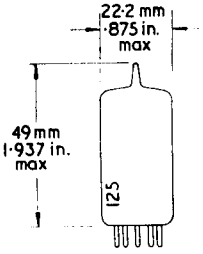
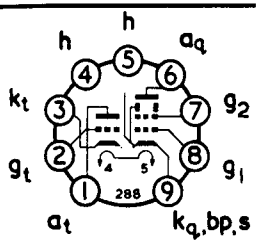


TRIODE BEAM TETRODE



B9A Base

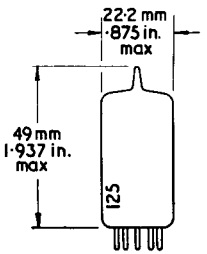
GENERAL

This valve is identical to the PCF812/30FL2 except for the heater rating.

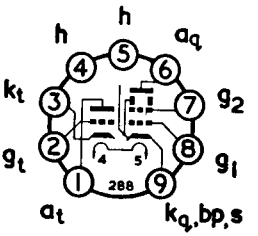
Heater Voltage	V_h	6.3	V
Heater Current	I_h	0.5	A

For all other data and curves please see PCF812/30FL2.

THORN RADIO VALVES AND TUBES LTD.



TRIODE BEAM TETRODE



B9A Base

GENERAL

This triode beam tetrode valve with separate cathodes is an improved 30FLI/PCE800 in which the construction and processing of the beam tetrode and triode have been optimised for use respectively as a sync. separator and line scan oscillator in TV receivers. The triode section has identical characteristics to the 6/30L2/ECC804.

Heater Current	I_h	0·3	A
Heater Voltage	V_h	10·4	V

RATINGS

		Triode	Tetrode	
Maximum Anode Dissipation	$P_{a(max)}$	2·0	3·0	W
Maximum Screen Grid Dissipation	$P_{g2(max)}$	—	1·0	W
Maximum Anode Voltage	$V_{a(max)}$	250	250	V
Maximum Screen Grid Voltage	$V_{g2(max)}$	—	250	V
Maximum Heater to Cathode Voltage (R.M.S.)	$V_{h\text{-}k(r.m.s.)max}$	150*	150*	V

* Measured with respect to the higher potential heater pin.

INTER-ELECTRODE CAPACITANCES

		†	§	‡	
Grid 1 to Earth	$C_{g1\text{-}E}$	7·8	8·0	9·1	pF
Anode Tetrode to Earth	$C_{aq\text{-}E}$	2·4	2·7	3·8	pF
Grid 1 to Anode Tetrode	$C_{g1\text{-}aq}$	0·033	0·047	0·075	pF
Grid Triode to Earth	$C_{gt\text{-}E}$	2·2	2·45	3·25	pF
Anode Triode to Earth	$C_{at\text{-}E}$	2·1	2·3	3·0	pF
Grid Triode to Anode Triode	$C_{gt\text{-}at}$	2·3	2·4	2·7	pF
Grid 1 to Anode Triode	$C_{g1\text{-}at}$	0·0065	0·016	0·03	pF
Grid Triode to Anode Tetrode	$C_{gt\text{-}aq}$	0·0073	0·012	0·015	pF
Anode Tetrode to Anode Triode	$C_{aq\text{-}at}$	0·035	0·043	0·046	pF
Grid 1 to Grid Triode	$C_{g1\text{-}gt}$	0·002	0·0055	0·0094	pF

