LINE OUTPUT PENTODE PL81A

Line output pentode for use in portable television receivers.

HEATER

Suitable for series operation a.c. or d.c.

I_h	300	mA
V_h	21.5	V

CAPACITANCES

c_{in}	14	pF
c_{out}	6.0	pF
c_{a-g1}	<800	mpF
c_{g1-h}	<200	mpF
c_{a-k}	<100	mpF

CHARACTERISTICS

V_a	170	V
V_{g2}	170	V
V_{g1}	-24.5	V
I_a	45	mA
I_{g2}	2.2	mA
g_m	6.0	mA/V
r_a	11.5	kΩ
μ_{g1-g2}	4.9	

OPERATION AS LINE OUTPUT VALVE

Circuit design

Operation so that the anode potential of the output valve at the end of the scan is above the knee of the anode characteristic is recommended. An effective feedback stabilising circuit should be employed. A design chart is given on page C5.

Minimum values of R_{g2} required to prevent excessive screen-grid dissipation during the warming-up period.

V_b	170	200	230	V
R_{g2} min.	1.2	1.8	2.2	kΩ

High voltage cut-off

The minimum value of V_{g1} for cut-off during the fly-back period, when $v_{a(pk)}$ = 7.0kV, is -120V.

PEAK ANODE CURRENT DESIGN CHARTS

Stabilised timebases

The design chart shown on page C5 gives directly the values of peak anode current and end-of-scan anode voltage which should be used in designing a stabilised line timebase. The design chart is based on an h.t. line voltage of 200V, and a correction factor is included for other h.t. voltages.

Measurements

When measurements are made specifically for the purpose of comparison with the design chart, all the components comprising the timebase, including the valves, should be nominal. The h.t. line should also be nominal. In receivers designed for a range of declared values of mains voltage, measurements should be made at the nominal declared value of mains voltage producing the lowest nominal h.t. voltage. The timebase should be synchronised and the raster adjusted to nominal scan. The beam current drawn from the e.h.t. supply should be 300μA.

The use of the design chart does not exempt the designer from checking that the valve is operating within its limiting values.

