

TRIODE-PENTODE

High transconductance triode and R.F. pentode intended for use as frequency changer in V.H.F. T.V. tuners.

QUICK REFERENCE DATA

Pentode section

Anode current	I_a	10 mA
Transconductance	S	11 mA/V
Amplification factor	$\mu_{g_2g_1}$	55 -
Internal resistance	R_i	min. 350 k Ω

Triode section

Anode current	I_a	15 mA
Transconductance	S	9 mA/V
Amplification factor	μ	20 -

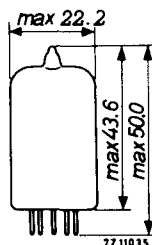
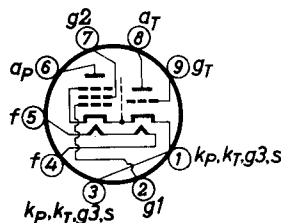
HEATING: Indirect by A.C. or D.C.; series supply

Heater current	I_f	0.3 A
Heater voltage	V_f	8.5 V

DIMENSIONS AND CONNECTIONS

Dimensions in mm

Base: Noval



CAPACITANCES (with external shield)Pentode section

Grid No.1 to all except anode	$C_{g1(a)}$	5.9	pF
Anode to all except grid No.1	$C_{a(g1)}$	3.7	pF
Anode to grid No.1	C_{ag1}	0.009	pF
	C_{ag1}	max. 0.012	pF
Grid No.1 to grid No.2	C_{g1g2}	1.6	pF

Triode section

Grid to all except anode	$C_{g(a)}$	3.3	pF
Anode to all except grid	$C_{a(g)}$	1.7	pF
Anode to grid	C_{ag}	1.8	pF

Between pentode and triode sections

Pentode anode to triode anode	C_{aPaT}	max. 0.025	pF
Pentode anode to triode grid	C_{aPgT}	max. 0.010	pF
Pentode grid No.1 to triode anode	C_{g1PaT}	max. 0.010	pF
Pentode grid No.1 to triode grid	C_{g1PgT}	max. 0.010	pF

TYPICAL CHARACTERISTICSPentode section

Anode voltage	V_a	170	V
Grid No.2 voltage	V_{g2}	120	V
Grid No.1 voltage	V_{g1}	-1.4	V
Anode current	I_a	10	mA
Grid No.2 current	I_{g2}	3	mA
Transconductance	S	11	mA/V
Internal resistance	R_i	min. 350	k Ω
Amplification factor	μ_{g2g1}	55	
Equivalent noise resistance	R_{eq}	1.5	k Ω

TYPICAL CHARACTERISTICS (continued)Triode section

Anode voltage	V_a	100	V
Grid voltage	V_g	-3	V
Anode current	I_a	15	mA
Transconductance	S	9	mA/V
Amplification factor	μ	20	-

OPERATING CHARACTERISTICSPentode section as I. F. amplifier

Anode supply voltage	V_{ba}	200	V
Grid No.2 supply voltage	V_{bg2}	200	V
Grid No.2 resistor	R_{g2}	27	k Ω
Anode resistor	R_a	2.7	4.7 k Ω
Grid No.1 supply voltage	V_{bg1}	-1.4	0 V
Grid No.1 resistor	R_{g1}	0.1	1 M Ω
Anode current	I_a	10	13 mA
Grid No.2 current	I_{g2}	3.0	3.9 mA
Transconductance	S	11	14.5 mA/V
Input resistance at 50 MHz	r_{g1}	10	10 k Ω
Grid No.1 voltage	V_{g1}	-12	- V -
Transconductance	S	0.11	- mA/V

OPERATING CHARACTERISTICS (continued)

Pentode section as mixer

Anode supply voltage	V_{ba}	200	V
Grid No.2 supply voltage	V_{bg2}	200	V
Grid No.2 resistor	R_{g2}	27	k Ω
Anode resistor	R_a	2.7 4.7	k Ω
Grid No.1 supply voltage	V_{bg1}	-1.4 0	V
Grid No.1 resistor	R_{g1}	0.1 1	M Ω
Oscillator voltage	V_{osc}	1.6 1.6	V _(RMS)
Anode current	I_a	10 9.3	mA
Grid No.2 current	I_{g2}	3.0 2.9	mA
Grid No.1 current	I_{g1}	8 2.3	μ A
Conversion conductance	S_c	5 4.7	mA/V

OPERATING CHARACTERISTICS

Triode section as oscillator

Anode supply voltage	V_{ba}	200	V
Grid resistor	R_g	10	k Ω
Anode resistor	R_a	8.2 12	k Ω
Oscillator voltage	V_{osc}	4.5 3.3	V _(RMS)
Anode current	I_a	16 12	mA
Effective transconductance (without higher harmonics)	S_{eff}	3.7 3.7	mA/V

LIMITING VALUES (Design centre rating system)

Pentode section

Anode voltage	V_{a_0}	max.	550	V
	V_a	max.	250	V
Anode dissipation	W_a	max.	2.0	W
Grid No.2 voltage	$V_{g_{2o}}$	max.	550	V
Grid No.2 supply voltage	V_{bg_2}	max.	250	V
Grid No.2 voltage	V_{g_2}	max.	250	V
Grid No.2 dissipation	See page 10			
Grid No.1 voltage	$-V_{g_1}$	max.	50	V
Grid No.1 resistor, fixed bias automatic bias	R_{g_1}	max.	1	MΩ
	R_{g_1}	max.	2.2	MΩ
Cathode current	I_k	max.	18	mA
Cathode to heater voltage	V_{kf}	max.	100	V ¹⁾

Triode section

Anode voltage	V_{a_0}	max.	550	V
Anode supply voltage	V_{b_a}	max.	250	V
Anode voltage	V_a	max.	125	V
Anode dissipation	W_a	max.	1.5	W
Grid voltage	$-V_g$	max.	50	V
Grid resistor	R_g	max.	0.5	MΩ
Cathode current	I_k	max.	20	mA
Cathode to heater voltage	V_{k_f}	max.	100	V ¹⁾

1) To fulfil the modulation hum requirements in intercarrier receivers, the voltage between heater and cathode should not exceed 100 V_(RMS). With respect to modulation hum in A.M. sound receivers the voltage between heater and cathode should not exceed 50 V_(RMS).