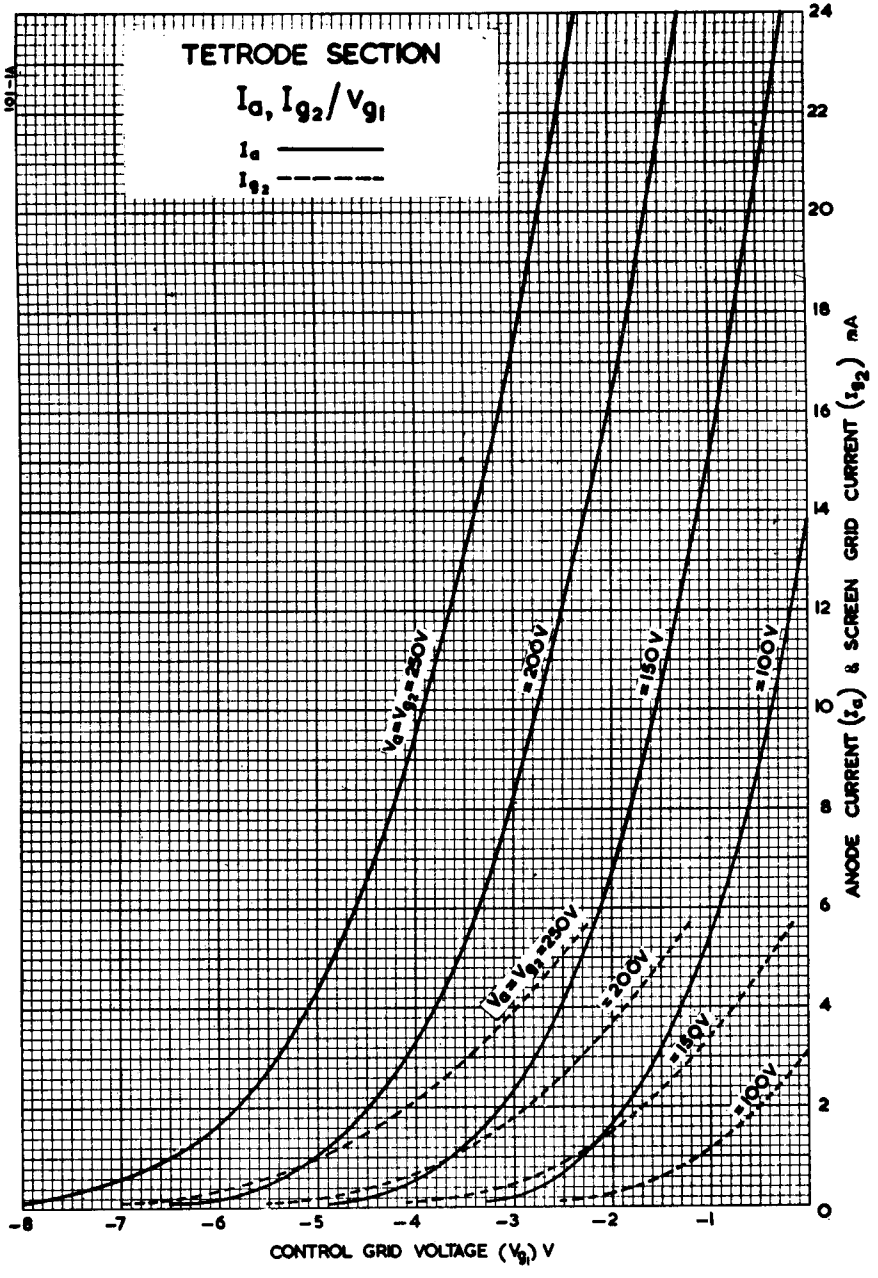
† In fully shielded socket without can.
§ With holder capacitance balanced out.
‡ Total capacity including B9A nylon phenolic holder without skirt or radial shield.
"Earth" denotes the electrodes of any second valve section and the remaining earthy potential electrodes of the section under measurement, heater and shields joined to cathode.

