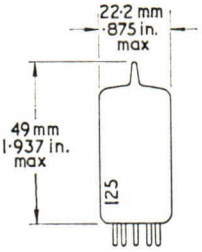
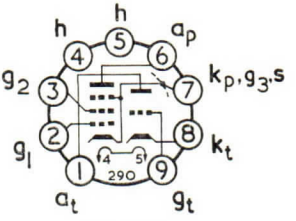


TRIODE
PENTODE



B9A Base

GENERAL

This triode pentode is intended for use in wide band amplifiers and instrumentation applications where high gain is required.

Heater Voltage	V_h	6·3	V
Heater Current	I_h	0·45	A

RATINGS

		Triode	Pentode	
Maximum Anode Dissipation	$P_{a(max)}$	2·0	1·5	W
Maximum Screen Grid Dissipation	$P_{g_2(max)}$	—	0·5	W
Maximum Anode Voltage	$V_{a(max)}$	250	250	V
Maximum Screen Grid Supply Voltage	$V_{g_2(b)max}$	—	250	V
Maximum Screen Grid Voltage	$V_{g_2(max)}$	—	175	V
Maximum Heater to Cathode Voltage	$V_{h\text{-}k(max)}$	150	150	V
Maximum Cathode Current	$I_{k(max)}$	20	20	mA
Maximum Control Grid to Cathode Resistance	$R_{g_1\text{-}k(max)}$			
Fixed Bias		0·5	0·5	MΩ

INTER-ELECTRODE CAPACITANCES

		Triode	Pentode	
Input	C_{in}	2·5	7·0	pF
Output	C_{out}	1·5	3·1	pF
Control Grid to Anode	$C_{g_1\text{-}a}$	1·8	<0·02	pF
Heater to Cathode	$C_{h\text{-}k}$	3·0	3·7	pF

CHARACTERISTICS

		Triode	Pentode	
Anode Voltage	V_a	150	150	V
Screen Grid Voltage	V_{g_2}	—	150	V
Control Grid Voltage	V_{g_1}	−1·5	−2·0	V
Anode Current	I_a	13·5	7·0	mA
Screen Grid Current	I_{g_2}	—	2·2	mA
Mutual Conductance	g_m	7·2	11	mA/V
Valve Anode Resistance ($\delta v_a/\delta i_a$)	r_a	5·3	350	kΩ
Amplification Factor	μ	38	—	
Inner Amplification Factor	$\mu_{g_1\text{-}g_2}$	—	55	
Control Grid Voltage for I_a = 100 μA	$V_{g_1(I_a=100\mu A)}$	—	−3·5	V

