TRIODE-PENTODE

Triode pentode; triode section intended for use as reactance tube, pentode section intended for use as sine wave oscillator or pulse shaper in television receivers.

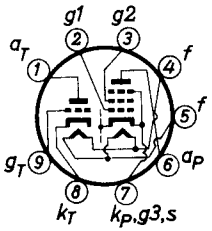
QUICK REFERENCE DATA			
Pentode section			
Anode current	I_a	6	mA
Transconductance	S	5.5	mA/V
Amplification factor	$\mu_{g_2g_1}$	47	-
Internal resistance	R_i	400	kΩ
Triode section			
Anode current	I_a	3.5	mA
Transconductance	S	3.5	mA/V
Amplification factor	μ	70	-

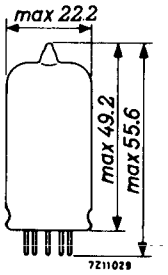
HEATING: Indirect by A.C. or D.C.; series supply

Heater current	I_f	300	mA
Heater voltage	V_f	9	V

DIMENSIONS AND CONNECTIONS Dimensions in mm

Base: Noval





CAPACITANCES

Pentode section

Grid No.1 to all except anode	$C_{g_1(a)}$	5.4	pF
Anode to grid No.1	C_{ag_1}	0.06	pF
Grid No.1 to heater	C_{g_1f}	max. 0.1	pF

Triode section

Grid to all except anode	$C_{g(a)}$	2.4	pF
Anode to grid	C_{ag}	1.5	pF
Grid to heater	C_{gf}	max. 0.1	pF

TYPICAL CHARACTERISTICS

Pentode section

Anode voltage	V_a	100	100	200	100	V
Grid No.2 voltage	V_{g_2}	100	100	200	100	V
Grid No.1 voltage	V_{g_1}	−1	0	max. −16	max. −1.3	V
Anode current	I_a	6	12.5	0.01	−	mA
Grid No.2 current	I_{g_2}	1.7	3.5	−	−	mA
Transconductance	S	5.5	−	−	−	mA/V
Internal resistance	R_i	400	−	−	−	kΩ
Amplification factor	$\mu_{g_2g_1}$	47	−	−	−	−
Grid No.1 current	I_{g_1}	−	−	−	0.3	μA

Triode section

Anode voltage	V_a	200	200	200	V
Grid voltage	V_g	−2	−	max. −1.3	V
Anode current	I_a	3.5	10	−	mA
Transconductance	S	3.5	−	−	mA/V
Internal resistance	R_i	20	−	−	kΩ
Amplification factor	μ	70	−	−	−
Grid current	I_g	−	10	0.3	μA

LIMITING VALUES (Design centre rating system)

Pentode section

Anode voltage	V_{a_o}	max.	550	V
	V_a	max.	250	V
Anode dissipation	W_a	max.	1.2	W
Grid No.2 voltage	V_{g2_o}	max.	550	V [1]
	V_{g2}	max.	250	V
Grid No.2 dissipation	W_{g2}	max.	0.8	W
Grid No.1 voltage	$-V_{g1}$	max.	220	V [1]
Grid resistor, fixed bias	R_{g1}	max.	0.56	MΩ
automatic bias	R_{g1}	max.	1	MΩ
Cathode current, average	I_k	max.	15	mA
peak T_{imp} = max. 30 μs, δ = max. 0.3	I_{kp}	max.	50	mA
Cathode to heater voltage	V_{kf}	max.	100	V [2]
Grid circuit impedance	Z_{g1} (f = 50 Hz)	max.	300	kΩ [2]

Triode section

Anode voltage	V_{a_o}	max.	550	V
	V_a	max.	250	V
Anode dissipation	W_a	max.	1.4	W
Grid resistor, fixed bias	R_g	max.	3	MΩ
Cathode current	I_k	max.	10	mA
Cathode to heater voltage	V_{kf}	max.	100	V [3]
Grid circuit impedance	Z_g (f = 50 Hz)	max.	50	kΩ [3]

