

R.F. PENTODE

Pentode with variable transconductance intended for use as R.F. or I.F. amplifier.

QUICK REFERENCE DATA			
Anode current	I_a	9	mA
Transconductance	S	4.0	mA/V
Amplification factor	$\mu_{g_2g_1}$	21	-
Internal resistance	R_i	750	k Ω

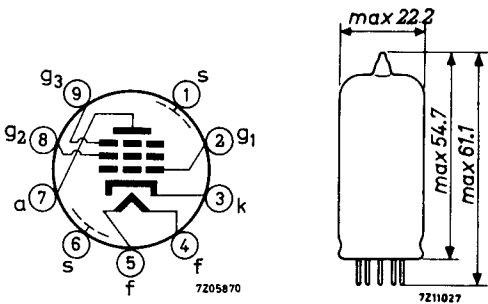
HEATING : Indirect by A. C. or D. C. ; parallel supply

Heater voltage	V_f	6.3	V
Heater current	I_f	200	mA

DIMENSIONS AND CONNECTIONS

Dimensions in mm

Base: Noval



CAPACITANCES

Anode to all except grid No.1	$C_{a(g_1)}$	5.1	pF
Grid No.1 to all except anode	$C_{g_1(a)}$	5.5	pF
Anode to grid No.1	C_{ag_1}	max. 0.002	pF
Grid No.1 to heater	C_{g_1f}	0.05	pF

TYPICAL CHARACTERISTICS

Anode voltage	V_a	250	250	170	V
Grid No.2 voltage	V_{g2}	100	85	100	V
Grid No.3 voltage	V_{g3}	0	0	0	V
Anode current	I_a	9	9	12	mA
Grid No.1 voltage	V_{g1}	-2	-1.2 ¹⁾	-1.2 ¹⁾	V
Grid No.2 current	I_{g2}	3	3.2	4.4	mA
Transconductance	S	3.6	4.0	4.4	mA/V
Internal resistance	R_i	0.9	0.75	0.4	M Ω
Amplification factor	μ_{g2g1}	-	21	-	-

OPERATING CHARACTERISTICS

Anode voltage, supply voltage	$V_a = V_b$	250		200	V
Grid No.3 voltage	V_{g3}	0		0	V
Grid No.2 resistor	R_{g2}	51		24	k Ω
Cathode resistor	R_k	160		130	Ω
Grid No.1 voltage	V_{g1}	-1.95	-20	-1.95	-20 V
Anode current	I_a	9	-	11.1	- mA
Grid No.2 current	I_{g2}	3	-	3.8	- mA
Transconductance	S	3.5	0.24	3.85	0.16 mA/V
Internal resistance	R_i	0.9	-	0.55	- M Ω
Equivalent noise resistance	R_{eq}	4.2	-	4.2	- k Ω
Input conductance ($f = 50$ MHz)	g	95	-	102	- μ A/V

¹⁾ In this case control grid current may occur. If this is not permissible, the negative grid bias should be increased to a value of 1.5 V at least.

OPERATING CHARACTERISTICS (continued)

Anode voltage, supply voltage	$V_a = V_b$	250 ¹⁾	200 ¹⁾	V
Grid No.3 voltage	V_{g3}	0	0	V
Grid No.2 resistor	R_{g2}	62	33	k Ω
Cathode resistor	R_k	0	0	Ω
Grid No.1 resistor	R_{g1}	10	10	M Ω
Control voltage	$V_{R(g1)}$	0 -20	0 -20	V
Anode current	I_a	9 -	11.25 -	mA
Grid No.2 current	I_{g2}	2.9 -	3.9 -	mA
Transconductance	S	4.7 0.22	5.15 0.15	mA/V
Internal resistance	R_i	825 -	550 -	k Ω
Equivalent noise resistance	R_{eq}	2.4 -	2.5 -	k Ω

LIMITING VALUES (Design centre rating system)

Anode voltage	V_{a0}	max. 550	V
	V_a	max. 300	V
Anode dissipation	W_a	max. 2.25	W
Grid No.2 voltage	V_{g20}	max. 550	V
	V_{g2}	max. 300	V
Grid No.2 dissipation	W_{g2}	max. 0.45	W
Cathode current	I_k	max. 16.5	mA
Grid No.1 resistor	R_{g1}	max. 3	M Ω
Grid No.3 resistor	R_{g3}	max. 10	k Ω
Cathode to heater voltage	V_{kf}	max. 100	V

¹⁾ In this case control grid current may occur. If this is not permissible, the negative grid bias should be increased to a value of 1.5 V at least.

PHILIPS

Data handbook



**Electronic
components
and materials**

EF89

page	sheet	date
1	1	1969.12
2	2	1969.01
3	3	1969.01
4	FP	1999.08.16