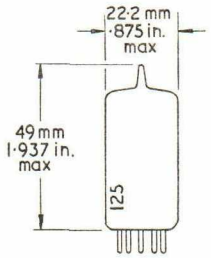
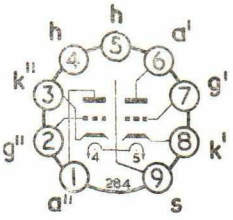


DOUBLE TRIODE



B9A Base

GENERAL

This valve is a double triode primarily intended for use as an R.F. amplifier and self-oscillating mixer in F.M. receivers.

Heater Voltage	V_h	6·3 V
Heater Current	I_h	0·435 A

RATINGS

Maximum Anode Dissipation (either section)	$P_{a(max)}$	2·5	W
Maximum Total Anode Dissipation	$P_{a(tot)max}$	4·5	W
Maximum Anode Voltage	$V_{a(max)}$	300	V
Maximum Heater to Cathode Voltage (D.C.)	$V_{h\text{-}k(max)}$	90	V
Maximum Cathode Current	$I_{k(max)}$	15	mA
Maximum Grid to Cathode Resistance	$R_{g\text{-}k(max)}$	1	MΩ

INTER-ELECTRODE CAPACITANCES

		*	‡	§	
Grid′ to Cathode′, Heater, Shield	$c_{g'\text{-}k',h,s}$	2·8	3·1	4·0	pF
Grid″ to Cathode″, Heater, Shield	$c_{g''\text{-}k'',h,s}$	2·8	3·2	4·0	pF
Anode′ to Cathode′, Heater, Shield	$c_{a'\text{-}k',h,s}$	1·2	1·6	2·5	pF
Anode′ to Cathode′, Heater, Shield†	$c_{a'\text{-}k',h,s}$	1·8	1·9	2·7	pF
Anode″ to Cathode″, Heater, Shield	$c_{a''\text{-}k'',h,s}$	1·15	1·6	2·4	pF
Anode″ to Cathode″, Heater, Shield †	$c_{a''\text{-}k'',h,s}$	1·8	2·0	2·7	pF
Anode′ to Grid′	$c_{a'\text{-}g'}$	1·5	1·6	1·8	pF
Anode″ to Grid″	$c_{a''\text{-}g''}$	1·5	1·6	1·6	pF
Anode′ to Anode″	$c_{a'\text{-}a''}$	0·028	0·032	0·033	pF
Anode′ to Anode″†	$c_{a'\text{-}a''}$	0·003	0·0067	0·0081	pF
Anode″ to Cathode′	$c_{a''\text{-}k'}$	0·006	0·014	0·02	pF

† Measured with can.

* In fully shielded socket. Without can, except where stated otherwise.

‡ With holder capacitance balanced out (holder as below).

§ Total capacitance including, where applicable, Plessey B9A ceramic type holders CP180900/1 (without can) or CP180024/3 (with can).

THORN — AEI RADIO VALVES & TUBES LTD.