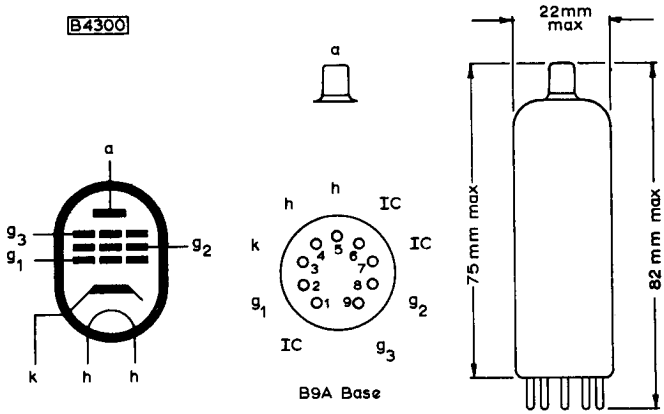
LINE OUTPUT PENTODE

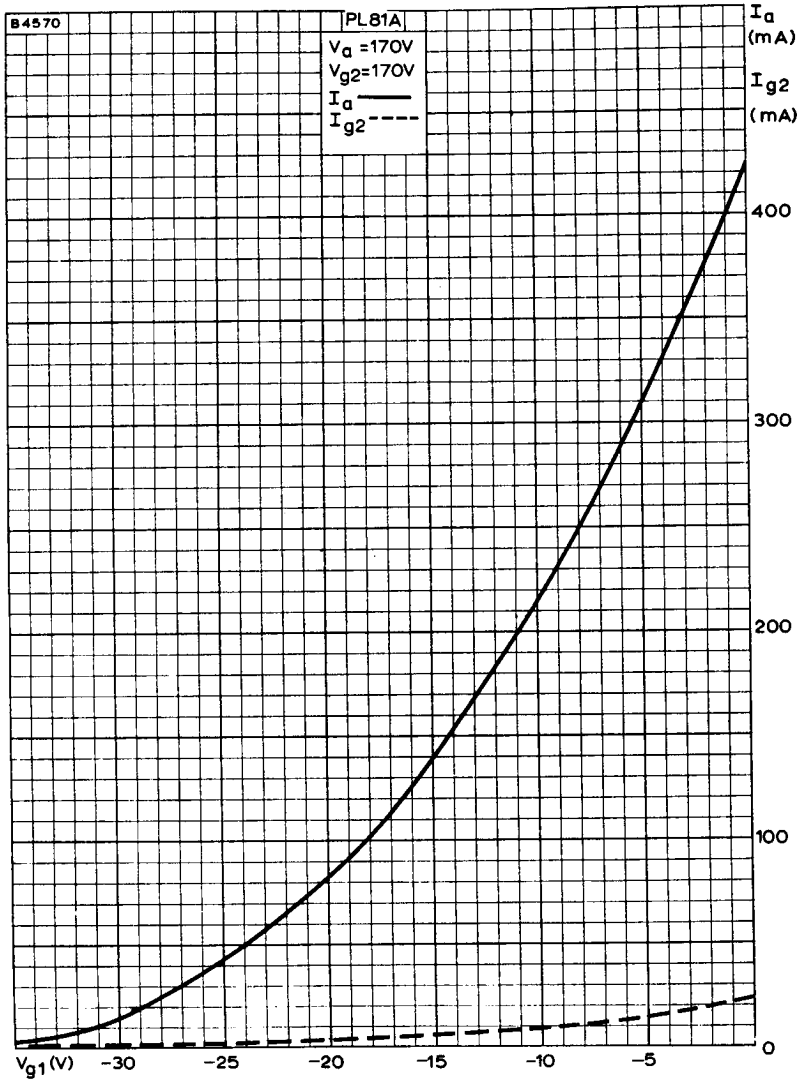
PL81A

RATINGS (DESIGN CENTRE SYSTEM)

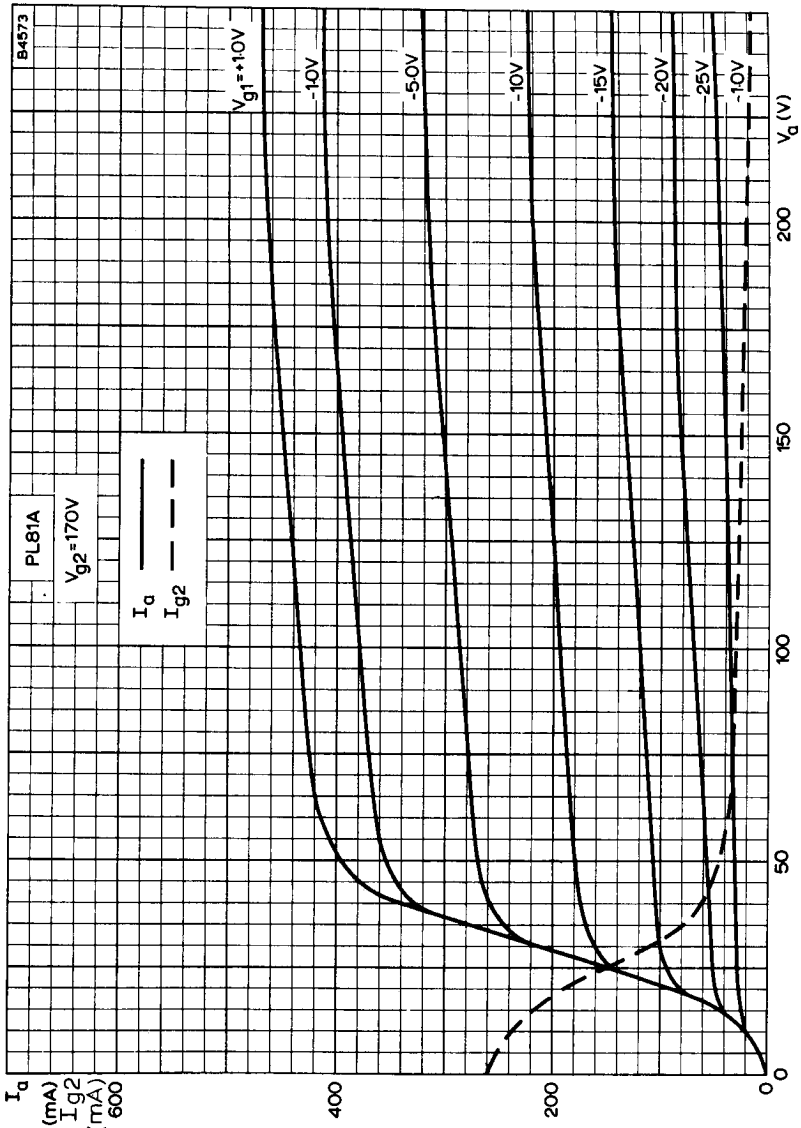
$V_{a(b)}$ max.	650	V
V_a	250	V
* $v_{a(pk)}$ max.	7.0	kV
p_a max.	see page C6	
$p_a + p_{g2}$	see page C6	
$V_{g2\ (b)}$ max.	550	V
V_{g2} max.	250	V
$v_{g1\ (pk)}$ max.	1.0	kV
p_{g2} max.	see page C6	
I_k max.	180	mA
R_{g1-k} max.	500	kΩ
R_{g1-k} max. (line timebase applications)	2.2	MΩ
R_{h-k} max.	20	kΩ
V_{h-k} max. (cathode negative)	200	V
V_{h-k} max. (cathode positive)	200	V
T_{bulb} max.	240	°C

