V.H.F. POWER TRIODE

TY2-125

All-glass triode rated for a maximum anode dissipation of 135 W and suitable for use at frequencies up to 200 Mc/s.

This data should be read in conjunction with "Operating Notes, Part 1—Power Valves" included in this volume of the Handbook.

FILAMENT Thoriated tungsten

V_f	6.3	V
I_f	5.4	A

MOUNTING POSITION Vertical only, base up or down.

CAPACITANCES

c_{a-g}	5.5	$\mu\mu$F
c_{g-f}	5.5	$\mu\mu$F
c_{a-f}	0.1	$\mu\mu$F

CHARACTERISTICS (Measured at V_a=2.5 kV; I_a=44 mA)

g_m	2.8	mA/V
μ	25	

COOLING

Maximum temperature of base pins	180	°C
Maximum temperature of anode seal	220	°C

When the valve is operated at near maximum ratings it is possible that the maximum temperature limits may be exceeded, in which case an air flow of up to 5 cu. ft. (150 litres) per minute must be directed towards the centre of the valve base.

An anode terminal connector having a large area is necessary in order to keep the anode seal cool.

OPERATING CONDITIONS AS SINGLE VALVE R.F. POWER AMPLIFIER (CLASS "B" TELEPHONY)

Limiting Values

V_a max.	2.5	kV
p_a max. (corresponding to an anode temperature of 850°C i.e. red heat)	135	W
p_g max.	16	W
I_k max.	250	mA
$i_{k(pk)}$ max.	1.6	A
R_{g-f} max. (fixed bias)	100	k Ω
R_{g-f} max. (automatic bias)	200	k Ω

TY2-125

V.H.F. POWER TRIODE

All-glass triode rated for a maximum anode dissipation of 135 W and suitable for use at frequencies up to 200 Mc/s.

Typical Operating Conditions

f	≦150	≦150	≦150	≦200	Mc/s
V_a	1.5	2.0	2.5	2.0	kV
V_g	–45	–67	–87	–67	V
I_a	120	97	77	97	mA
$v_{in(pk)}$	100	100	100	100	V
p_a	121	130	128	134	W
P_{out}	59	64	65	60	W
η	33	33	34	31	%
*P_{load}	47	51	52	48	W
For 100% Modulation					
I_g	52	28	20	28	mA
P_{drive}	9.4	5.1	3.6	8.0	W

*With a circuit Transfer Efficiency of 80%

OPERATING CONDITIONS AS SINGLE VALVE R.F. POWER OSCILLATOR OR AMPLIFIER (CLASS "C" TELEGRAPHY OR F.M. TELEPHONY)

Limiting Values

V_a max.	2.5	kV
p_a max. (corresponding to an anode temperature of 850°C i.e. red heat)	135	W
p_g max.	16	W
I_k max.	250	mA
$i_{k(pk)}$ max.	1.6	A
R_{g-f} max. (fixed bias)	100	k Ω
R_{g-f} max. (automatic bias)	200	k Ω

Typical Operating Conditions

f	≦150	≦150	≦150	≦150	≦200	Mc/s
V_a	1.0	1.5	2.0	2.5	2.0	kV
V_g	–80	–110	–150	–200	–150	V
I_a	205	205	205	205	175	mA
I_g	40	40	40	40	35	mA
$v_{in(pk)}$	260	300	340	390	300	V
p_a	79	98	115	122	105	W
P_{drive}	10	11	13	14	20	W
P_{out}	126	210	295	390	245	W
η	61.5	68	72	76	70	%
*P_{load}	100	168	236	312	196	W

*With a circuit Transfer Efficiency of 80%

V.H.F. POWER TRIODE

TY2-125

All-glass triode rated for a maximum anode dissipation of 135 W and suitable for use at frequencies up to 200 Mc/s.