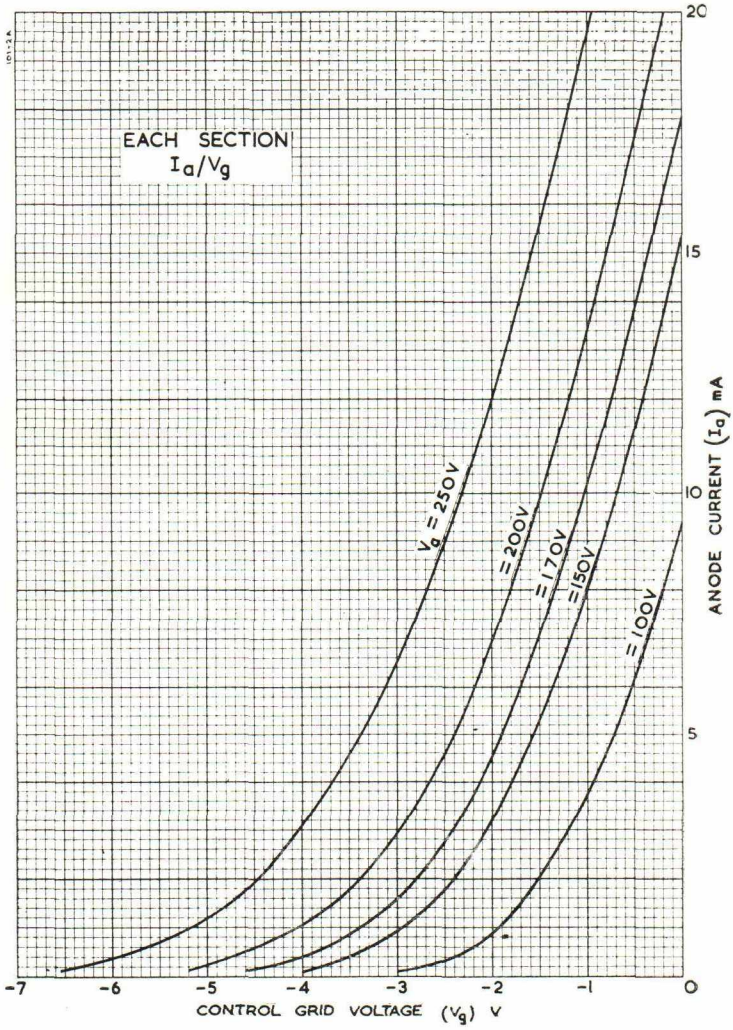
TYPICAL OPERATION AS R.F. AMPLIFIER

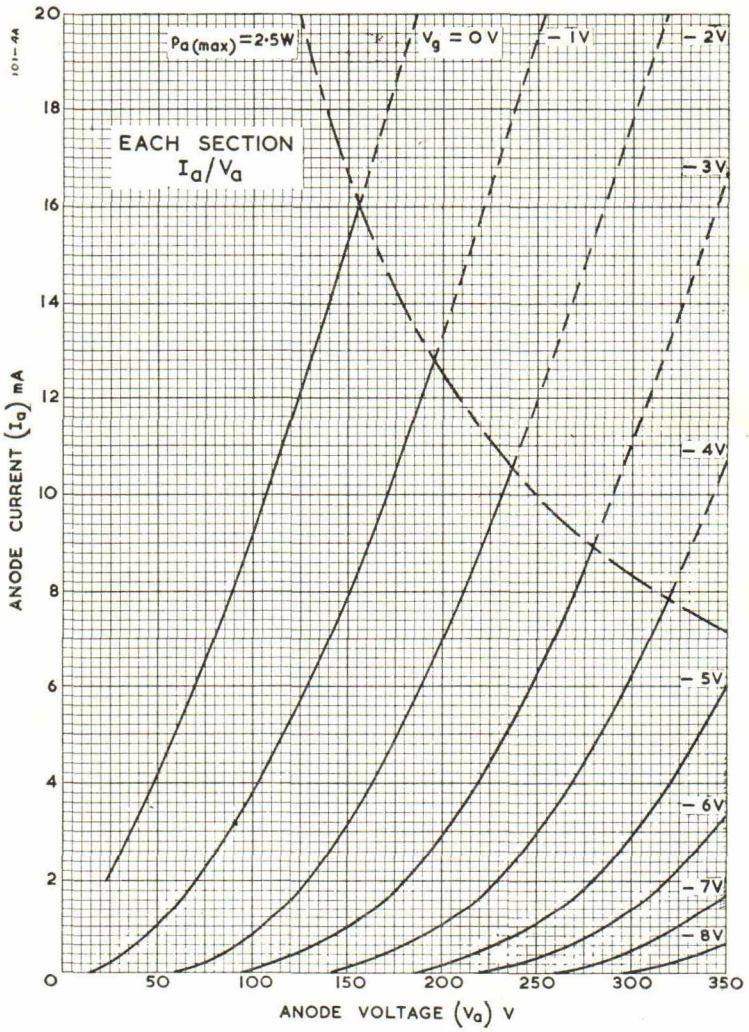
Supply Voltage	V_b	250	V
Anode Voltage	V_a	230	V
Anode Current	I_a	10	mA
Anode Load Resistance	R_a	1·8	kΩ
Grid Bias Voltage	V_g	—2	V
Mutual Conductance	g_m	6	mA/V
Valve Anode Resistance ($\delta v_a/\delta i_a$)	r_a	9·7	kΩ
Amplification Factor	μ	58	
Input Loss at 100 Mc/s		6	kΩ
Equivalent Grid Noise Resistance	R_{eq}	500	Ω