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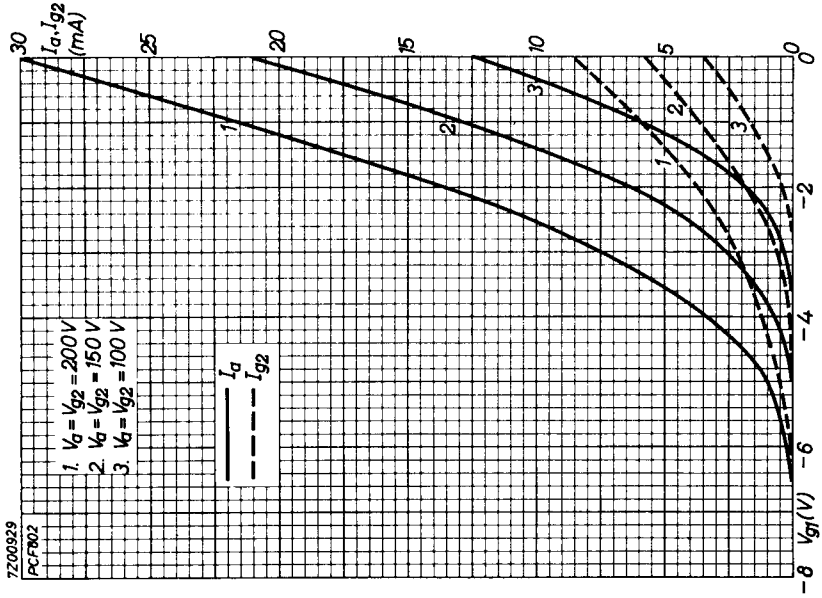
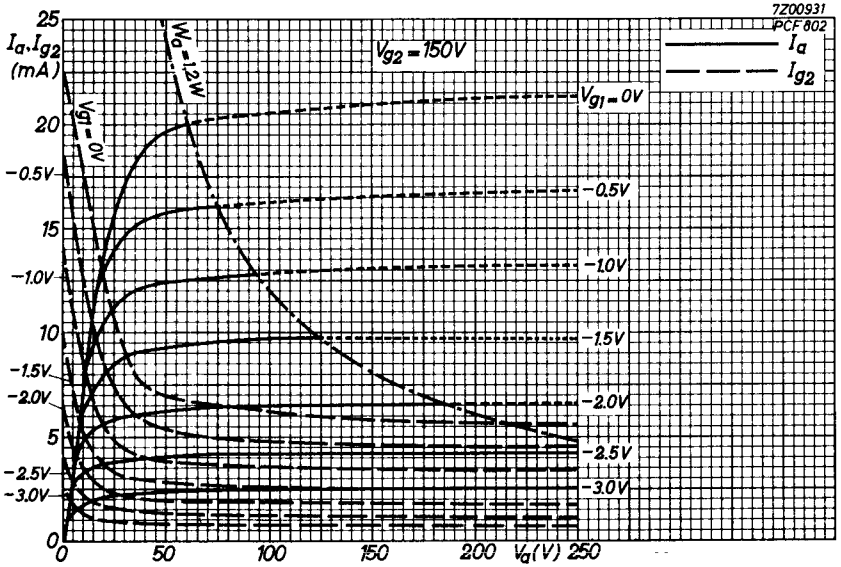
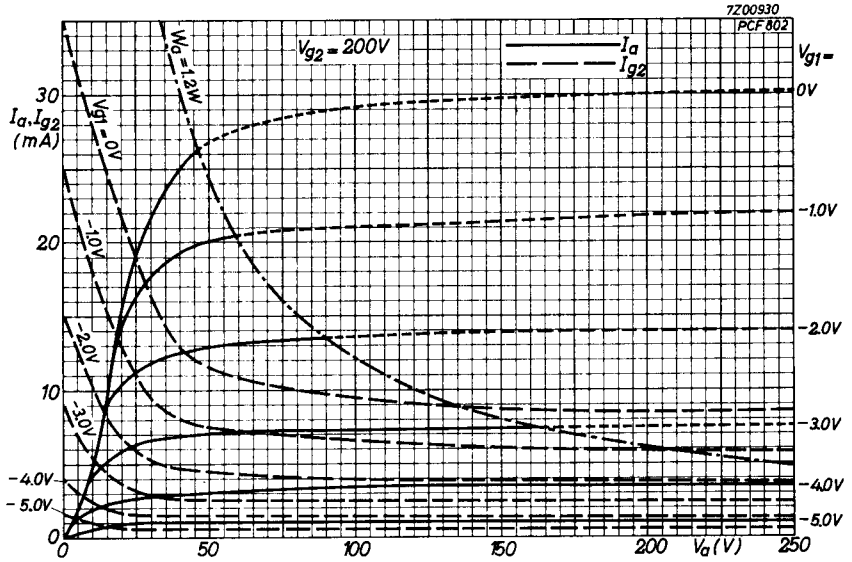
1) The instantaneous voltage between grid No.1 and grid No.2 should never exceed 550 V.

