G.E.C.
VALVES

R.F. PENTODE

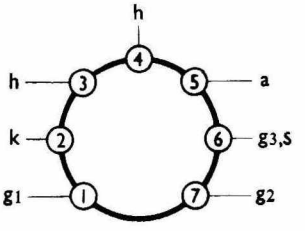
A3064

ISSUE 1

An r.f. pentode suitable for use in applications where long life and close control of characteristics are required.

The A3064 will replace the CV138, CV4014 and Z77 in most applications.

BASE CONNECTIONS AND VALVE DIMENSIONS



Viewed from underside of base.

Base :	Small-button miniature (B7G)
Bulb :	Tubular
Max. overall length :	54.5mm
Max. seated length :	47.5mm
Max. diameter :	19mm

HEATER

V_h	6.3	V
I_h	0.3	A

MAXIMUM RATINGS (Absolute)

$V_{a(o)}$	550	V
V_a	300	V
p_a	2.5	W
$V_{g2(o)}$	450	V
V_{g2}	300	V
p_{g2}	0.8	W
R_{g1-k}	0.5	MΩ
V_{h-k} (heater positive)	100	V
$-V_{h-k}$ (heater negative)	250	V
T_{bulb}	200	°C

CAPACITANCES (Measured on a cold screened valve)

$c_{g1\text{-all less a}}$: 6.5—8.7pF $c_{a\text{-all less g1}}$: 2.75—3.75pF

c_{a-g1}: 0.01pF (max)

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CHARACTERISTIC SPREAD

Measured at :

V_a	250	V
V_{g2}	250	V
V_{g1}	0	V
R_k	160	Ω

	Min.	Mean	Max.	
*I_a	8.7	9.85	11.0	mA
I_{g2}	1.8	2.6	3.4	mA
*g_m	6.8	7.62	8.43	mA/V
$-I_g$			0.5	μA
I_a (at $-V_{g1}$ = 8V)			100	μA
*μ	60	75	89	-
*$-V_{g3}$ (at $-V_{g1}$ = 3.5V, I_a = 50μA)	70	95	120	V
I_h	275	300	325	mA

*These tests are performed on a sample basis only, and the figures given are of the average spread.

LIFE PERFORMANCE

The average life expectancy of the A3064 is at least 10,000 hours. In order to obtain maximum life, the valve must be operated within the ratings given on page 1. The environment must be a static one and the valve must not be switched more than 12 times in 24 hours. The life expectancy may be reduced if conditions other than those specified are imposed on the valve, and will be reduced appreciably if the absolute maximum ratings are exceeded. Both reliability and performance will be jeopardised if heater voltage ratings are exceeded. Life and reliability are directly related to the degree to which regulation of heater voltage is maintained at its centre rated value. Attention should also be paid to the recommendations of the British Standard Code of Practice CP1005 "The Use of Electronic Valves".

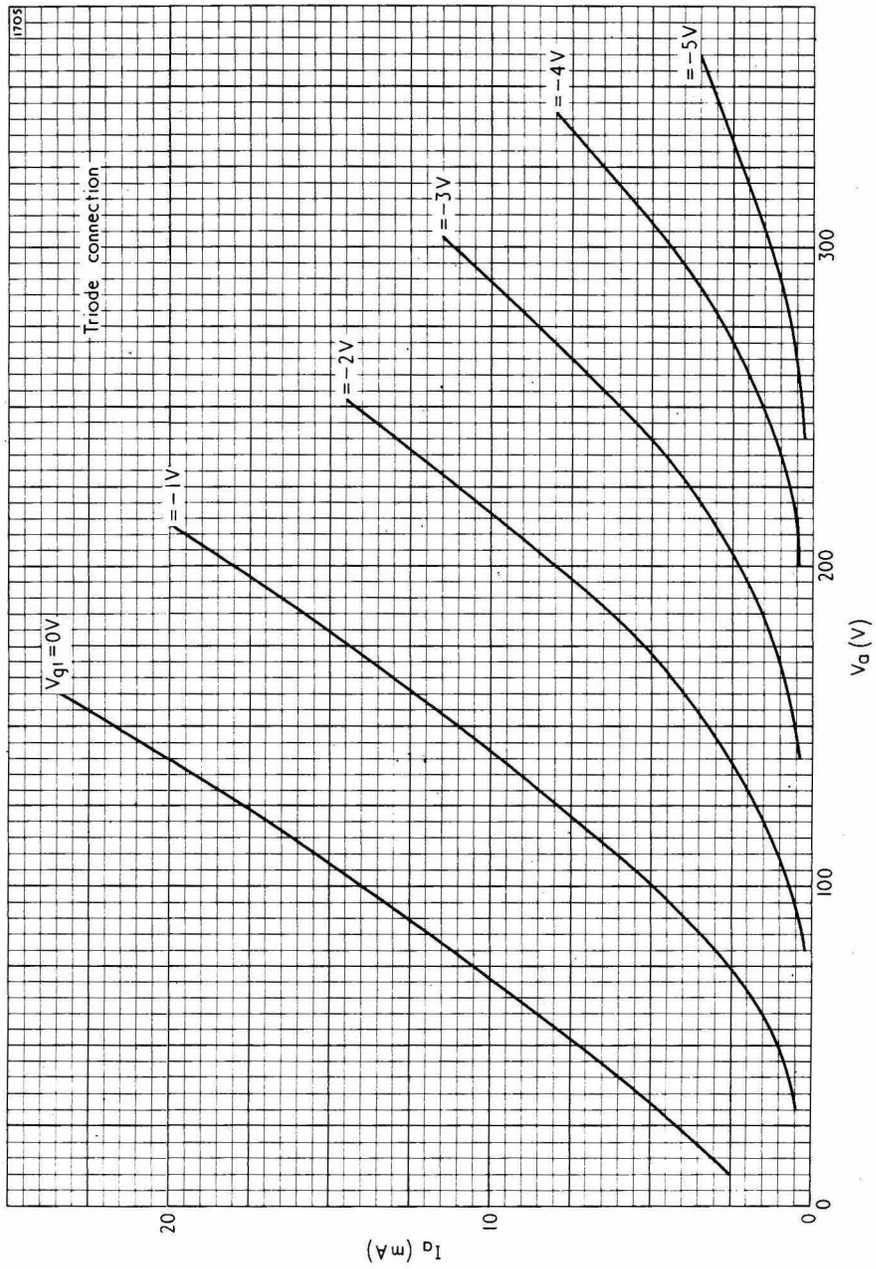
A valve is considered to have reached the end of life when it is either inoperative, or one or more of its characteristics has reached the following values :