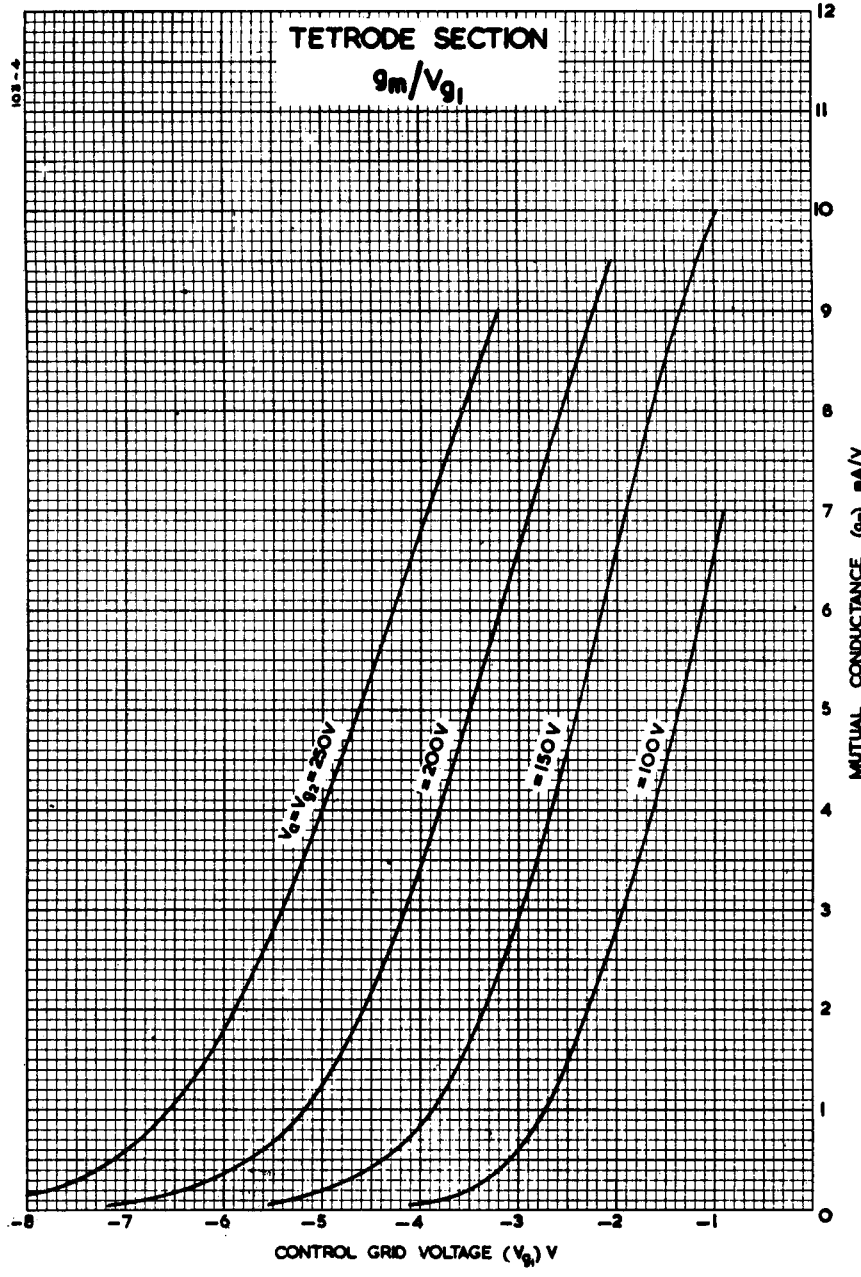
CHARACTERISTICS

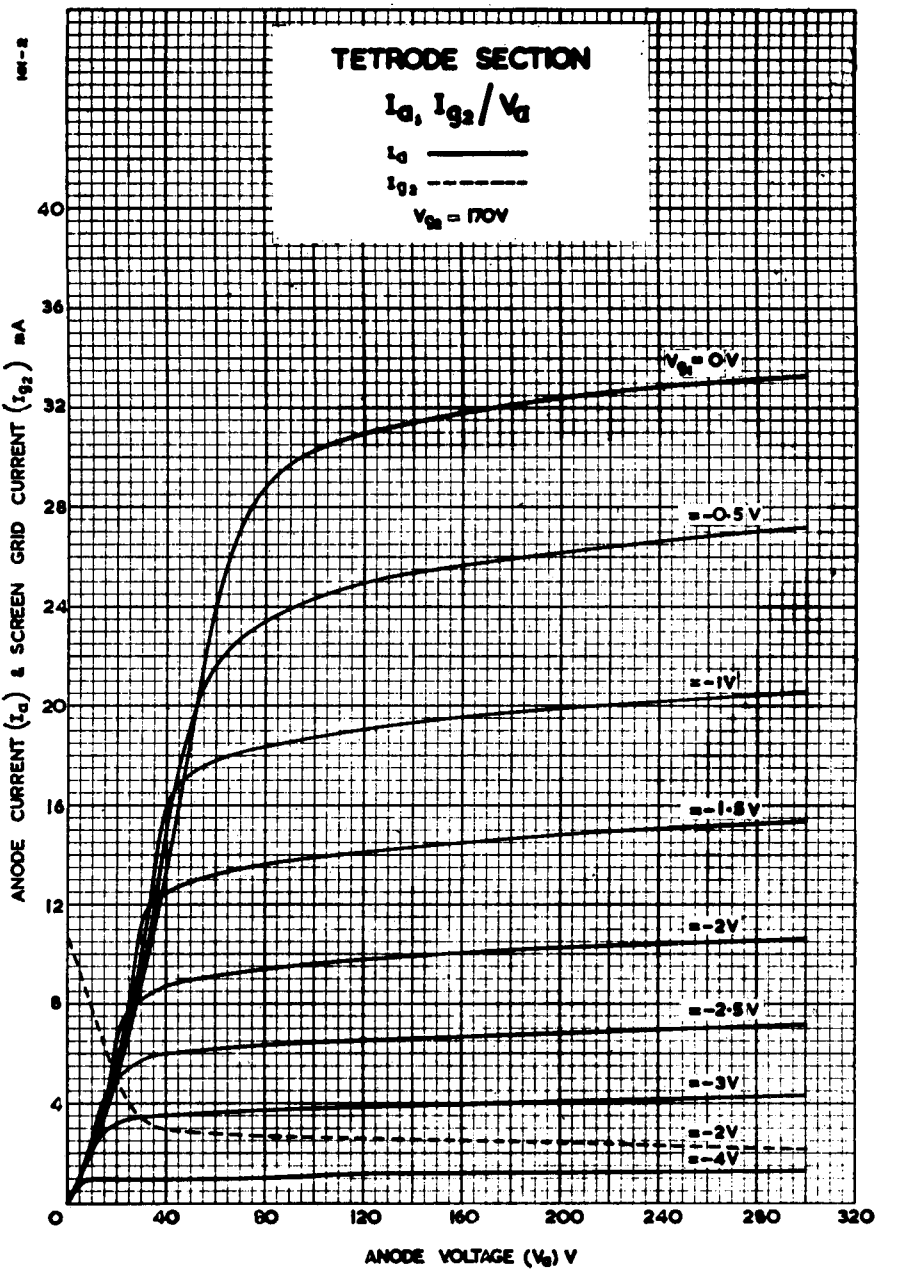
		Triode	Tetrode	
Anode Voltage	V_a	200	170	V
Screen Grid Voltage	V_{g2}	—	170	V
Control Grid Voltage	V_{g1}	−7·7	−2·0	V
Anode Current	I_a	10	10	mA
Screen Grid Current	I_{g2}	—	2·5	mA
Mutual Conductance	g_m	3·4	8·0	mA/V
Amplification Factor	μ	18	—	
Inner Amplification Factor	$\mu_{g1\text{-}g2}$	—	44	