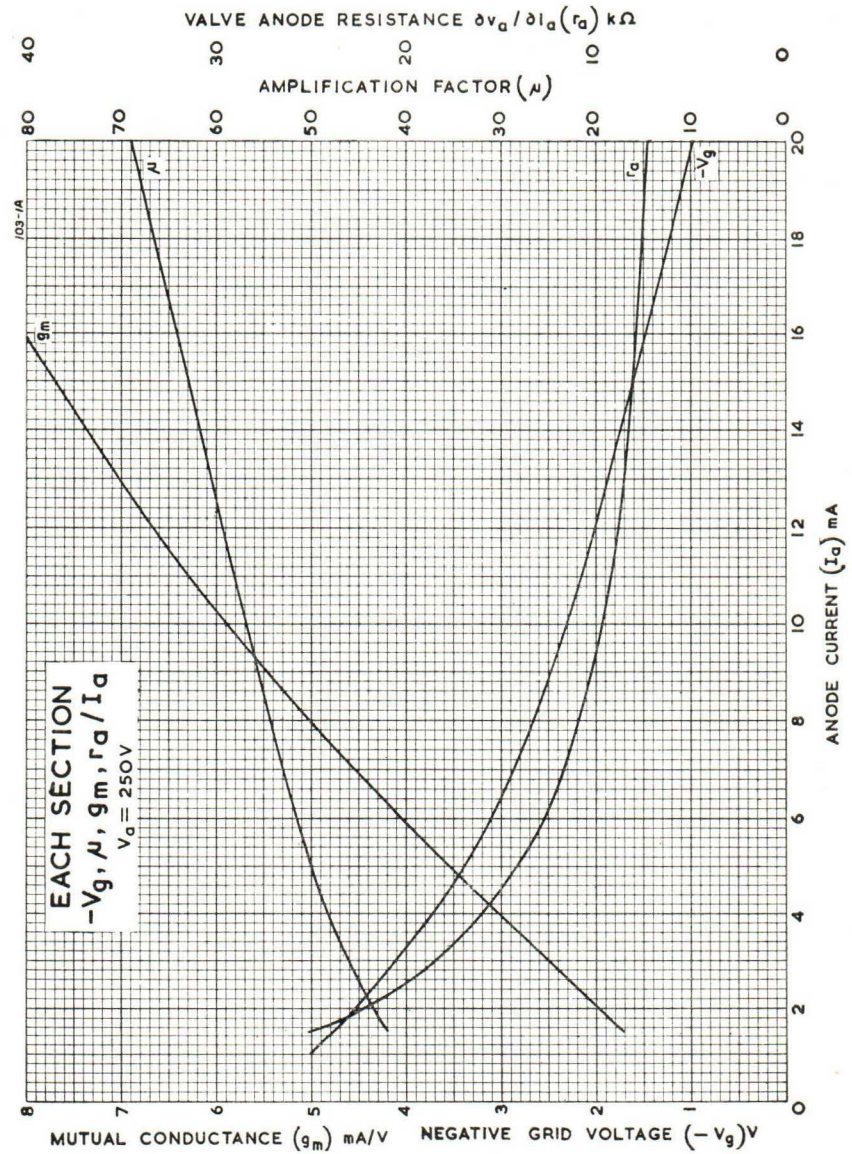
TYPICAL OPERATION AS SELF-OSCILLATING MIXER

Supply Voltage	V_b	250	V
Anode Load Resistance	R_a	12	kΩ
Grid to Cathode Resistance	$R_{g\text{-}k}$	1	MΩ
Anode Current	I_a	5·2	mA
Peak Heterodyne Voltage	$v_{(pk)het}$	3·3	V
Conversion Conductance	g_c	2·3	mA/V
Valve Anode Resistance ($\delta v_a/\delta i_a$)	r_a	22	kΩ

MOUNTING POSITION—Unrestricted.


EACH SECTION
Ia/Vg
Vg = 250V
=200V
=170V
=150V
=100V
ANODE CURRENT (Ia) mA
20
15
10
5
0
-7
-6
-5
-4
-3
-2
-1
CONTROL GRID VOLTAGE (Vg) V


101-44
Pa(max)=2·5W
Vg = 0 V
− 1V
− 2V
− 3V
− 4V
− 5V
− 6V
− 7V
− 8V
EACH SECTION
Ia/Va
ANODE CURRENT (Ia) mA
ANODE VOLTAGE (Va) V
0
2
4
6
8
10
12
14
16
18
20
50
100
150
200
250
300
350


VALVE ANODE RESISTANCE ∂v_a / ∂i_a (r_a) kΩ
40
30
20
10
0
AMPLIFICATION FACTOR (μ)
80
70
60
50
40
30
20
10
0
μ
r_a
-V_g
g_m
103-1A
EACH SECTION
-V_g, μ, g_m, r_a / I_a
V_a = 250V
20
18
16
14
12
10
8
6
4
2
0
ANODE CURRENT (I_a) mA
8
7
6
5
4
3
2
1
0
MUTUAL CONDUCTANCE (g_m) mA/V
NEGATIVE GRID VOLTAGE (-V_g) V