

OUTPUT PENTODE FOR LINE DEFLECTION

Output pentode intended for use as horizontal deflection amplifier in small screen television receivers.

QUICK REFERENCE DATA

Anode peak voltage	V_{ap}	max.	7	kV
Cathode current	I_k	max.	180	mA

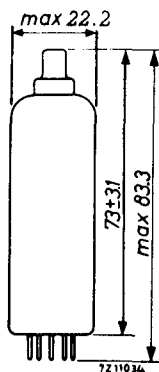
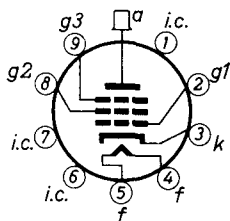
HEATING : Indirect by A.C. or D.C. ; series supply

Heater current	I_f	300	mA
Heater voltage	V_f	21.5	V

DIMENSIONS AND CONNECTIONS

Dimensions in mm

Base: Noval



CAPACITANCES

Anode to all except grid No. 1	$C_{a(g1)}$	6 pF
Grid No. 1 to all except anode	$C_{g1(a)}$	14 pF
Anode to grid No. 1	C_{ag1}	max. 0.8 pF
Anode to cathode	C_{ak}	max. 0.1 pF
Grid No. 1 to heater	C_{g1f}	max. 0.2 pF

TYPICAL CHARACTERISTICS

A)

Anode voltage	V_a	170 V
Grid No. 3 voltage	V_{g3}	0 V
Grid No. 2 voltage	V_{g2}	170 V
Grid No. 1 voltage	V_{g1}	-24 V
Anode current	I_a	45 mA
Grid No. 2 current	I_{g2}	2.4 mA
Transconductance	S	6.3 mA/V
Internal resistance	R_i	11 k Ω
Amplification factor	μ_{g2g1}	5.0

TYPICAL CHARACTERISTICS (continued)

B) (Measured under pulse conditions)

Anode voltage	V_a	40 V
Grid No. 3 voltage	V_{g3}	0 V
Grid No. 2 supply voltage	V_{bg2}	190 V
Grid No. 2 series resistor	R_{g2}	4.7 k Ω
Grid No. 1 voltage	V_{g1}	0 V
Anode current	I_a	180 mA
Grid No. 2 current	I_{g2}	18 mA

OPERATING CONDITIONS

Stabilized circuits (D.C. feedback)

Cut-off voltage

The minimum required cut-off voltage ($-V_{g1}$) during flyback is 120 V at $V_a = 6000$ V, $V_{g2} = 190$ V and $Z_{g1} = 1$ k Ω at line frequency.

Supply voltage: See page 5

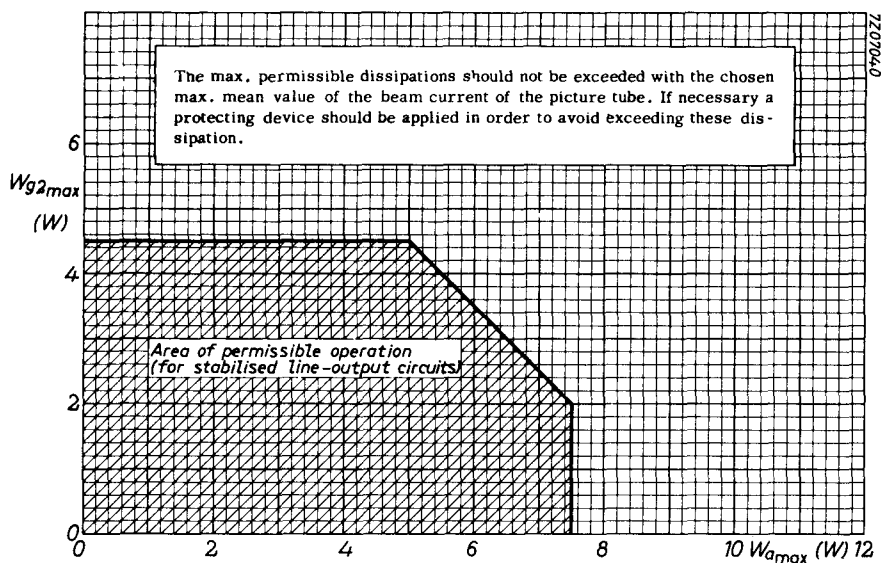
Minimum required values of the screengrid voltage and of the anode voltage, when the tube is used in a line output stage.

