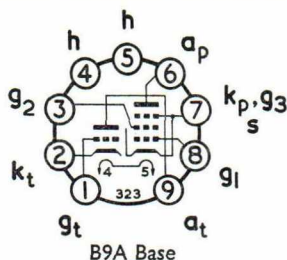


TRIODE PENTODE



GENERAL

This high- μ triode and output pentode is for use in the audio amplifier stage of television receivers.

Heater Current
Heater Voltage

I_h 0.3 A
 V_h 13.6 V

RATINGS

	Triode	Pentode	
Maximum Anode Dissipation	$P_a(\text{max})$ 0.5	9.0	W
Maximum Screen Grid Dissipation	$P_{g2}(\text{max})$ —	1.8	W
For speech and music	—	3.0	W
Maximum Anode Supply Voltage ($I_a = 0$)	$V_{a(b)\text{max}}$ 550	550	V
Maximum Anode Voltage	$V_{a(\text{max})}$ 250	250	V
Maximum Screen Grid Supply Voltage ($I_{g2} = 0$)	$V_{g2(b)\text{max}}$ —	550	V
Maximum Screen Grid Voltage	$V_{g2(\text{max})}$ —	250	V
Maximum Heater to Cathode Voltage	$V_{h-k(\text{max})}$ 100	100	V
Maximum Cathode Current	$I_{k(\text{max})}$ 4.0	55	mA
Maximum Grid 1 to Cathode Resistance	$R_{g1-k(\text{max})}$ —	—	M Ω
Fixed Bias	1.0	1.0	M Ω
Self Bias	2.0	—	M Ω
Grid Current Bias	22	—	M Ω
Maximum Heater to Cathode Resistance	$R_{h-k(\text{max})}$ 20*	20	k Ω

* When used as a phase inverter immediately preceding the output stage $R_{h-k(\text{max})}$ may be 120k Ω .

INTER-ELECTRODE CAPACITANCES†

Pentode Input	$C_{in(p)}$	10	pF
Grid 1 to Anode Pentode	C_{g1-ap}	<0.4	pF
Grid 1 to Heater	C_{g1-h}	<0.24	pF
Triode Input	$C_{in(t)}$	2.3	pF
Triode Output	$C_{out(t)}$	2.5	pF
Grid Triode to Anode Triode	C_{gt-at}	1.4	pF
Grid Triode to Heater	C_{gt-h}	<0.006	pF
Grid Triode to Grid 1	C_{gt-g1}	<0.02	pF
Grid Triode to Anode Pentode	C_{gt-ap}	<0.006	pF
Anode Triode to Anode Pentode	C_{at-ap}	<0.15	pF
Anode Triode to Grid 1	C_{at-g1}	<0.2	pF

† In fully shielded socket without can (I.E.C. Publication 100).

CHARACTERISTICS

	Triode	Pentode	
Anode Voltage	V_a 230	230	V
Screen Grid Voltage	V_{g2} —	230	V
Control Grid Voltage	V_{g1} -1.7	-5.7	V
Anode Current	I_a 1.2	39	mA
Screen Grid Current	I_{g2} —	6.5	mA
Mutual Conductance	g_m 1.6	10.5	mA/V
Valve Anode Resistance ($\delta V_a / \delta I_a$)	r_a 62	45	k Ω
Amplification Factor	μ 100	—	
Inner Amplification Factor	μ_{g1-g2} —	21	

TYPICAL OPERATION

Pentode as Class A Audio Output Stage

Anode Voltage	V_a	200	230	V
Screen Grid Voltage	V_{g2}	200	230	V
Cathode Resistor	R_k	115	125	Ω
Quiescent Anode Current	$I_{a(o)}$	35	39	mA
Quiescent Screen Grid Current	$I_{g2(o)}$	6.0	6.5	mA
Anode Load Resistor	R_a	5.6	5.1	k Ω
Input Voltage (R.M.S.)	$V_{in(r.m.s.)}$	3.2	3.6	V
Input Voltage (R.M.S.) for 50mW output		0.29	0.3	V
Power Output	P_{out}	3.1	4.1	W
Total Distortion	D_{tot}	10	10	%

Triode as Resistance Coupled A.F. Amplifier

Grid Current Bias ($R_g = 10M\Omega$)

Supply Voltage	V_b	170	170	170	230	230	230	V
Anode Load Resistance	R_a	47	100	220	47	100	220	k Ω
Grid Resistance of Following Valve		150	330	680	150	330	680	k Ω
Anode Current	I_a	0.82	0.58	0.37	1.37	0.9	0.57	mA

Signal Source Impedance, $Z_s = 0\Omega$

Voltage Amplification for $V_{in(r.m.s.)} = 100mV$	36	53	67	40	57	72	
R.M.S. Output Voltage for 5% total distortion	9	13	15	15	22	26	V

Signal Source Impedance, $Z_s = 220k\Omega$

Voltage Amplification for $V_{in(r.m.s.)} = 100mV$	29	42	52	32	45	55	
R.M.S. Output Voltage for 5% total distortion*	11	16	21	18	26	33	V

* When operating this valve with grid current bias and a high source impedance, the second harmonic distortion rises to a peak at quite low levels of output (about 10V r.m.s.) and then falls with increasing drive. The third harmonic then begins to rise, and D_{tot} finally reaches 5% at a much higher output level than with zero source impedance. The maximum value of this distortion peak varies inversely with the anode load, being about 5.5% with $R_a = 47k\Omega$, 4.5% with $R_a = 100k\Omega$ and 4% with $R_a = 220k\Omega$.

Note: Microphony. This valve may be used without special precautions against microphony in equipment where the input voltage is not less than 10mV for an output of 50 mW.

MOUNTING POSITION—Unrestricted.

