

## DOUBLE DIODE-PENTODE

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

QUICK REFERENCE DATA		
<u>Pentode section</u>		
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

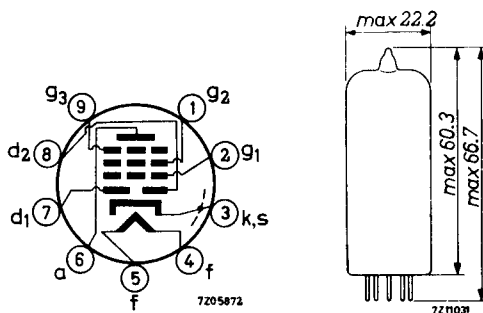
Heater voltage

$V_f$  19 V

### DIMENSIONS AND CONNECTIONS

Dimensions in mm

Base: Noval



**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 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 <sup>1)</sup>	-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	$\mu_{g2g1}$	20	20	20	-
Internal resistance	$R_i$	0.6	0.4	0.3	M $\Omega$

**OPERATING CHARACTERISTICS**Pentode section as R.F. or I.F. amplifier

Supply voltage	$V_b$	200		100	V	
Anode resistor	$R_a$	0		0	$\Omega$	
Grid No.3 voltage	$V_{g3}$	0		0	V	
Grid No.2 resistor	$R_{g2}$	30		0	k $\Omega$	
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	-	M $\Omega$

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	$V_{a_0}$	max.	550 V
	$V_a$	max.	250 V
Anode dissipation	$W_a$	max.	2.25 W
Grid No.2 voltage	$V_{g_{20}}$	max.	550 V
Grid No.2 voltage at anode current $I_a$ max. 4 mA	$V_{g_2}$	max.	250 V
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 M $\Omega$
Grid No.3 resistor	$R_{g_3}$	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

<b>page</b>	<b>sheet</b>	<b>date</b>
1	1	1970.01
2	2	1970.01
3	3	1970.01
4	4	1970.01
5	FP	1999.07.29