*Maximum pulse duration 22% of one cycle with a maximum of 18μs.

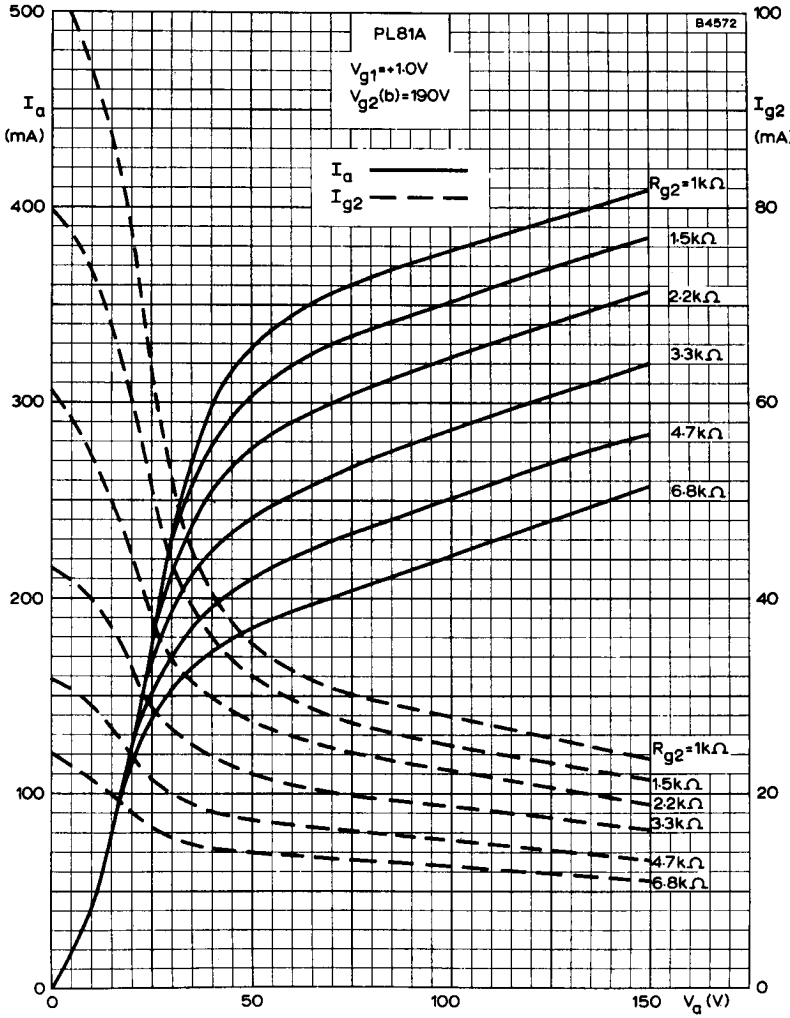




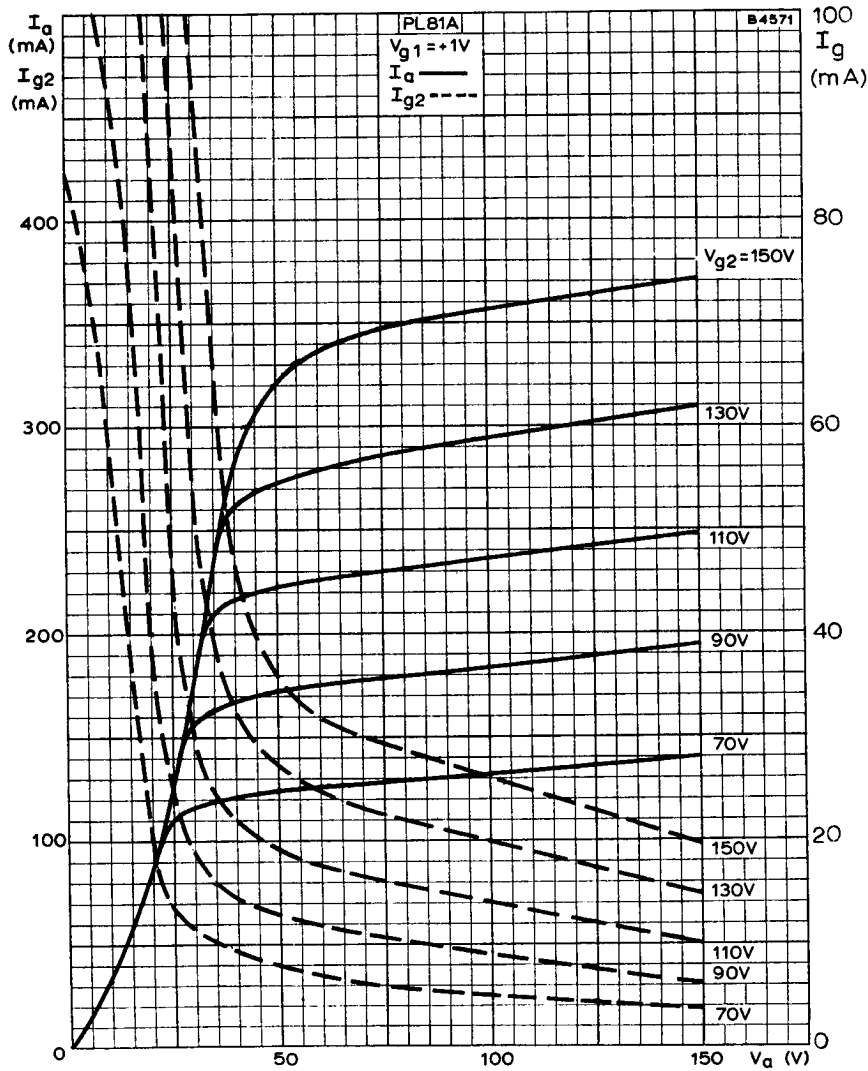
ANODE AND SCREEN CURRENTS PLOTTED AGAINST CONTROL-GRID VOLTAGE



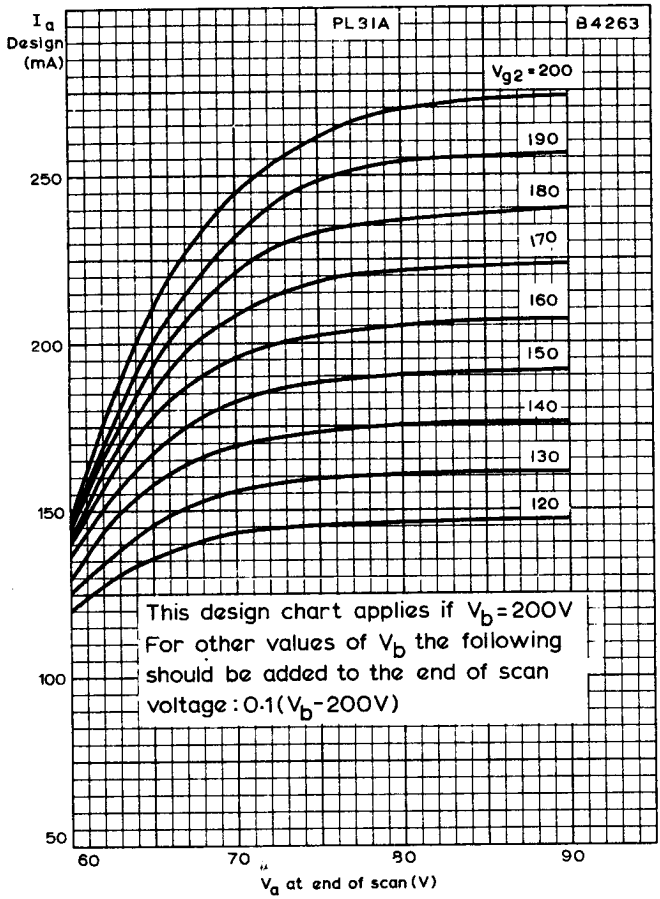
ANODE AND SCREEN CURRENTS PLOTTED AGAINST ANODE VOLTAGE WITH CONTROL-GRID VOLTAGE AS PARAMETER



