

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 11 mA

Transconductance

S 4.5 mA/V

Amplification factor

$\mu_{g_2g_1}$ 20 -

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

Heater current

I_f 100 mA

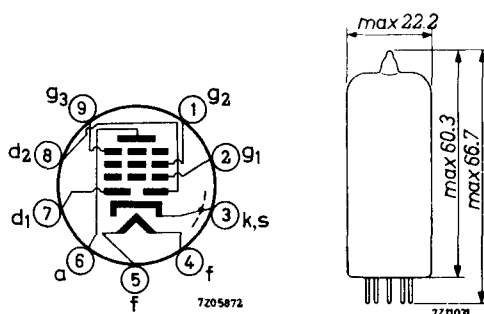
Heater voltage

V_f 19 V

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 pentode and diode 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	200	170	100	V
Grid No.2 voltage	V_{g2}	100	100	100	V
Grid No.3 voltage	V_{g3}	0	0	0	V
Grid No.1 voltage	V_{g1}	-1.5	-1 ¹⁾	-2	V
Anode current	I_a	11	12	8.5	mA
Grid No.2 current	I_{g2}	3.3	4	2.8	mA
Transconductance	S	4.5	5	3.5	mA/V
Amplification factor	μ_{g2g1}	20	20	20	-
Internal resistance	R_i	0.6	0.4	0.3	MΩ

OPERATING CHARACTERISTICS

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

Supply voltage	V_b	200		100	V
Anode resistor	R_a	0		0	Ω
Grid No.3 voltage	V_{g3}	0		0	V
Grid No.2 resistor	R_{g2}	30		0	kΩ
Grid No.1 voltage	V_{g1}	-1.5	-20	-2	-10 V
Anode current	I_a	11	-	8.5	- mA
Grid No.2 current	I_{g2}	3.3	-	2.8	- mA
Transconductance	S	4.5	0.12	3.5	0.11 mA/V
Internal resistance	R_i	0.6	-	0.3	- 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_{a0}	max.	550	V
	V_a	max.	250	V
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.	250	V
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	$M\Omega$
Grid No.3 resistor	R_{g3}	max.	10	$k\Omega$
Cathode to heater voltage	V_{kf}	max.	100	V

Diode sections (each diode)

Diode voltage, negative peak	$-V_{dp}$	max.	200	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**

UBF89

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