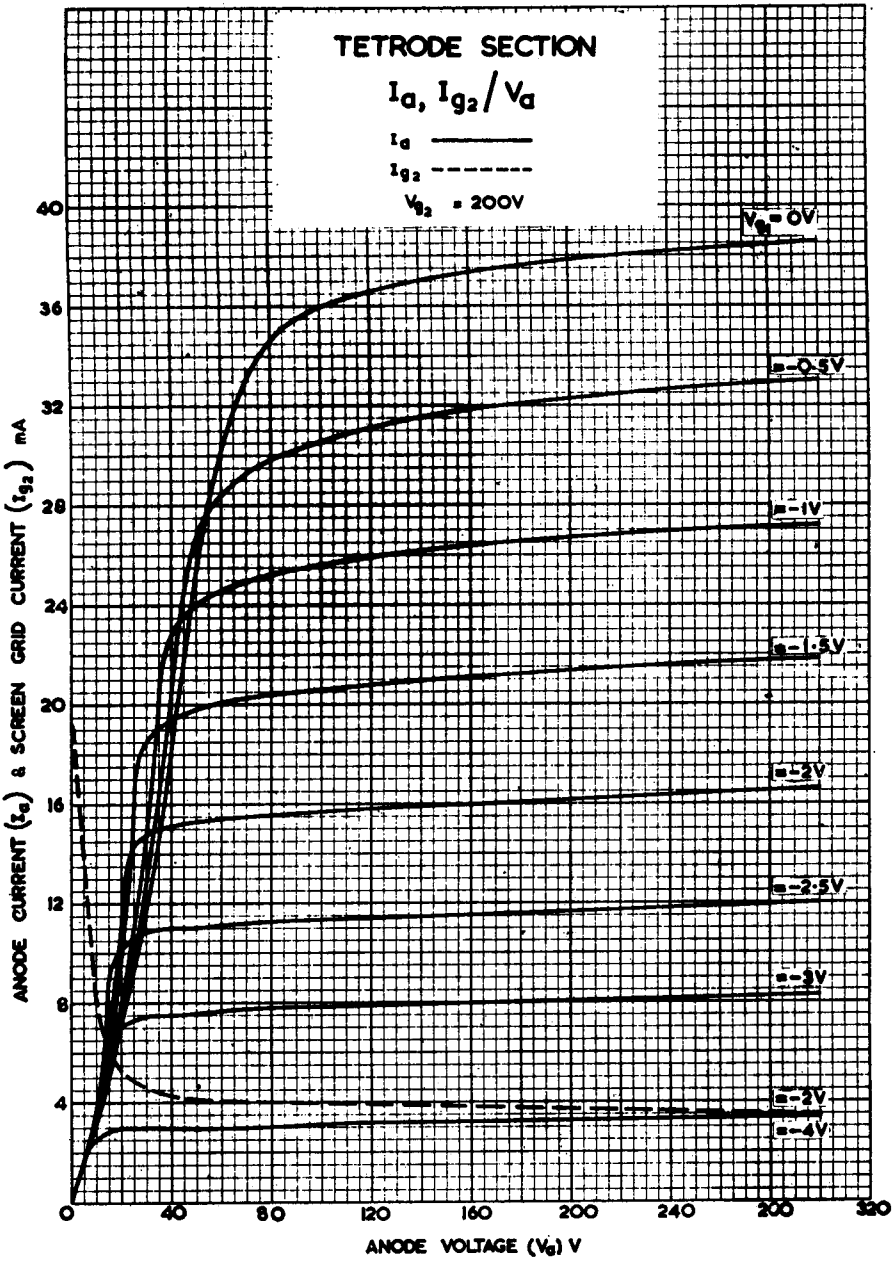
MOUNTING POSITION—Unrestricted.