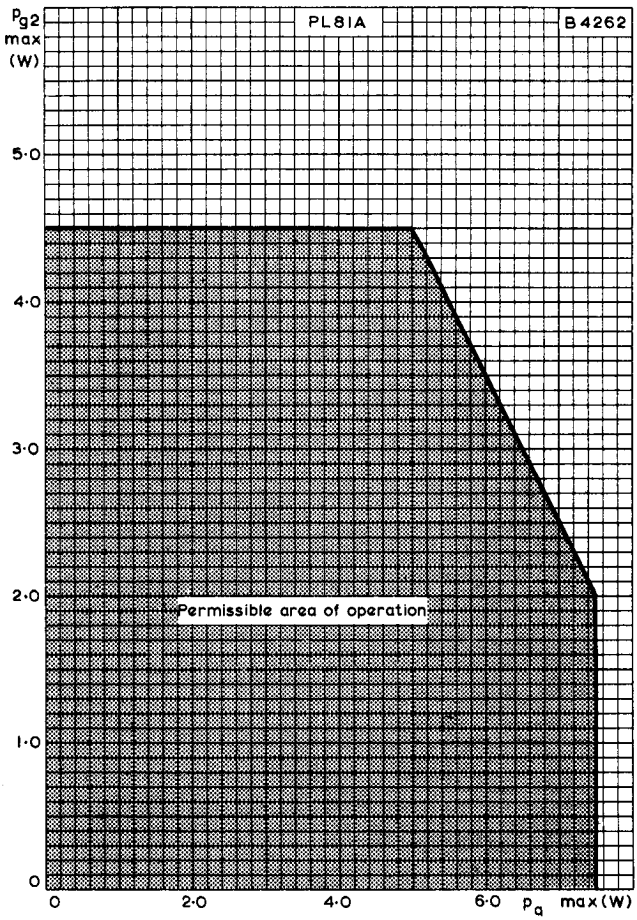
ANODE AND SCREEN CURRENTS PLOTTED AGAINST ANODE VOLTAGE WITH SCREEN-GRID RESISTOR AS PARAMETER



ANODE AND SCREEN CURRENTS PLOTTED AGAINST ANODE VOLTAGE
WITH SCREEN-GRID VOLTAGE AS PARAMETER



DESIGN CHART FOR STABILISED TIMEBASES



DESIGN CENTRE RATINGS FOR p_a max. AND p_{g2} max.