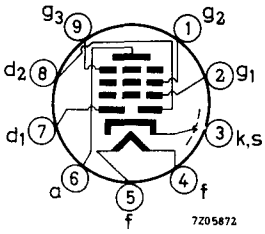
QUICK REFERENCE DATA			
Pentode section			
Variable transconductance			
Anode current	I_a	9	mA
Transconductance	S	4.5	mA/V
Amplification factor	$\mu_{g_2g_1}$	20	--

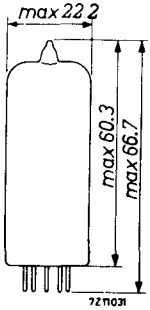
HEATING: Indirect by A.C. or D.C.; parallel or series supply

Heater voltage	V_f	6.3	V
Heater current	I_f	300	mA

DIMENSIONS AND CONNECTIONS Dimensions in mm

Base: Noval





CAPACITANCES

Pentode 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_{g_2}	100	80	100	100	V
Grid No.3 voltage	V_{g_3}	0	0	0	0	V
Grid No.1 voltage	V_{g_1}	-2	-1 [1])	-1.5	-1 [1])	V
Anode current	I_a	9	9	11	12	mA
Grid No.2 current	I_{g_2}	2.7	2.7	3.3	4	mA
Transconductance	S	3.8	4.5	4.5	5	mA/V
Amplification factor	$\mu_{g_2g_1}$	20	20	20	20	-
Internal resistance	R_i	1.0	0.9	0.6	0.4	MΩ

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		kΩ
Grid No.1 voltage	V_{g_1}	-2.0	-20	-1.5	-20	-1 [1])	-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	-	MΩ

[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_{a_o}	max.	550	V
	V_a	max.	300	V [1]
Anode dissipation	W_a	max.	2.25	W
Grid No.2 voltage	$V_{g_{2o}}$	max.	550	V
Grid No.2 voltage				
at anode current I_a max. 4 mA	V_{g_2}	max.	300	V [1]
at anode current I_a min. 8 mA	V_{g_2}	max.	125	V
Grid No.2 dissipation	W_{g_2}	max.	0.45	W
Cathode current	I_k	max.	16.5	mA
Grid No.1 resistor	R_{g_1}	max.	3	MΩ
Grid No.3 resistor	R_{g_3}	max.	10	kΩ
Cathode to heater voltage	V_{kf}	max.	100	V

Diode sections (each diode)

Diode voltage, negative peak	$-V_{d_p}$	max.	200	V
Diode current, average	I_d	max.	0.8	mA
peak	I_{d_p}	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