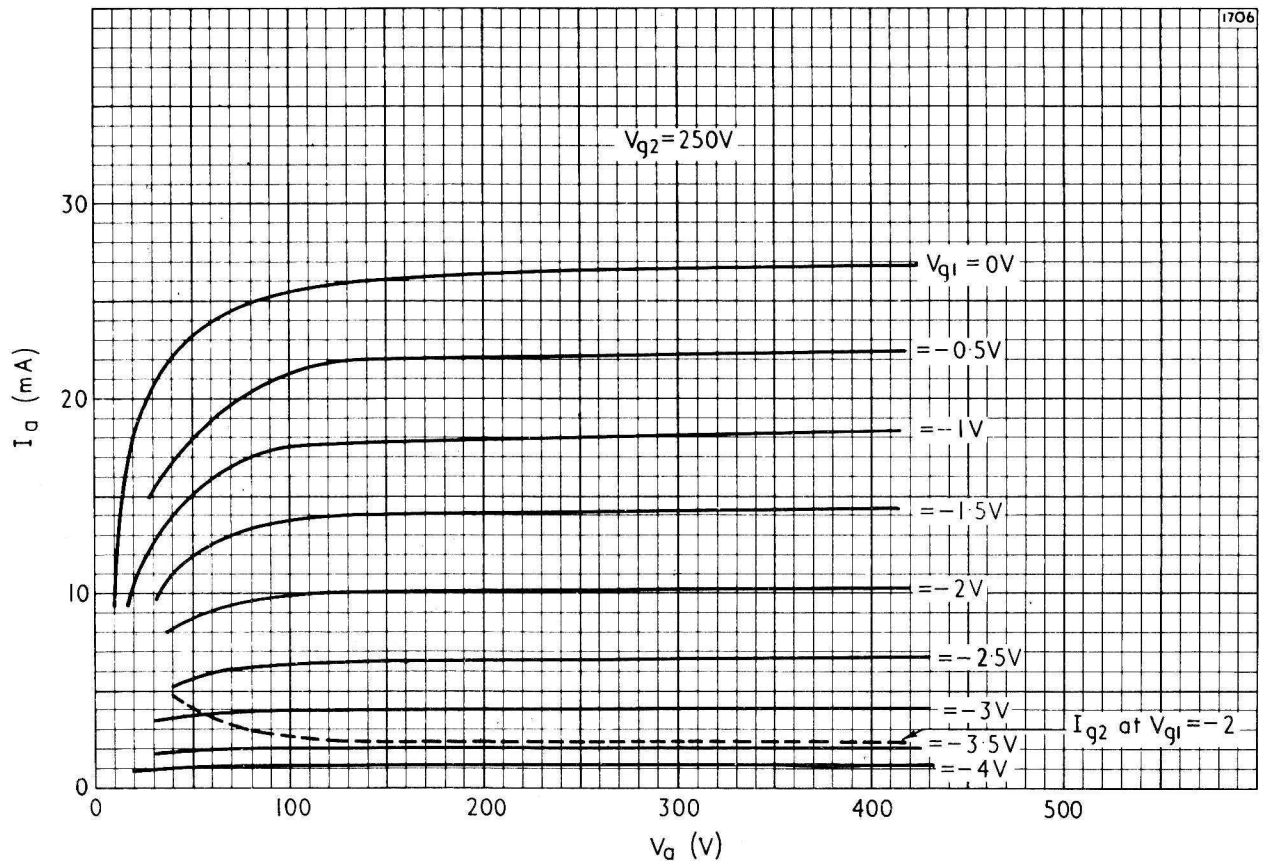
I_a	5.25	mA
g_m	4.9	mA/V
$-I_{g1}$	3.0	μA
I_{hk} (V_{hk} ±100)	20	μA