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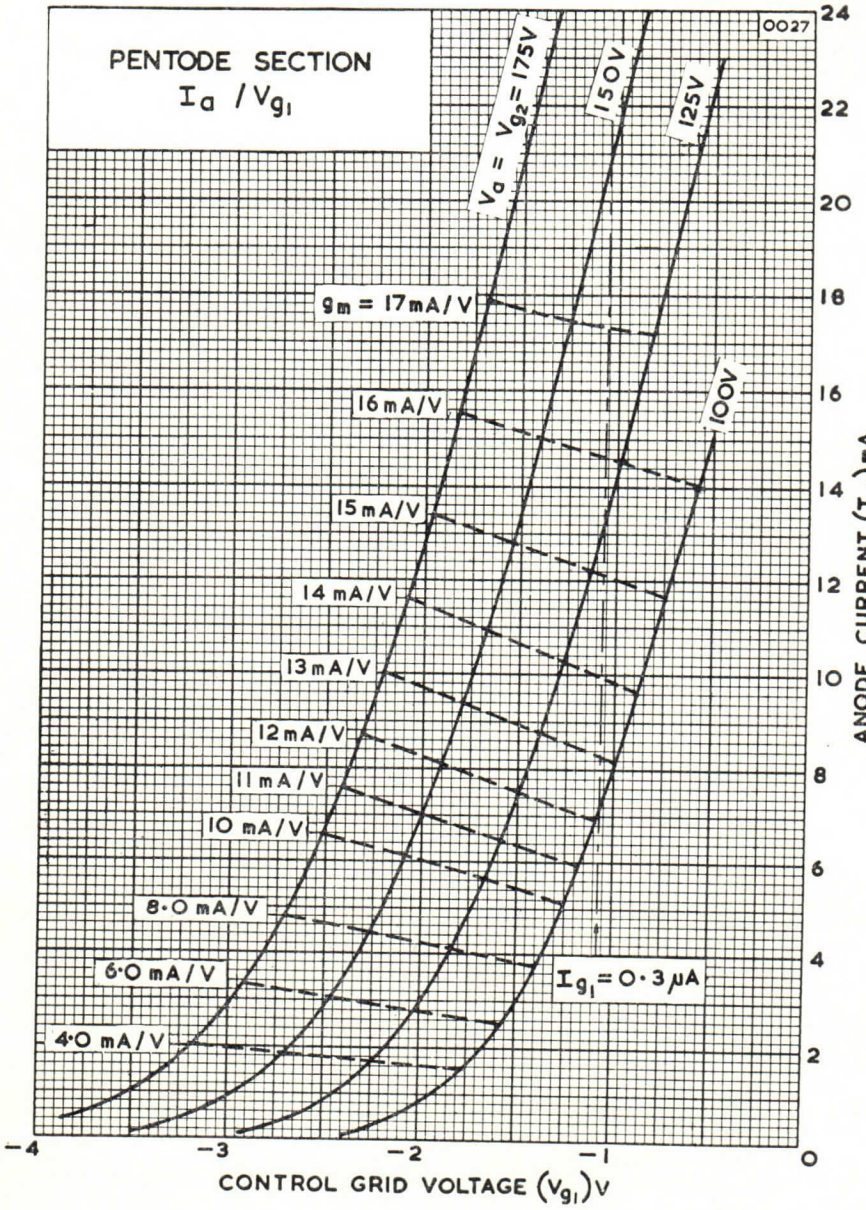