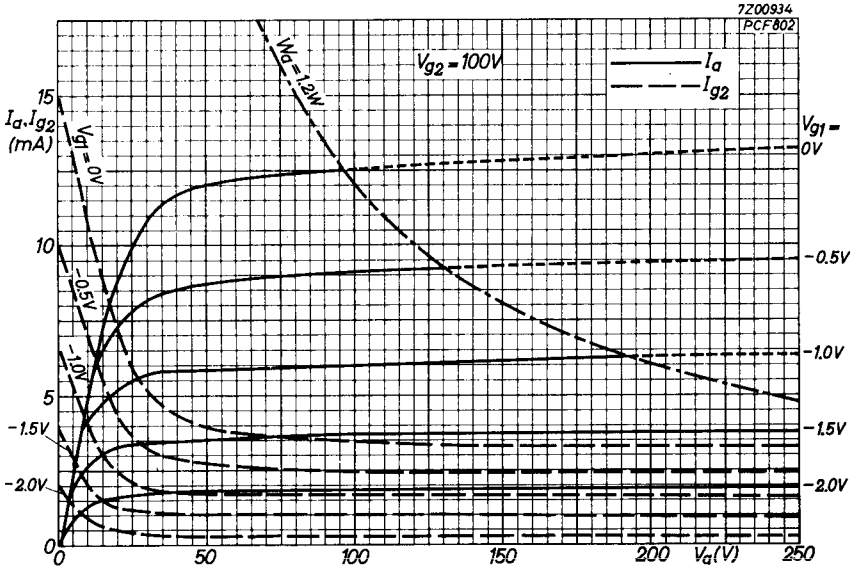
2) To avoid hum interference the A.C. component of V_{kf} should not exceed 65 V at the specified value of Z_{g1}.

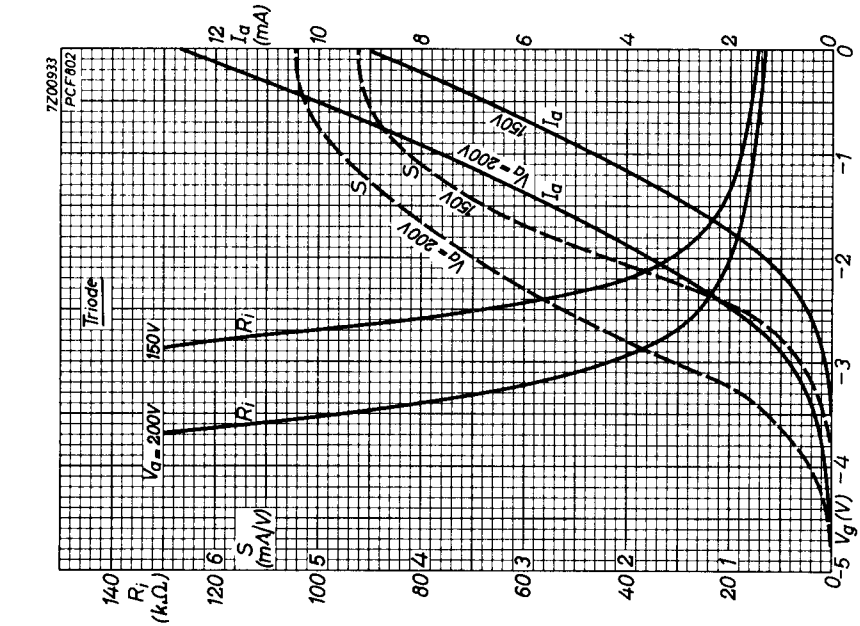
3) To minimise hum interference decoupling of R_k is recommended. In circuits with undecoupled R_k the hum interference between grid and cathode will remain below 1000 μV when the A.C. component of V_{kf} does not exceed 25 V and the R_k is not higher than 1.2 kΩ at the specified value of Z_g.