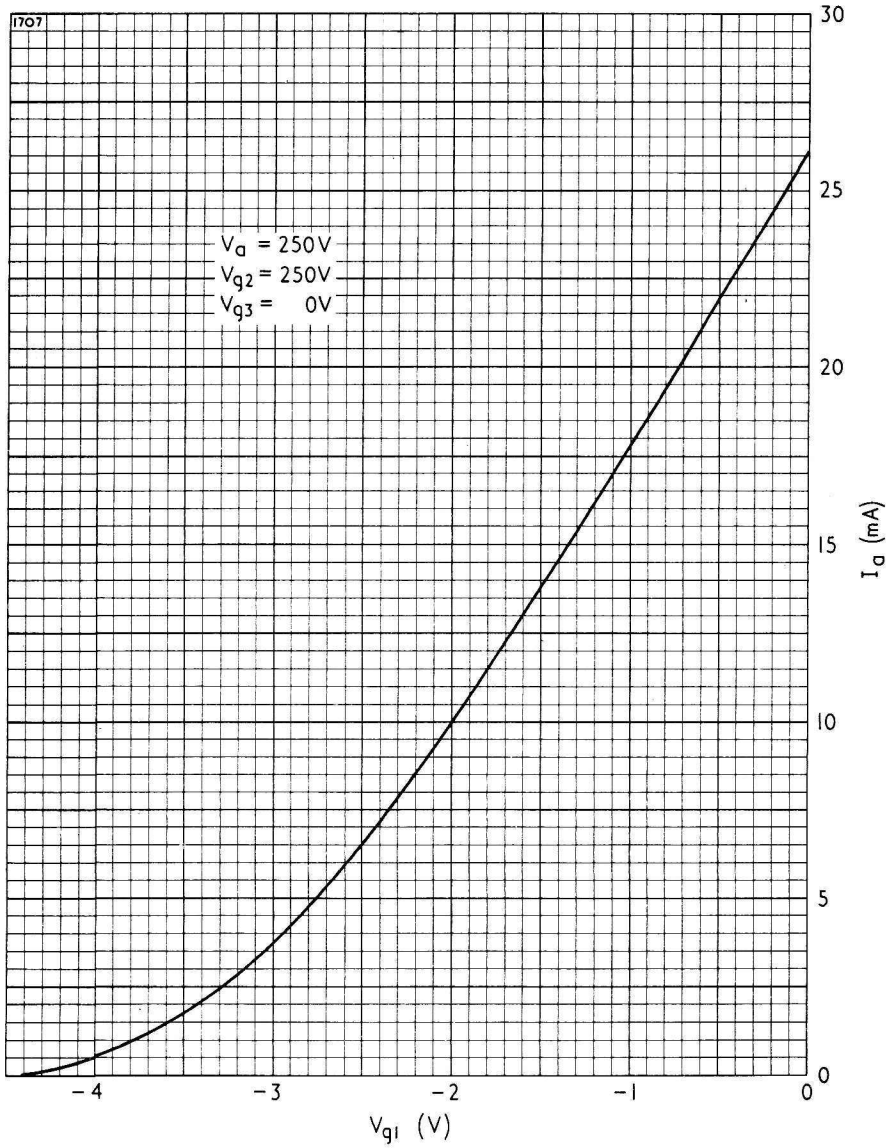
measured as "Characteristic Spread".

INSTALLATION

The valve may be mounted in any position.