OPERATING CONDITIONS FOR TWO VALVES AS R.F. POWER AMPLIFIER (CLASS "C" ANODE MODULATION)

Limiting Values

V_a max.	2.0	kV
p_a max. (corresponding to an anode temperature of 850°C i.e. red heat)	135	W
p_g max.	16	W
I_k max.	250	mA
$i_{k(pk)}$ max.	2.5	A
R_{g-f} max. (fixed bias)	100	kΩ
R_{g-f} max. (automatic bias)	200	kΩ

Typical Operating Conditions

f	≤150	≤150	≤150	≤200	Mc/s
V_a	1.0	1.5	2.0	1.5	kV
V_g	−130	−180	−225	−180	V
I_a	2×127	2×127	2×127	2×127	mA
I_g	2×40	2×40	2×40	2×40	mA
$v_{in(g-g)pk}$	640	740	830	740	V
P_{drive}	2×11.5	2×13.5	2×15	2×21	W
p_a	2×32	2×38	2×51	2×41	W
P_{out}	190	306	408	300	W
η	74	80	80	78	%
*P_{load}	152	245	325	240	W
For 100% Modulation					
P_{mod}	126	191	255	191	W

*With a circuit Transfer Efficiency of 80%

OPERATING CONDITIONS FOR TWO VALVES AS GROUNDED GRID R.F. POWER AMPLIFIER (CLASS "C" TELEGRAPHY OR F.M. TELEPHONY)

Limiting Values

V_a max.	2.5	kV
p_a max. (corresponding to an anode temperature of 850°C i.e. red heat)	135	W
p_g max.	16	W
I_k max.	250	mA
$i_{k(pk)}$ max.	1.6	A
R_{g-f} max. (fixed bias)	100	kΩ
R_{g-f} max. (automatic bias)	200	kΩ

TY2-125

V.H.F. POWER TRIODE

All-glass triode rated for a maximum anode dissipation of 135 W and suitable for use at frequencies up to 200 Mc/s.

Typical Operating Conditions at f ≦150 Mc/s

V_a	1.0	1.5	2.0	2.5	kV
V_g	−80	−110	−150	−200	V
I_a	2×205	2×205	2×205	2×205	mA
I_g	2×40	2×40	2×40	2×40	mA
$v_{in(g-g)pk}$	520	600	680	780	V
P_{drive}	2×50	2×59	2×68	2×79	W
p_a	2×79	2×97	2×115	2×122	W
*P_{out}	252+80	420+96	590+110	780+130	W
†η	61.5	68	72	76	%
‡P_{load}	265	410	560	730	W

*Includes power transferred from driver stage.

†Valve efficiency.

‡With a Circuit Transfer Efficiency of 80%.

OPERATING CONDITIONS FOR TWO VALVES IN PUSH-PULL AS CLASS "B" A.F. POWER AMPLIFIER OR MODULATOR (With I_{g1})

Limiting Values

V_a max.	2.5	kV
p_a max.	135	W
p_g max.	16	W
I_k max.	250	mA
$i_{k(pk)}$ max.	1.6	A
R_{g-f} max. (fixed bias)	100	kΩ
R_{g-f} max. (automatic bias)	200	kΩ

Typical Operating Conditions

V_a	1.0	1.5	2.0	2.5	kV
V_g	−23	−46	−65	−86	V
$I_{a(o)}$	2×30	2×30	2×30	2×30	mA
I_a (max.sig.)	2×210	2×210	2×208	2×178	mA
I_g	2×40	2×40	2×42	2×42	mA
$V_{in(g-g)\ r.m.s.}$	210	240	280	295	V
P_{drive}	2×7.5	2×6.0	2×7.5	2×8.0	W
p_a	2×73	2×90	2×101	2×95	W
P_{out}	274	450	630	700	W
R_{a-a}	5.0	8.5	12	18.2	kΩ
η	65	71.5	76	78.5	%
D_{tot}	2.2	2.9	3.7	5.0	%

V.H.F. POWER TRIODE

TY2-125

All-glass triode rated for a maximum anode dissipation of 135 W and suitable for use at frequencies up to 200 Mc/s.

INDUSTRIAL RATINGS

Limiting Values (Absolute Ratings)

f max.	150	Mc/s
$V_{a(d.c.)}$ max.	2.5	kV
$V_{a(pk)\ a.c.}$ max.	4.0	kV
I_a max.	200	mA
$i_{a(pk)\ a.c.}$ max.	260	mA
p_a max.	135	W
I_g max. (at p_a max.)	40	mA
I_g max. (at 25% p_a max.)	50	mA
$R_{g.\ f}$ max.	15	k Ω

DIELECTRIC HEATER WITHOUT PROTECTION

Recommended rated operating condition for a dielectric heater employing single phase, full wave rectification (unsmoothed) for the anode supply.

f	150	Mc/s
$V_{transformer\ (r.m.s.)}$	2500–0–2500	V
V_a	2.24	kV
P_{in}	310	W
I_a	112	mA
I_g	33	mA
R_{g-f}	6.0	k Ω
p_a (at 72% η)	87	W
P_{out} (less P_{drive})	203	W
*P_{load}	162	W

*With a circuit transfer efficiency of 80%.