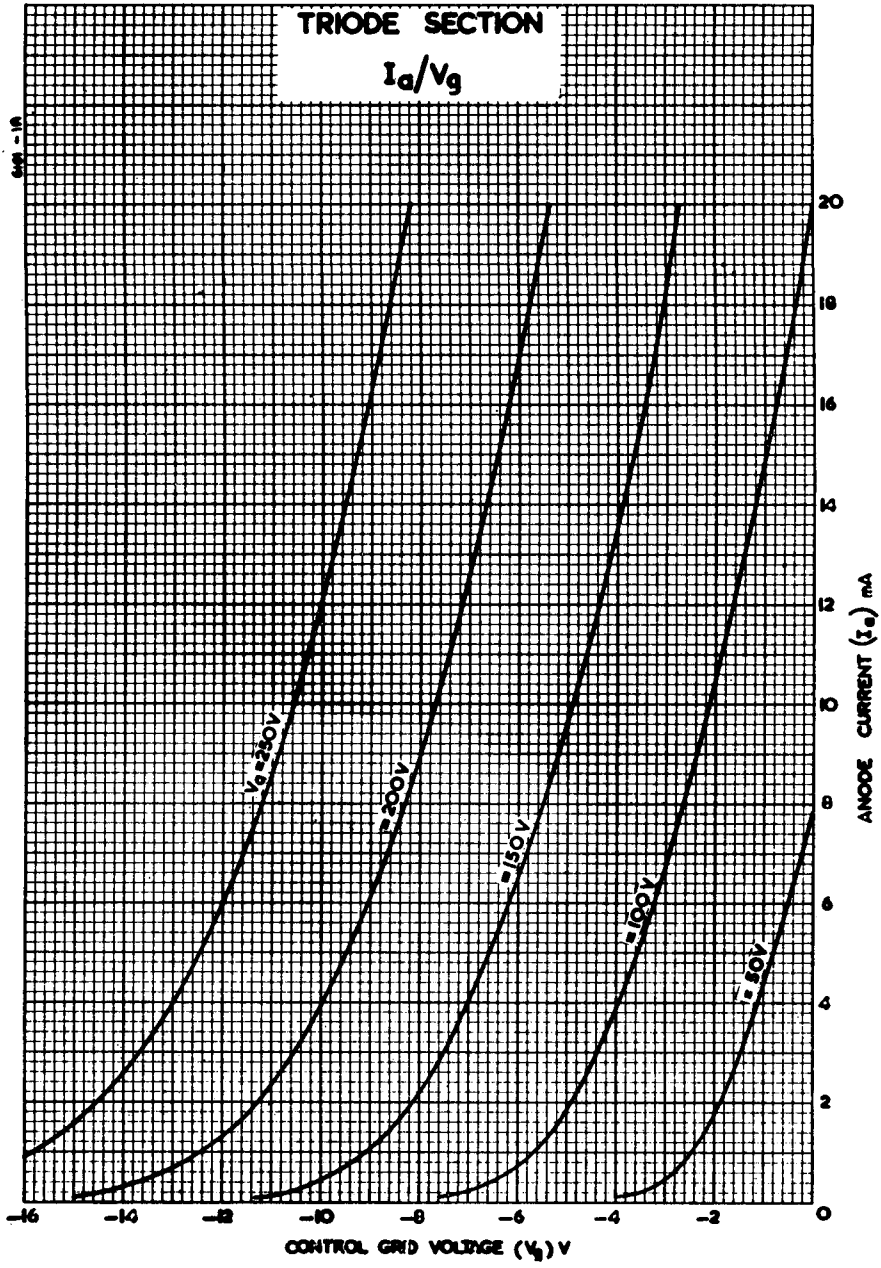
THORN RADIO VALVES AND TUBES LTD.