1705
Triode connection
V_{g1} = 0V
= −1V
= −2V
= −3V
= −4V
= −5V
I_a (mA)
20
10
0
0
100
200
300
V_a (V)


1706
V_{g2}=250V
V_{g1} = 0V
=−0·5V
=−1V
=−1·5V
=−2V
=−2·5V
=−3V
=−3·5V
=−4V
I_{g2} at V_{g1}=−2
I_a (mA)
0
10
20
30
0
100
200
300
400
500
V_a (V)


1707
V_a = 250V
V_{g2} = 250V
V_{g3} = 0V
30
25
20
15
10
5
0
I_a (mA)
−4
−3
−2
−1
0
V_{g1} (V)

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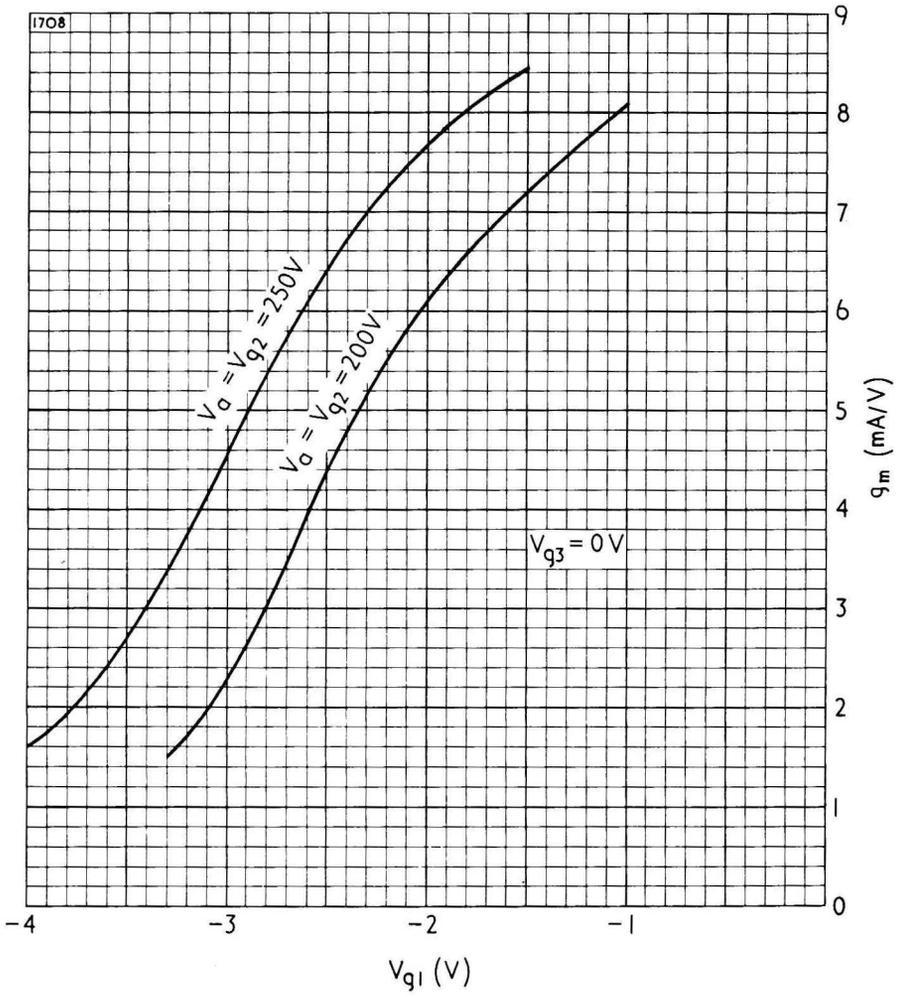
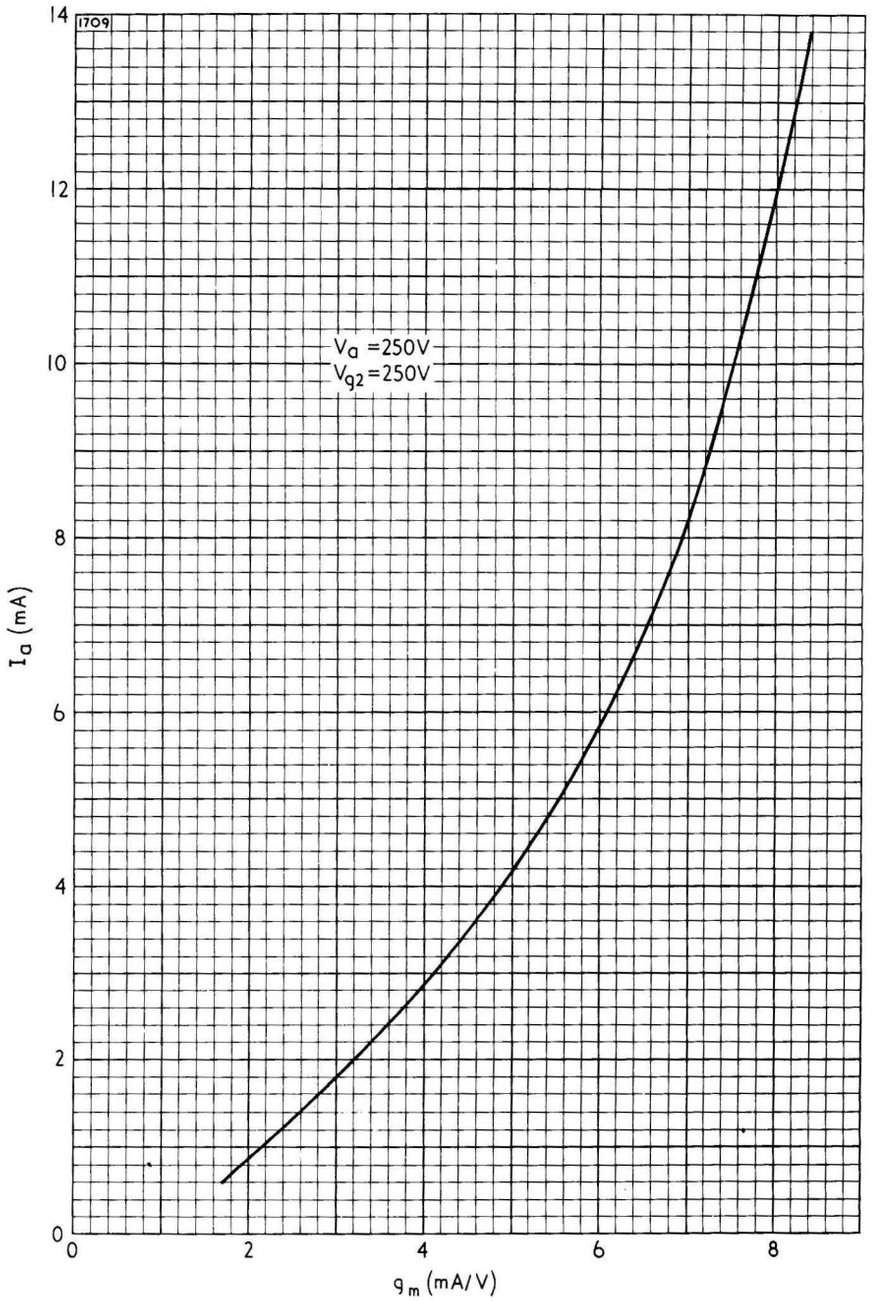