DIELECTRIC HEATER WITH PROTECTION

Operating condition for a dielectric heater employing single-phase full wave rectification (unsmoothed) for the anode supply and incorporating the maximum protection for the valve against overload, under drive and inefficient operation.

f	150	Mc/s
$V_{transformer\ (r.m.s.)}$	2500–0–2500	V
V_a	2.24	kV
P_{in}	480	W
I_a	173	mA
I_g	36	mA
R_{g-f}	5.5	k Ω
p_a (at 72% η)	135	W
P_{out} (less P_{drive})	325	W
*P_{load}	260	W

*With a circuit transfer efficiency of 80%.

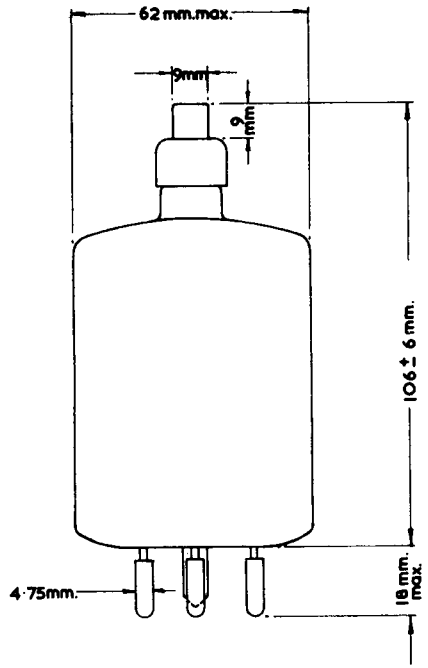
WEIGHT

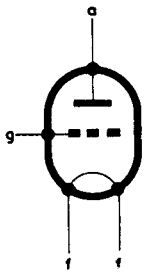
Valve only	4	ozs
	110	g

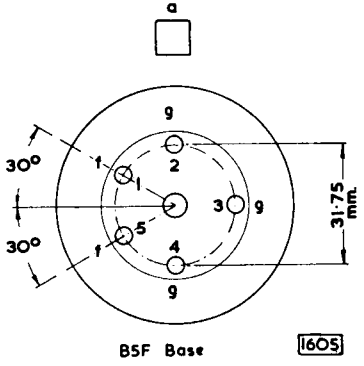
TY2-125

V.H.F. POWER TRIODE

All-glass triode rated for a maximum anode dissipation of 135 W and suitable for use at frequencies up to 200 Mc/s.







