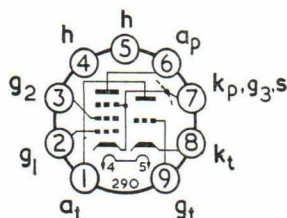


TRIODE PENTODE V.H.F. FREQUENCY CHANGER



B9A Base

GENERAL

This triode pentode is intended for use as a frequency changer in television receivers.

Heater Current	I_h	0.3	A
Heater Voltage	V_h	9.5	V (nominal)

RATINGS

		Pentode	Triode	
Maximum Anode Dissipation	$P_a(\max)$	2.8	2.7	W
Maximum Screen Grid Dissipation	$P_{g2}(\max)$	0.5	—	W
Maximum Anode Supply Voltage	$V_{a(b)\max}$	550	550	V
Maximum Anode Voltage	$V_a(\max)$	300	300	V
Maximum Screen Grid Voltage	$V_{g2}(\max)$	300	—	V
Maximum Positive D.C. Control Grid Voltage	$V_{g1}(\max)$	0	0	V
Maximum Cathode Current	$I_k(\max)$	20	20	mA
Maximum Grid Resistance	$R_g(\max)$	1.0	1.0	MΩ
Maximum Heater to Cathode Voltage	$V_{h-k(\max)}$			
Heater Negative		220		V
Heater Positive		90		V

INTER-ELECTRODE CAPACITANCES—With External Shield

Grid 1 to Anode Pentode	C_{g1-ap}	0.006	pF
Pentode Input	$C_{in(p)}$	5.0	pF
Pentode Output	$C_{out(p)}$	3.5	pF
Triode Grid to Triode Anode	C_{gt-at}	1.8	pF
Triode Grid to Cathode	C_{gt-k}	2.5	pF
Triode Anode to Cathode	C_{at-k}	1.0	pF
Cathode to Heater (each section) approximately	C_{k-h}	3.0	pF

CHARACTERISTICS

		Pentode	Triode	
Anode Voltage	V_a	250	150	V
Screen Grid Voltage	V_{g2}	110	—	V
Anode Current	I_a	10	18	mA
Screen Grid Current	I_{g2}	3.5	—	mA
Cathode Bias Resistance	R_k	68	56	Ω
Mutual Conductance	g_m	5.2	8.5	mA/V
Valve Anode Resistance ($\delta V_a / \delta I_a$) approximately	r_a	400	5.0	kΩ
Amplification Factor	μ	—	40	
Control Grid Voltage for $I_a = 10 \mu A$	$V_{g1(I_a=10\mu A)}$	-10	-12	V

TYPICAL OPERATION—As a Mixer

		Pentode	Triode	
Anode Voltage	V_a	170	100	V
Screen Grid Voltage	V_{g2}	110	170	V
Anode Current	I_a	5.5	6.6	mA
Screen Grid Current	I_{g2}	2.0	2.5	mA
Cathode Bias Resistance	R_k	0	680	Ω
Grid Leak Resistor	R_g	270	100	kΩ
Peak Heterodyne Voltage	$V_{het(pk)}$	3.0	5.0	V
Conversion Conductance	g_c	1.6	1.65	mA/V