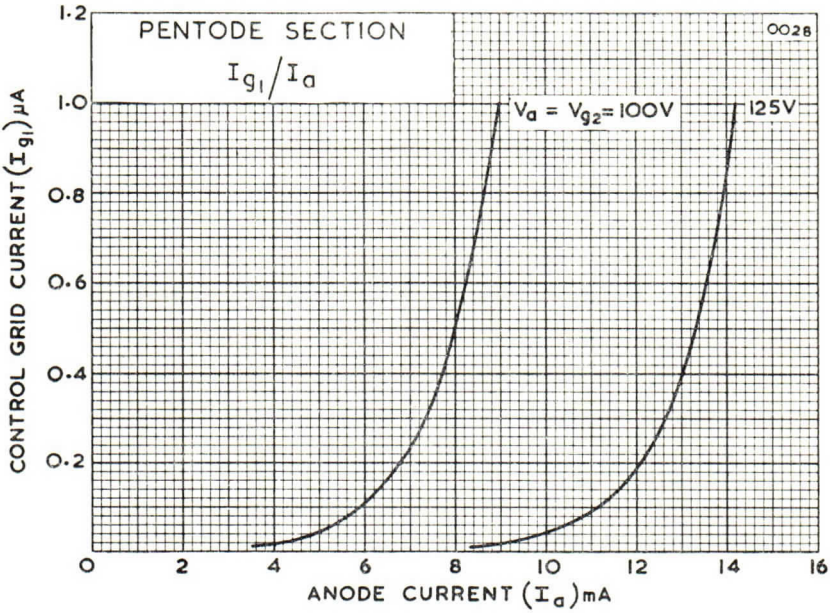