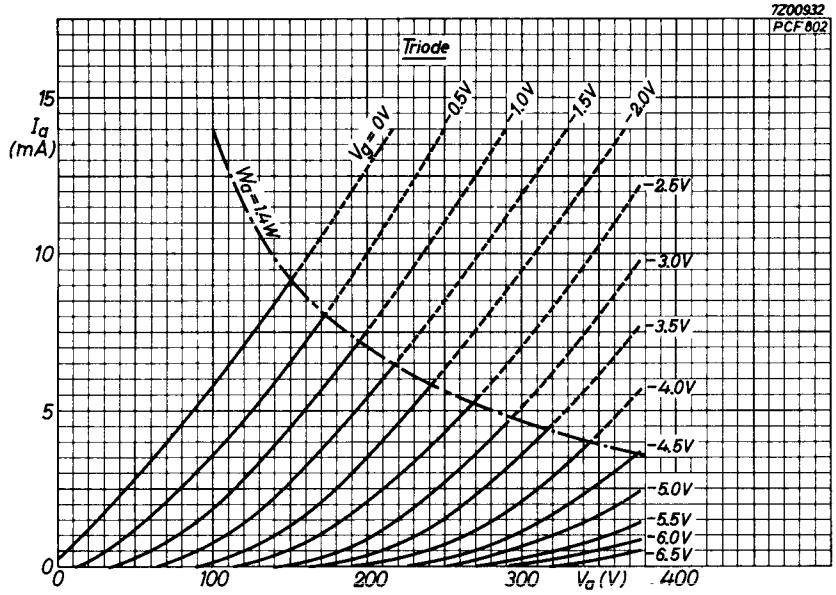

I_a, I_{g2} (mA)
30
25
20
15
10
5
0
1
2
3
1
2
3
-2
-4
-6
-8
V_{g1}(V)
1. $V_a = V_{g2}$ = 200 V
2. $V_a = V_{g2}$ = 150 V
3. $V_a = V_{g2}$ = 100 V
I_a
I_{g2}
7Z00929
PCF802


7Z00931
PCF802
I_a, I_{g2} (mA)
25
20
15
10
5
0
V_{g2} = 150V
W_a = 12W
W_a = 15W
V_{g1} = 0V
-0.5V
-1.0V
-1.5V
-2.0V
-2.5V
-3.0V
I_a
I_{g2}
0
50
100
150
200
V_a(V) 250


7Z00930
PCF802
V_{g2} = 200V
I_a
I_{g2}
V_{g1} =
0V
-1.0V
-2.0V
-3.0V
-4.0V
-5.0V
W_a = 1.2W
V_{g1} = 0V
-1.0V
-2.0V
-3.0V
-4.0V
-5.0V
I_a, I_{g2} (mA)
30
20
10
0
0
50
100
150
200
250
V_a (V)


7Z00934
PCF802
V_{g2} = 100V
I_a
I_{g2}
V_{g1} =
0V
-0.5V
-1.0V
-1.5V
-2.0V
W_a = 1.2W
V_{g1} = 0V
-0.5V
-1.0V
-1.5V
-2.0V
I_a, I_{g2} (mA)
15
10
5
0
0
50
100
150
200
250
V_a (V)


7Z00933
PCF802
Triode
Ia (mA)
S (mA/V)
Ri (kΩ)
Vg (V)
Ia
S
Ri
Va = 150V
Va = 200V


7Z00932
PCF802
Triode
Ia (mA)
Vg (V)
Va = 1.4W
Vg = 0V
-0.5V
-1.0V
-1.5V
-2.0V
-2.5V
-3.0V
-3.5V
-4.0V
-4.5V
-5.0V
-5.5V
-6.0V
-6.5V

PHILIPS

Data handbook

PHILIPS Electronic components and materials

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