R.F. PENTODE

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

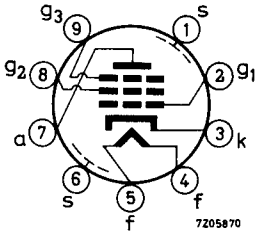
QUICK REFERENCE DATA			
Anode current	I_a	9	mA
Transconductance	S	4.0	mA/V
Amplification factor	$\mu_{g_2g_1}$	21	-
Internal resistance	R_i	750	kΩ

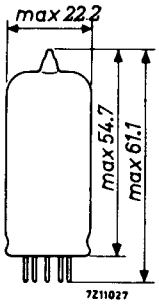
HEATING: Indirect by A.C. or D.C.; parallel supply

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_{g_2}	100	85	100	V
Grid No.3 voltage	V_{g_3}	0	0	0	V
Anode current	I_a	9	9	12	mA
Grid No.1 voltage	V_{g_1}	-2	-1.2 [1])	-1.2 [1])	V
Grid No.2 current	I_{g_2}	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	MΩ
Amplification factor	$\mu_{g_2g_1}$	-	21	-	-

OPERATING CHARACTERISTICS

Anode voltage, supply voltage	$V_a = V_b$	250		200		V
Grid No.3 voltage	V_{g_3}	0		0		V
Grid No.2 resistor	R_{g_2}	51		24		kΩ
Cathode resistor	R_k	160		130		Ω
Grid No.1 voltage	V_{g_1}	-1.95	-20	-1.95	-20	V
Anode current	I_a	9	-	11.1	-	mA
Grid No.2 current	I_{g_2}	3	-	3.8	-	mA
Transconductance	S	3.5	0.24	3.85	0.16	mA/V
Internal resistance	R_i	0.9	-	0.55	-	MΩ
Equivalent noise resistance	R_{eq}	4.2	-	4.2	-	kΩ
Input conductance (f = 50 MHz)	g	95	-	102	-	μA/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_{g_3}	0		0		V
Grid No.2 resistor	R_{g_2}	62		33		kΩ
Cathode resistor	R_k	0		0		Ω
Grid No.1 resistor	R_{g_1}	10		10		MΩ
Control voltage	$V_{R(g_1)}$	0	-20	0	-20	V
Anode current	I_a	9	-	11.25	-	mA
Grid No.2 current	I_{g_2}	2.9	-	3.9	-	mA
Transconductance	S	4.7	0.22	5.15	0.15	mA/V
Internal resistance	R_i	825	-	550	-	kΩ
Equivalent noise resistance	R_{eq}	2.4	-	2.5	-	kΩ

LIMITING VALUES (Design centre rating system)

Anode voltage	V_{a_o}	max.	550	V
	V_a	max.	300	V
Anode dissipation	W_a	max.	2.25	W
Grid No.2 voltage	V_{g2_o}	max.	550	V
	V_{g_2}	max.	300	V
Grid No.2 dissipation	W_{g_2}	max.	0.45	W
Cathode current	I_k	max.	16.5	mA
Grid No.1 resistor	R_{g_1}	max.	3	MΩ
Grid No.3 resistor	R_{g_3}	max.	10	kΩ
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