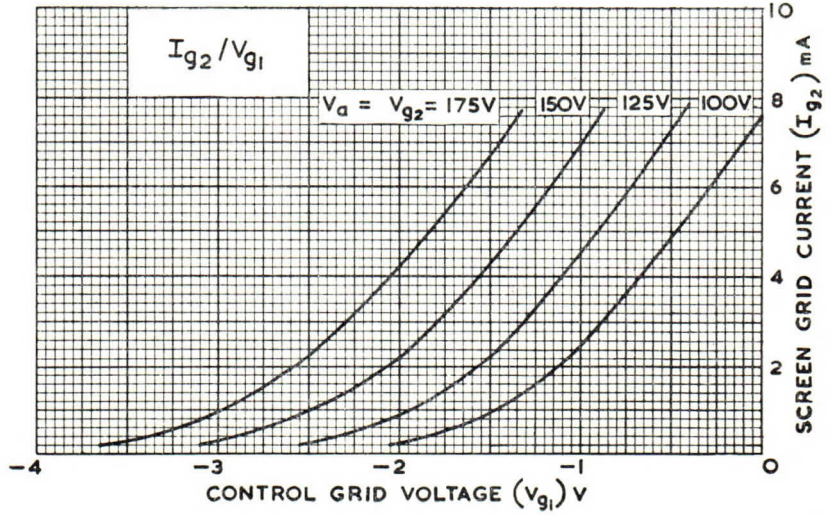
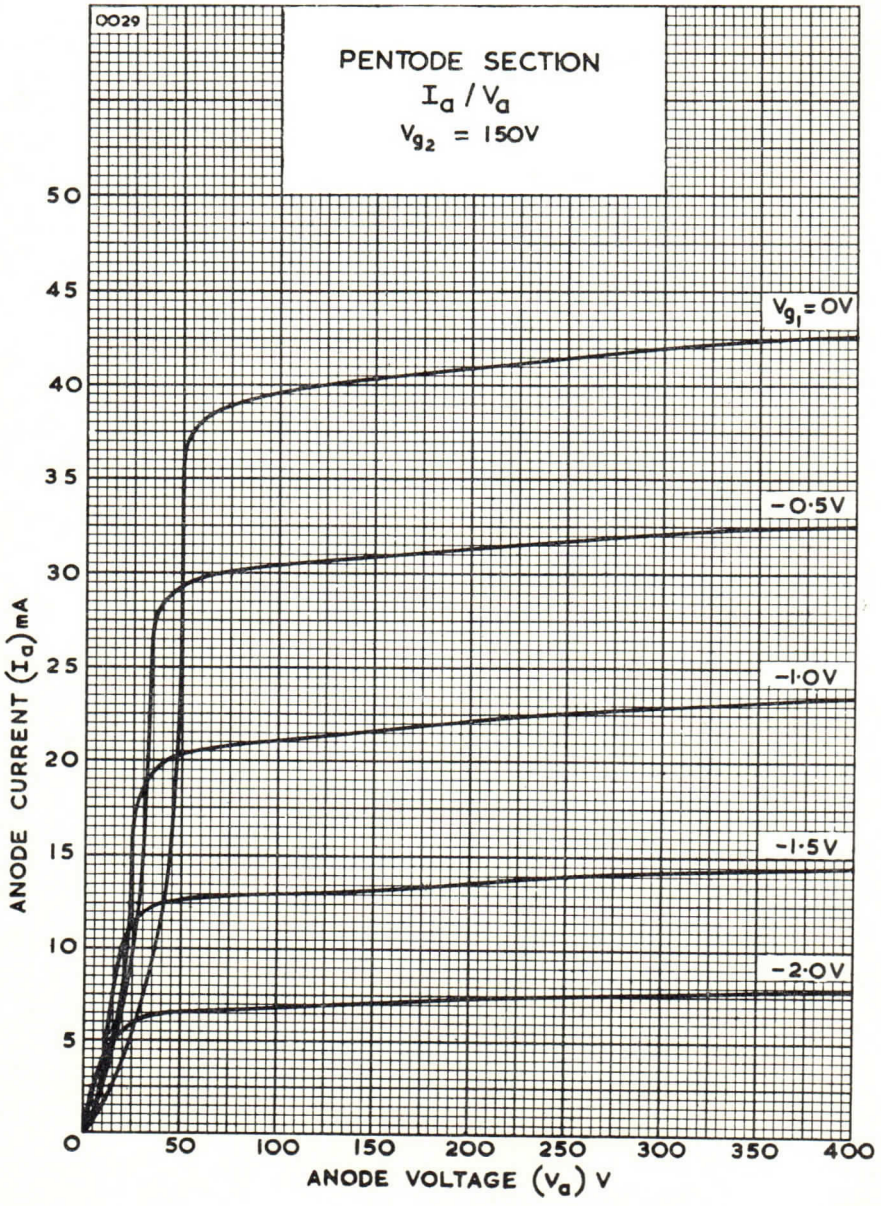