The graphs refer to nominal mains voltage provided the specified values of I_a at V_a min. will be available throughout life of the tube at supply voltage values 10% below nominal.

In order to prevent Barkhausen interferences and less of stabilisation, care should be taken that the anode voltage never drops below the specified V_a min during the scanning period.

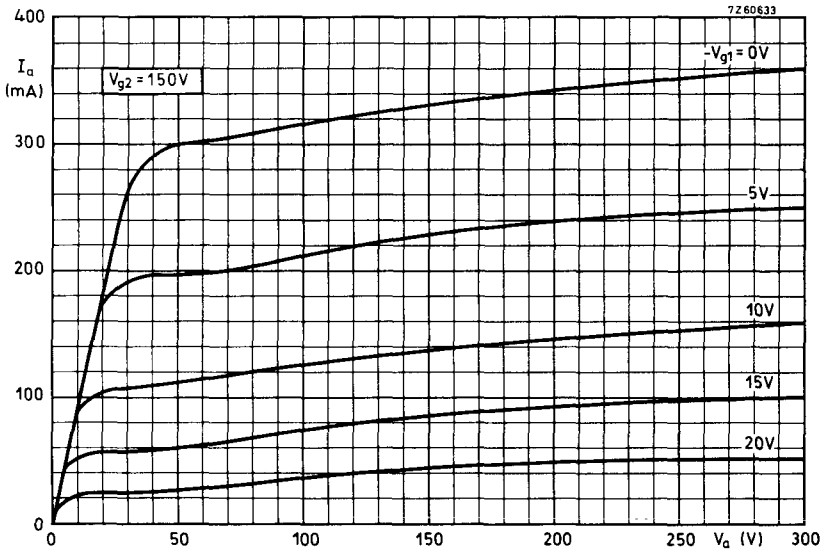
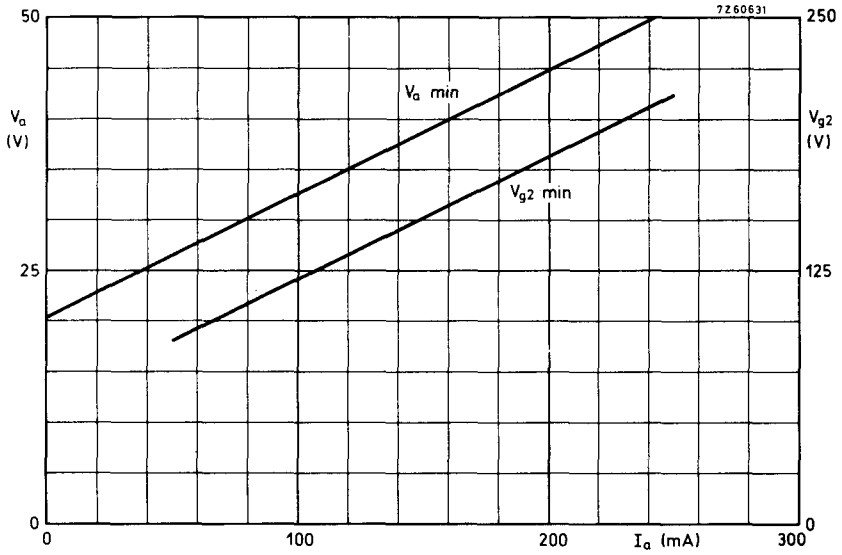
LIMITING VALUES (Design centre rating system)

