

## TRIPLE DIODE-TRIODE

Triple diode-triode intended for F.M. and A.M. signal detection and A.F. signal amplification.

### QUICK REFERENCE DATA

Triode section

Anode current	$I_a$	1.0	mA
Transconductance	$S$	1.45	mA/V
Amplification factor	$\mu$	70	-

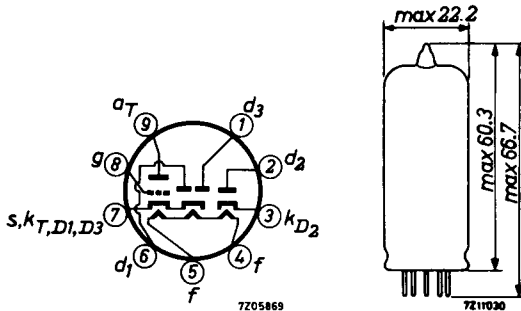
**HEATING:** Indirect by A.C. or D.C.; series supply

Heater current	$I_f$	100	mA
Heater voltage	$V_f$	28	V

### DIMENSIONS AND CONNECTIONS

Dimensions in mm

Base: Noval



It is recommended to connect pin 5 to earth.

**CAPACITANCES**

Triode section

Grid to all except anode	$C_{g(a)}$	1.9 pF
Anode to all except grid	$C_{a(g)}$	1.4 pF
Anode to grid	$C_{ag}$	2.0 pF
Grid to heater	$C_{gf}$	max. 0.04 pF

Diode sections

Diode No. 1 to all	$C_{d1}$	0.8 pF
Diode No. 2 to all	$C_{d2}$	4.8 pF
Diode No. 3 to all	$C_{d3}$	4.8 pF
Cathode ( $D_2$ ) to all	$C_{kD_2}$	5.0 pF
Diode No. 1 to heater	$C_{d1f}$	max. 0.25 pF
Diode No. 3 to heater	$C_{d3f}$	max. 0.2 pF
Cathode ( $D_2$ ) to heater	$C_{kD_2f}$	2.5 pF

Between triode and diode sections

Anode to diode No. 1	$C_{ad1}$	max. 0.12 pF
Anode to diode No. 3	$C_{ad3}$	max. 0.1 pF
Anode to cathode ( $D_2$ )	$C_{akD_2}$	max. 0.01 pF
Grid to diode No. 1	$C_{gd1}$	max. 0.07 pF
Grid to diode No. 3	$C_{gd3}$	max. 0.02 pF
Grid to cathode ( $D_2$ )	$C_{gkD_2}$	max. 0.005 pF

**TYPICAL CHARACTERISTICS**

Triode section

Anode voltage	$V_a$	100	170	200	V
Grid voltage	$V_g$	-1	-1.85	-2.3	V
Anode current	$I_a$	0.8	1.0	1.0	mA
Transconductance	S	1.45	1.45	1.40	mA/V
Amplification factor	$\mu$	70	70	70	-
Internal resistance	$R_i$	48	48	50	k $\Omega$

**OPERATING CHARACTERISTICS**

Triode section as R.C. coupled A.F. amplifier

Grid resistor  $R_g = 10 \text{ M}\Omega$

Supply voltage	$V_b$	200	200	200	170	170	170	V
Anode resistor	$R_a$	220	100	47	220	100	47	k $\Omega$
Grid resistor next stage	$R_g'$	0.68	0.33	0.15	0.68	0.33	0.15	M $\Omega$
Anode current	$I_a$	0.56	1.00	1.60	0.46	0.82	1.25	mA
Voltage gain	$V_o/V_i$	53	44	34	51	42	32	-
Distortion:								
at output voltage $V_o = 3 \text{ V}_{\text{RMS}}$	$d_{\text{tot}}$	0.3	0.4	0.5	0.4	0.5	0.6	%
at output voltage $V_o = 5 \text{ V}_{\text{RMS}}$	$d_{\text{tot}}$	0.4	0.6	0.9	0.5	0.8	1.1	%
at output voltage $V_o = 8 \text{ V}_{\text{RMS}}$	$d_{\text{tot}}$	0.9	1.0	1.5	1.1	1.3	2.0	%

Supply voltage	$V_b$	100	100	100	V
Anode resistor	$R_a$	220	100	47	k $\Omega$
Grid resistor next stage	$R_g'$	0.68	0.33	0.15	M $\Omega$
Anode current	$I_a$	0.21	0.35	0.52	mA
Voltage gain	$V_o/V_i$	44	35	26	-

Distortion:

at output voltage $V_o = 3 \text{ V}_{\text{RMS}}$	$d_{\text{tot}}$	1.0	1.3	2.0	%
at output voltage $V_o = 5 \text{ V}_{\text{RMS}}$	$d_{\text{tot}}$	1.7	2.3	4.3	%

**TYPICAL CHARACTERISTICS**

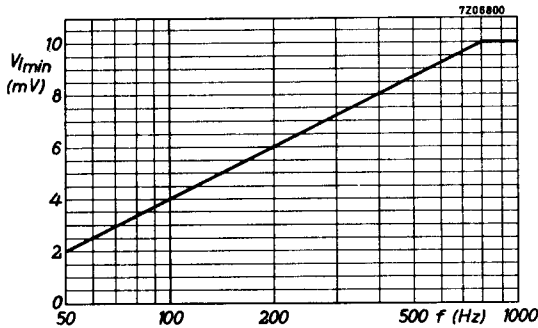
Diode section

Internal resistance diode No. 1 at diode voltage $V_{d1} = +10$ V	$R_i D_1$	5 k $\Omega$
Internal resistance diode No. 2 at diode voltage $V_{d2} = +5$ V	$R_i D_2$	200 $\Omega$
Internal resistance diode No. 3 at diode voltage $V_{d3} = +5$ V	$R_i D_3$	200 $\Omega$
Ratio between $R_i (D_2)$ and $R_i (D_3)$		min. 0.67 max. 1.5

Microphony                      Triode section

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 at frequencies higher than 800 Hz.

At lower frequencies the sensitivity may be increased according to the figure below.



**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. 1 W
Cathode current	$I_k$	max. 5 mA
Grid resistor	$R_g$	max. 3 M $\Omega$
Grid resistor at grid current bias	$R_g$	max. 22 M $\Omega$
Cathode to heater voltage	$V_{kf}$	max. 150 V <sup>1)</sup>

Diode sections

Diode No. 1 voltage, negative peak	$-V_{d1p}$	max. 350 V
Diode No. 2 voltage, negative peak	$-V_{d2p}$	max. 350 V
Diode No. 3 voltage, negative peak	$-V_{d3p}$	max. 350 V
Diode No. 1 current:		
D. C. component	$I_{d1}$	max. 1 mA
peak	$I_{d1p}$	max. 6 mA
Diode No. 2 current:		
D. C. component	$I_{d2}$	max. 10 mA
peak	$I_{d2p}$	max. 75 mA
Diode No. 3 current:		
D. C. component	$I_{d3}$	max. 10 mA
peak	$I_{d3p}$	max. 75 mA

<sup>1)</sup> With regard to hum a max. AC heater to cathode voltage of 30 V<sub>RMS</sub> is recommended.

# PHILIPS

Data handbook



Electronic  
components  
and materials

## UABC80

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