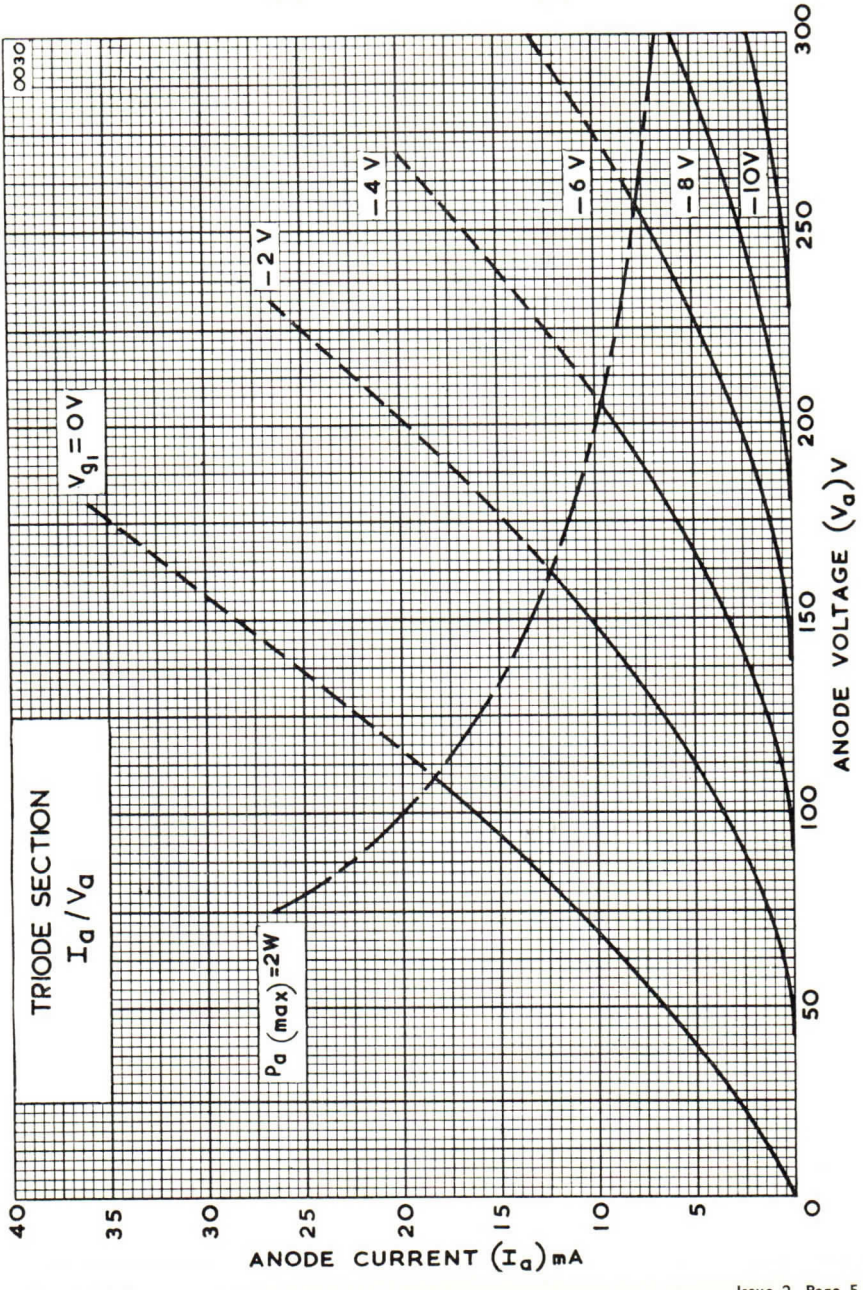
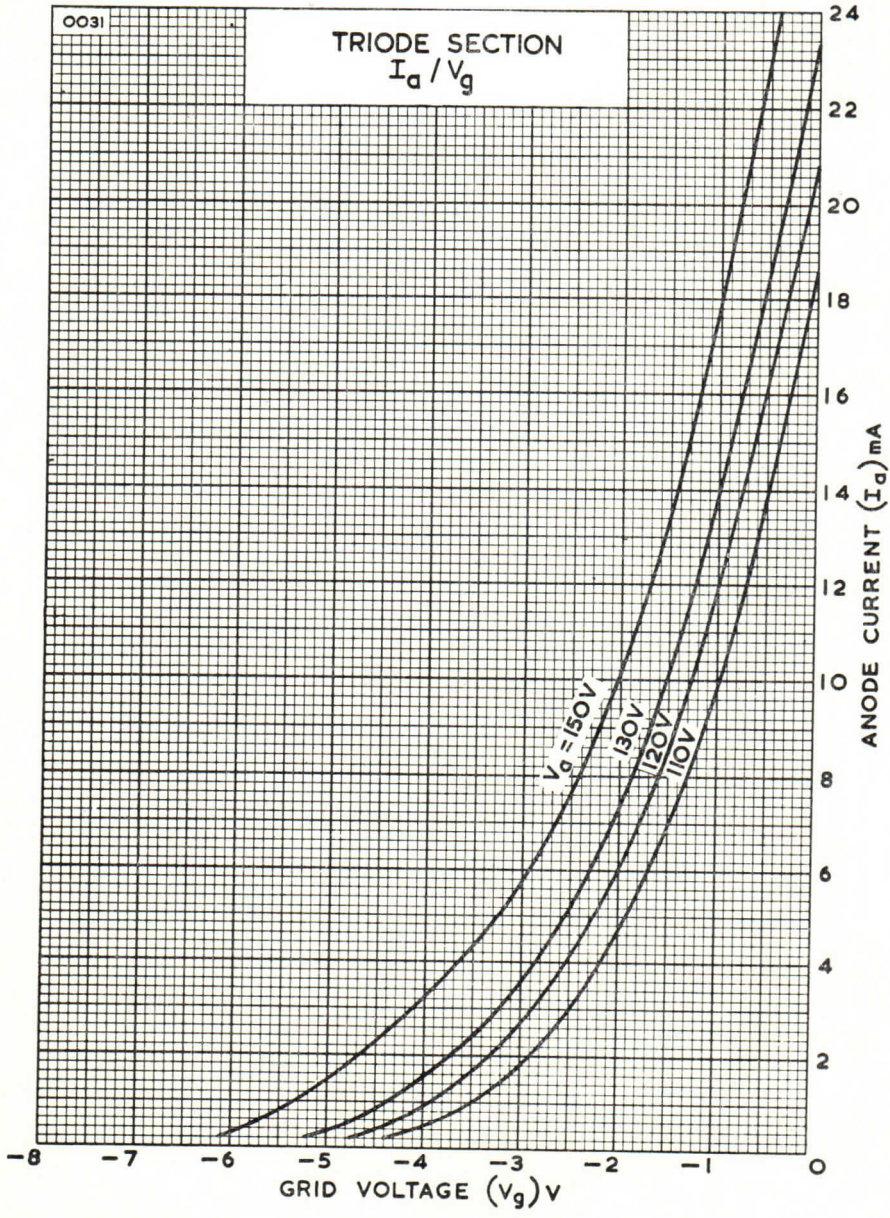