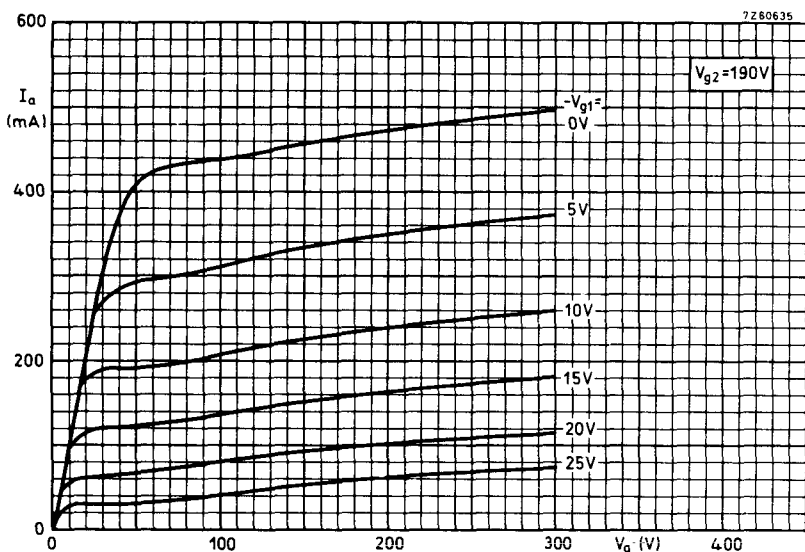
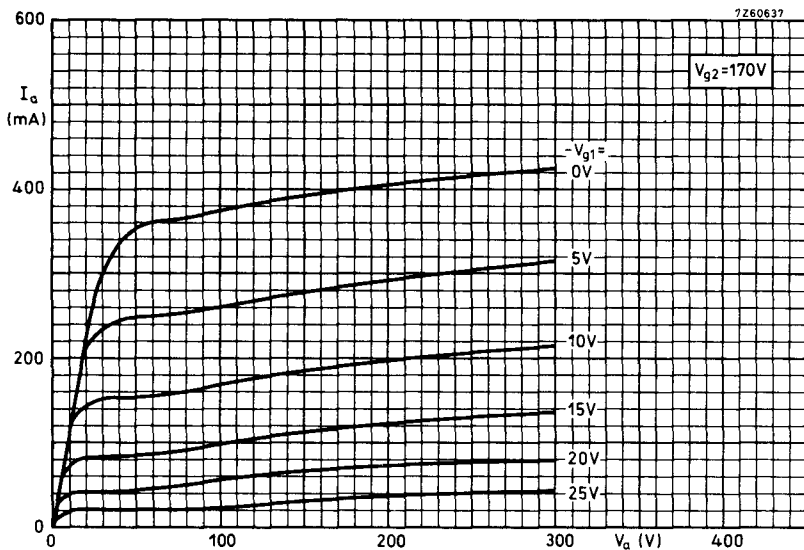
Anode voltage	V_{a0}	max. 550 V
	V_a	max. 250 V
Anode voltage, peak	V_{ap}	max. 7 kV ¹⁾
negative peak	$-V_{ap}$	max. 7 kV ¹⁾
Anode dissipation	W_a	} see figure below
Grid No. 2 dissipation	W_{g2} ²⁾	
Anode + grid No. 2 dissipation	$W_a + W_{g2}$	
Grid No. 2 voltage	V_{g20}	max. 550 V
	V_{g2}	max. 250 V
Cathode current	I_k	max. 180 mA
Cathode to heater voltage	V_{kf}	max. 200 V
Grid No. 1 resistor	R_{g1}	max. 0.5 MΩ



¹⁾ Maximum pulse duration 22% of a cycle but maximum 18 μs.

²⁾ During the heating-up of the cathode $W_{g2} = \text{max. } 6 \text{ W}$.





PHILIPS

Data handbook



**Electronic
components
and materials**

PL81

page	sheet	date
1	1	1971.01
2	2	1971.01
3	3	1971.01
4	4	1971.01
5	5	1972.01
6	6	1972.01
7	FP	1999.08.03