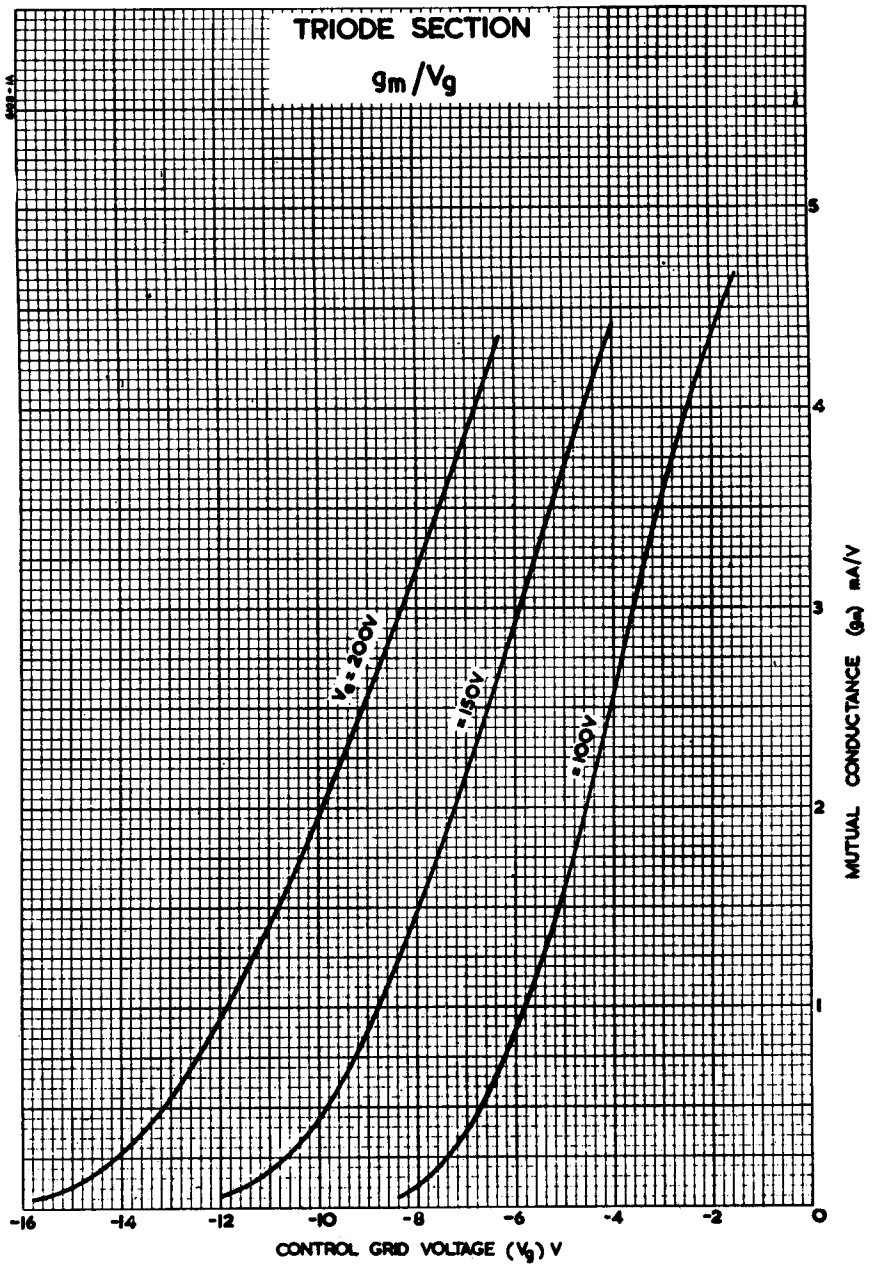

TETRODE SECTION
$I_a, I_{g_2} / V_{g_1}$
I_a
I_{g_2}
191-1A
$V_a = V_{g_2} = 250V$
200V
150V
100V
$V_a = V_{g_2} = 250V$
200V
150V
100V
ANODE CURRENT (I_a) & SCREEN GRID CURRENT (I_{g_2}) mA
CONTROL GRID VOLTAGE (V_{g_1}) V
0
2
4
6
8
10
12
14
16
18
20
22
24
-8
-7
-6
-5
-4
-3
-2
-1


TETRODE SECTION
g_m/V_{g_1}
103-4
$V_a = V_{g_2} = 250V$
200V
150V
100V
MUTUAL CONDUCTANCE (g_m) mA/V
CONTROL GRID VOLTAGE (V_{g_1}) V
12
11
10
9
8
7
6
5
4
3
2
1
0
-8
-7
-6
-5
-4
-3
-2
-1


TETRODE SECTION
I_a, I_{g_2} / V_a
I_a
I_{g_2}
V_{g_2} = 170V
V_{g_1} = 0V
= -0.5V
= -1V
= -1.5V
= -2V
= -2.5V
= -3V
= -2V
= -4V
ANODE CURRENT (I_a) & SCREEN GRID CURRENT (I_{g_2}) mA
ANODE VOLTAGE (V_a) V
0
40
80
120
160
200
240
280
320
4
8
12
16
20
24
28
32
36
40


TETRODE SECTION
I_a, I_{g_2} / V_a
I_a
I_{g_2}
V_{g_2} = 200V
V_{g_1} = 0V
= -0·5V
= -1V
= -1·5V
= -2V
= -2·5V
= -3V
= -2V
= -4V
ANODE CURRENT (I_a) & SCREEN GRID CURRENT (I_{g_2}) mA
0
4
8
12
16
20
24
28
32
36
40
0
40
80
120
160
200
240
280
320
ANODE VOLTAGE (V_a) V


TRIODE SECTION
Ia/Vg
Vg = 250V
200V
150V
100V
50V
0
2
4
6
8
10
12
14
16
18
20
ANODE CURRENT (Ia) mA
−16
−14
−12
−10
−8
−6
−4
−2
0
CONTROL GRID VOLTAGE (Vg) V


TRIODE SECTION
gm/Vg
6098-M
Va = 200V
150V
100V
MUTUAL CONDUCTANCE (gm) mA/V
0
1
2
3
4
5
-16
-14
-12
-10
-8
-6
-4
-2
0
CONTROL GRID VOLTAGE (Vg) V

TETRODE SECTION

Used as limiter in a synchronising separator circuit.