1708
$V_a = V_{g2} = 250V$
$V_a = V_{g2} = 200V$
$V_{g3} = 0V$
9
8
7
6
5
4
3
2
1
0
g_m (mA/V)
−4
−3
−2
−1
V_{g1} (V)


1709
V_a =250V
V_{g2}=250V
I_a (mA)
g_m (mA/V)
0
2
4
6
8
10
12
14

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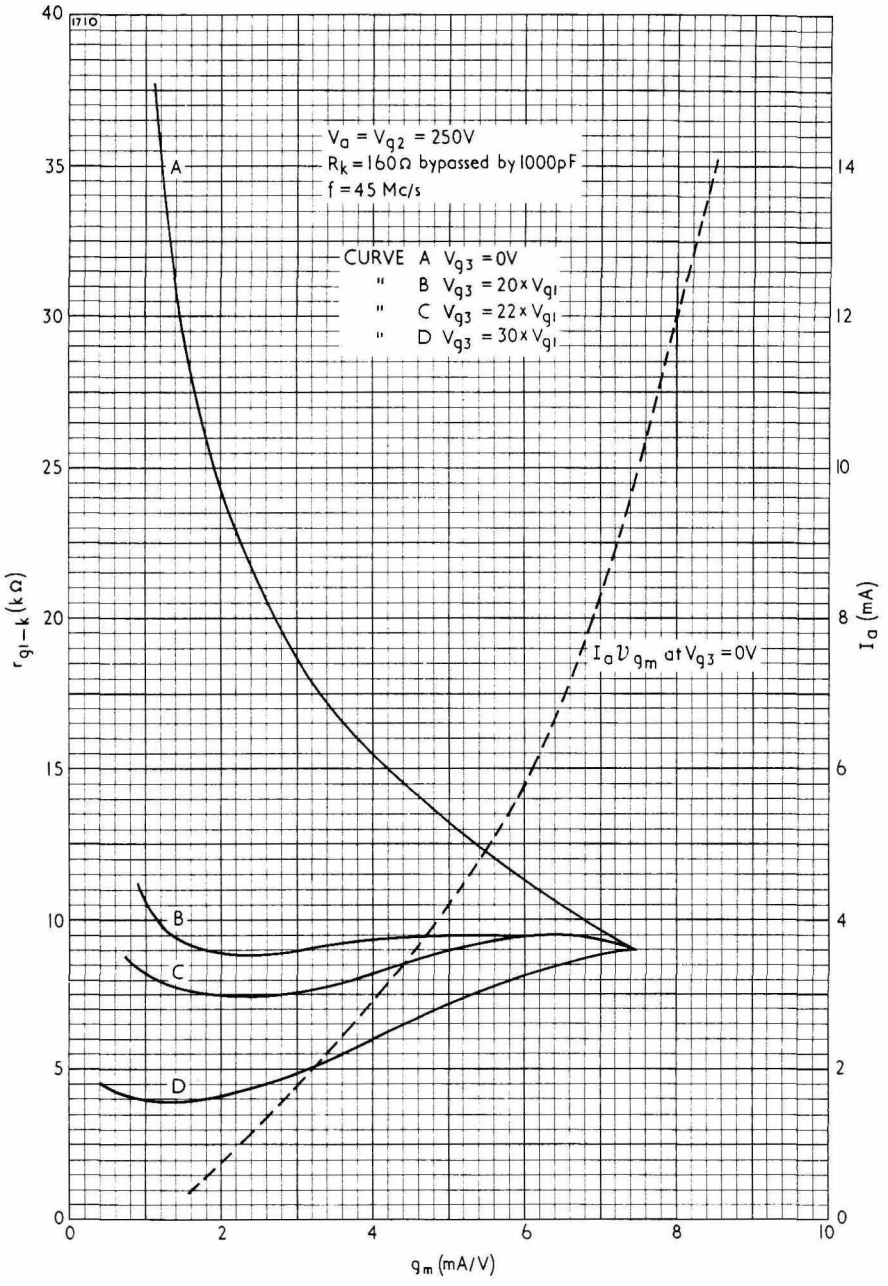
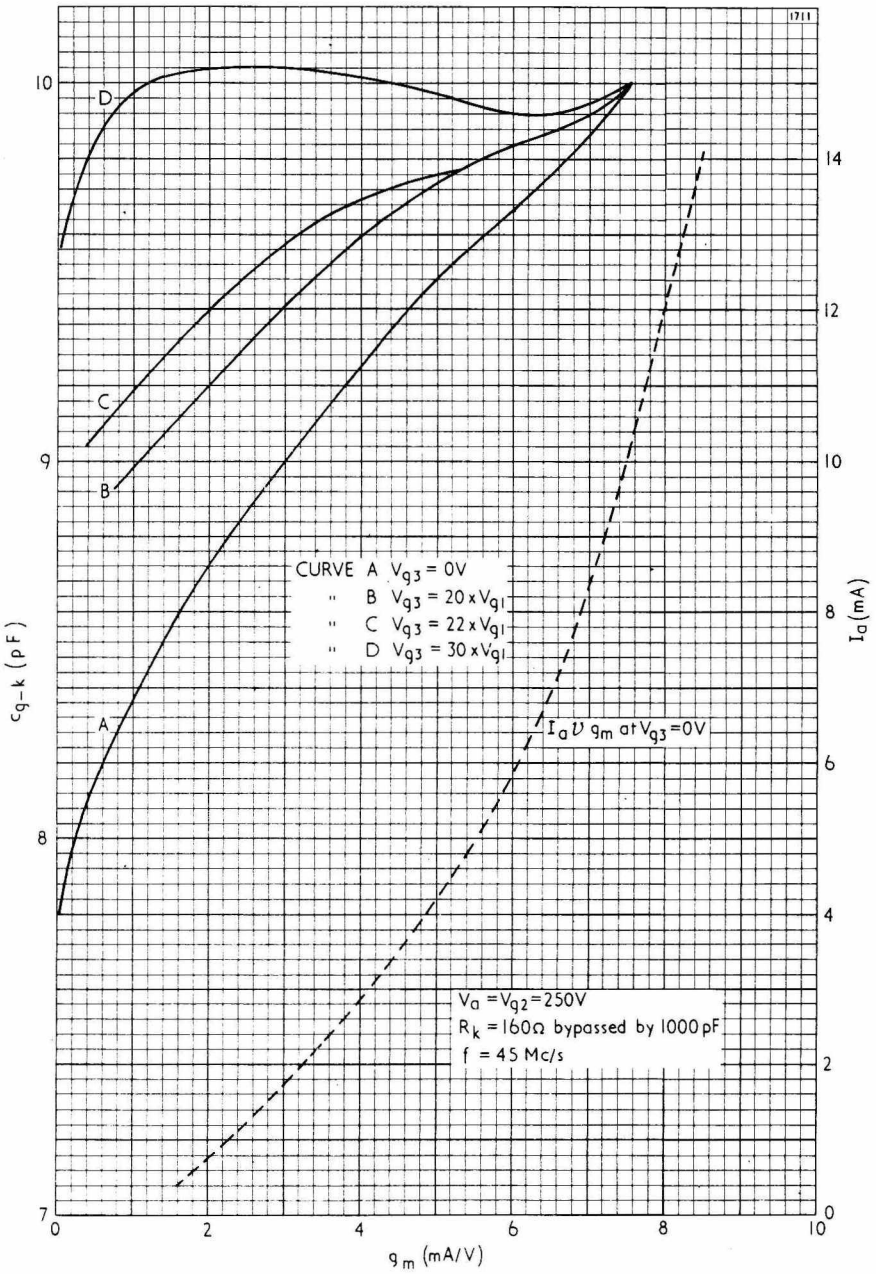