PENTODE SECTION
I_a / V_{g_1}
0027
$V_a = V_{g_2} = 175V$
150V
125V
100V
g_m = 17mA/V
16 mA/V
15 mA/V
14 mA/V
13 mA/V
12 mA/V
11 mA/V
10 mA/V
8·0 mA/V
6·0 mA/V
4·0 mA/V
I_{g_1} = 0·3 μA
ANODE CURRENT (I_a) mA
CONTROL GRID VOLTAGE (V_{g_1}) V
24
22
20
18
16
14
12
10
8
6
4
2
0
−4
−3
−2
−1

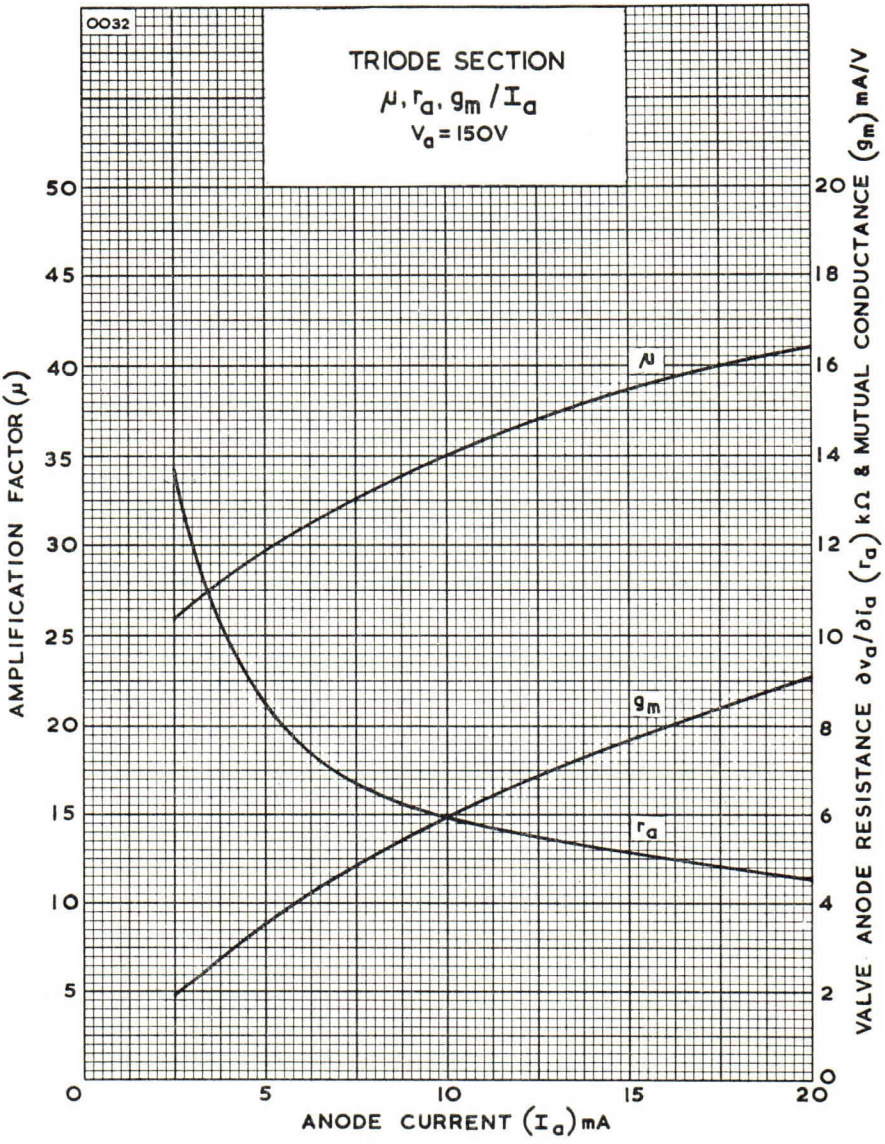

PENTODE SECTION
I_{g_1}/I_a
0028
$V_a = V_{g_2} = 100V$
125V
CONTROL GRID CURRENT (I_{g_1}) μA
1·2
1·0
0·8
0·6
0·4
0·2
0
2
4
6
8
10
12
14
16
ANODE CURRENT (I_a) mA


I_{g_2}/V_{g_1}
$V_a = V_{g_2} = 175V$
150V
125V
100V
SCREEN GRID CURRENT (I_{g_2}) mA
10
8
6
4
2
0
−4
−3
−2
−1
CONTROL GRID VOLTAGE (V_{g_1}) V


0029
PENTODE SECTION
I_a / V_a
V_{g_2} = 150V
V_{g_1} = 0V
-0·5V
-1·0V
-1·5V
-2·0V
ANODE CURRENT (I_a) mA
0
5
10
15
20
25
30
35
40
45
50
50
100
150
200
250
300
350
400
ANODE VOLTAGE (V_a) V


0030
TRIODE SECTION
I_a / V_a
$V_{g_1} = 0V$
P_a (max) = 2W
−2 V
−4 V
−6 V
−8 V
−10V
ANODE CURRENT (I_a) mA
ANODE VOLTAGE (V_a) V
40
35
30
25
20
15
10
5
0
300
250
200
150
100
50


0031
TRIODE SECTION
I_a / V_g
V_a = 150V
130V
120V
110V
ANODE CURRENT (I_a) mA
GRID VOLTAGE (V_g) V
24
22
20
18
16
14
12
10
8
6
4
2
0
−1
−2
−3
−4
−5
−6
−7
−8


0032
TRIODE SECTION
$\mu, r_a, g_m / I_a$
$V_a = 150V$
AMPLIFICATION FACTOR (μ)
VALVE ANODE RESISTANCE $\partial v_a/\partial i_a$ (r_a) kΩ & MUTUAL CONDUCTANCE (g_m) mA/V
ANODE CURRENT (I_a) mA
μ
g_m
r_a
0
5
10
15
20
25
30
35
40
45
50
2
4
6
8
12
14
16
18