1710
$V_a = V_{g2} = 250V$
$R_k = 160\Omega$ bypassed by 1000pF
f = 45 Mc/s
CURVE A $V_{g3} = 0V$
" B $V_{g3} = 20 \times V_{g1}$
" C $V_{g3} = 22 \times V_{g1}$
" D $V_{g3} = 30 \times V_{g1}$
I_a & g_m at $V_{g3} = 0V$
A
B
C
D
r_{g1-k} (kΩ)
I_a (mA)
g_m (mA/V)
0
2
4
6
8
10
5
15
20
25
30
35
40
12
14


1711
CURVE A V_{g3} = 0V
" B V_{g3} = 20 x V_{g1}
" C V_{g3} = 22 x V_{g1}
" D V_{g3} = 30 x V_{g1}
I_a v g_m at V_{g3}=0V
$V_a = V_{g2}$=250V
R_k = 160Ω bypassed by 1000 pF
f = 45 Mc/s
A
B
C
D
c_{g-k} (pF)
I_a (mA)
g_m (mA/V)
7
8
9
10
0
2
4
6
8
10
12
14

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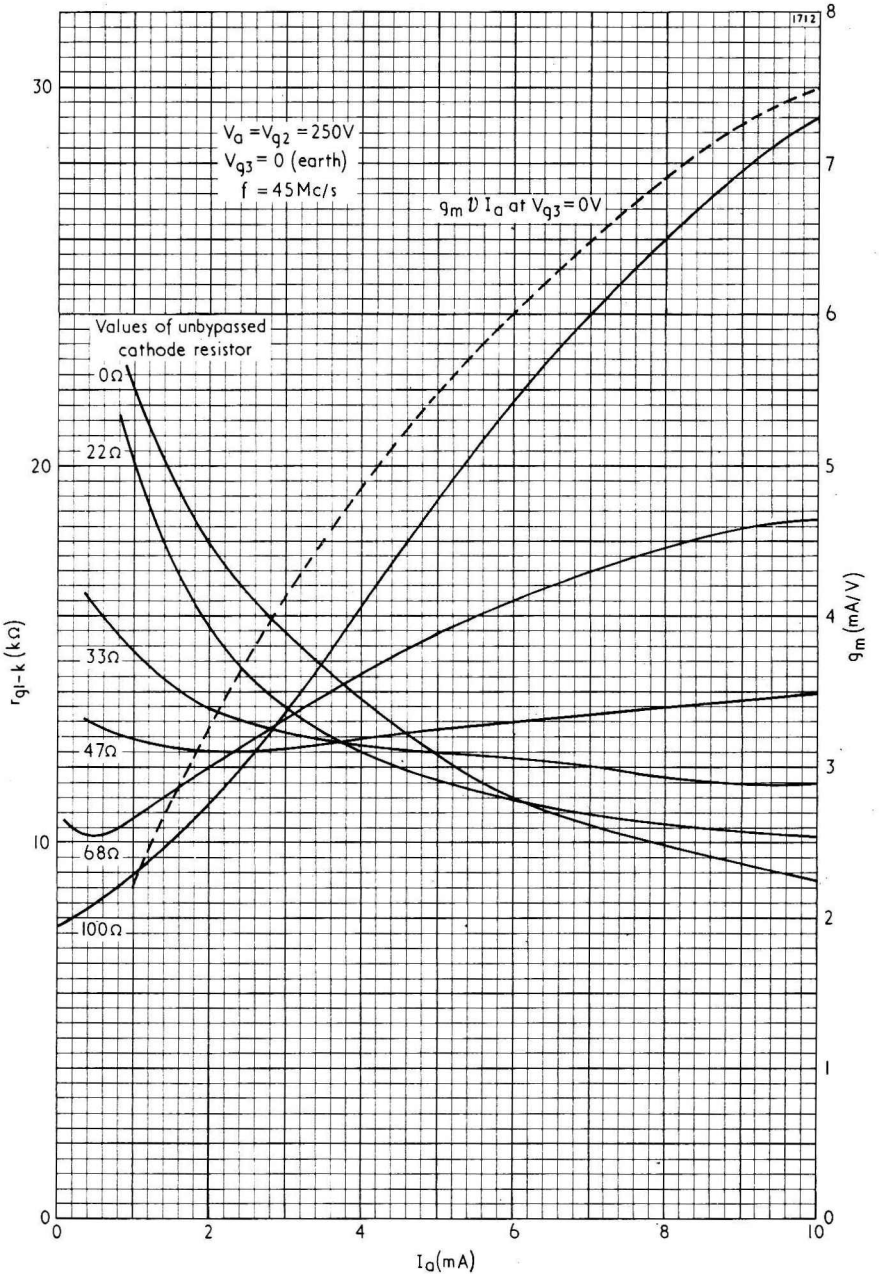
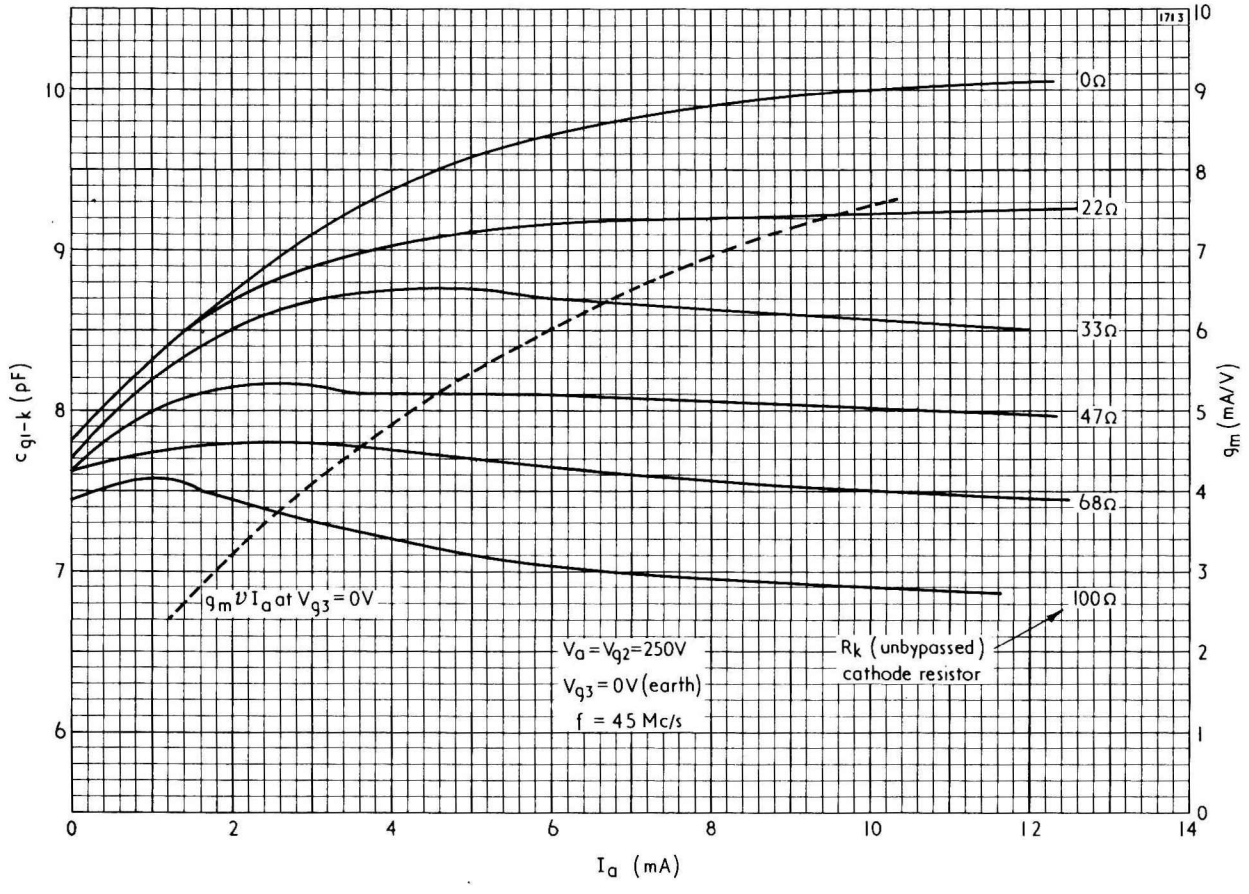

1712
$V_a = V_{g2} = 250V$
$V_{g3} = 0$ (earth)
f = 45Mc/s
g_m v I_a at $V_{g3} = 0V$
Values of unbypassed cathode resistor
0Ω
22Ω
33Ω
47Ω
68Ω
100Ω
r_{gl-k} (kΩ)
g_m (mA/V)
I_a (mA)
0
2
4
6
8
10
20
30
1
3
5
7


1713
0Ω
22Ω
33Ω
47Ω
68Ω
100Ω
g_m v I_a at V_{g3} = 0V
$V_a = V_{g2} = 250V$
V_{g3} = 0V (earth)
f = 45 Mc/s
R_k (unbypassed) cathode resistor
c_{g1-k} (pF)
g_m (mA/V)
I_a (mA)
0
2
4
6
8
10
12
14
6
7
8
9
10
0
1
2
3
4
5
6
7
8
9
10

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