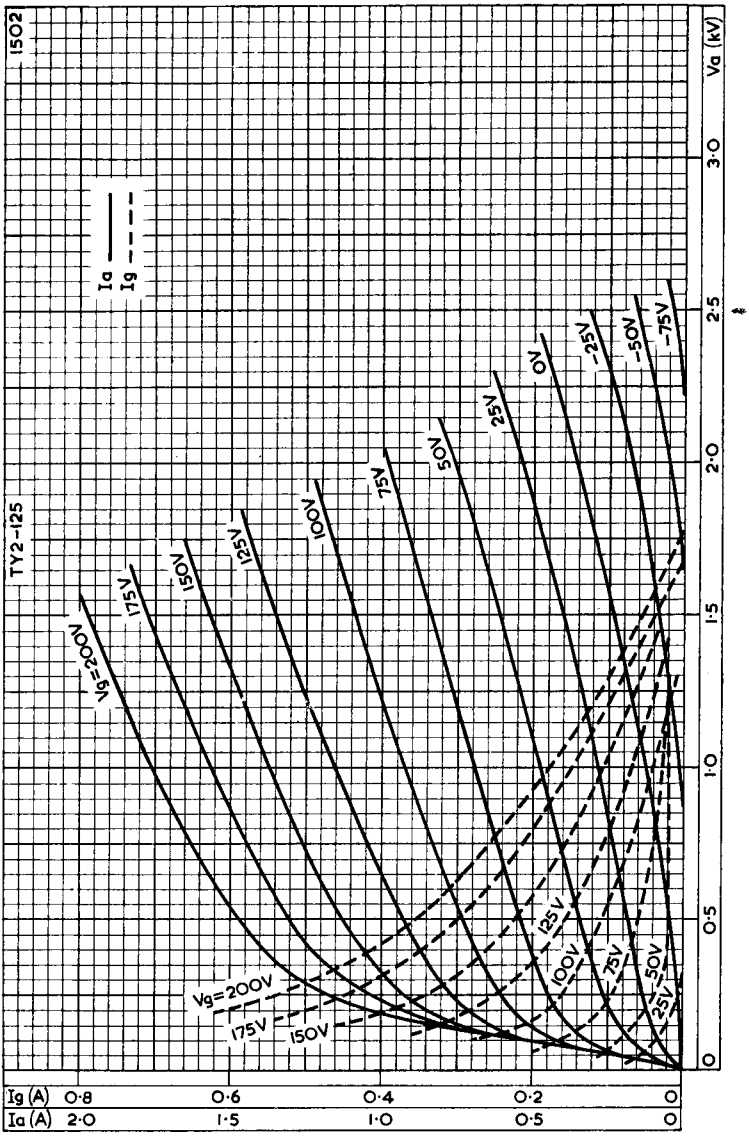
B5F Base

1605

V.H.F. POWER TRIODE

TY2-125

All-glass triode rated for a maximum anode dissipation of 135 W and suitable for use at frequencies up to 200 Mc/s.



ANODE AND GRID CURRENT PLOTTED AGAINST ANODE VOLTAGE

TY2-125

V.H.F. POWER TRIODE

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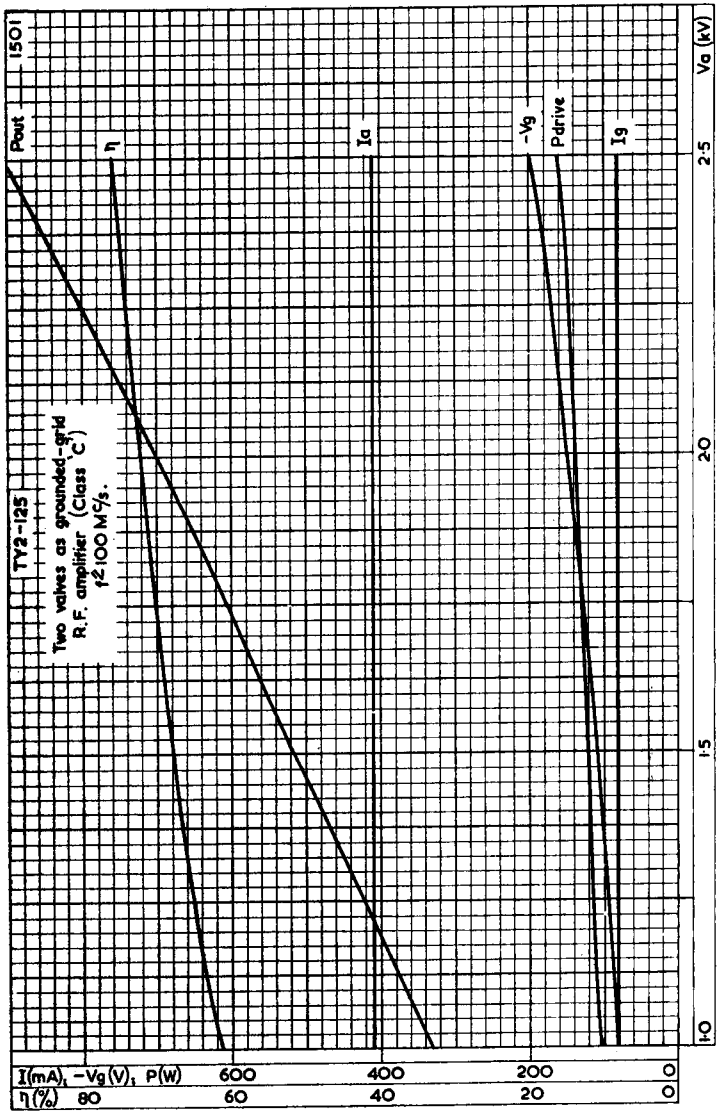
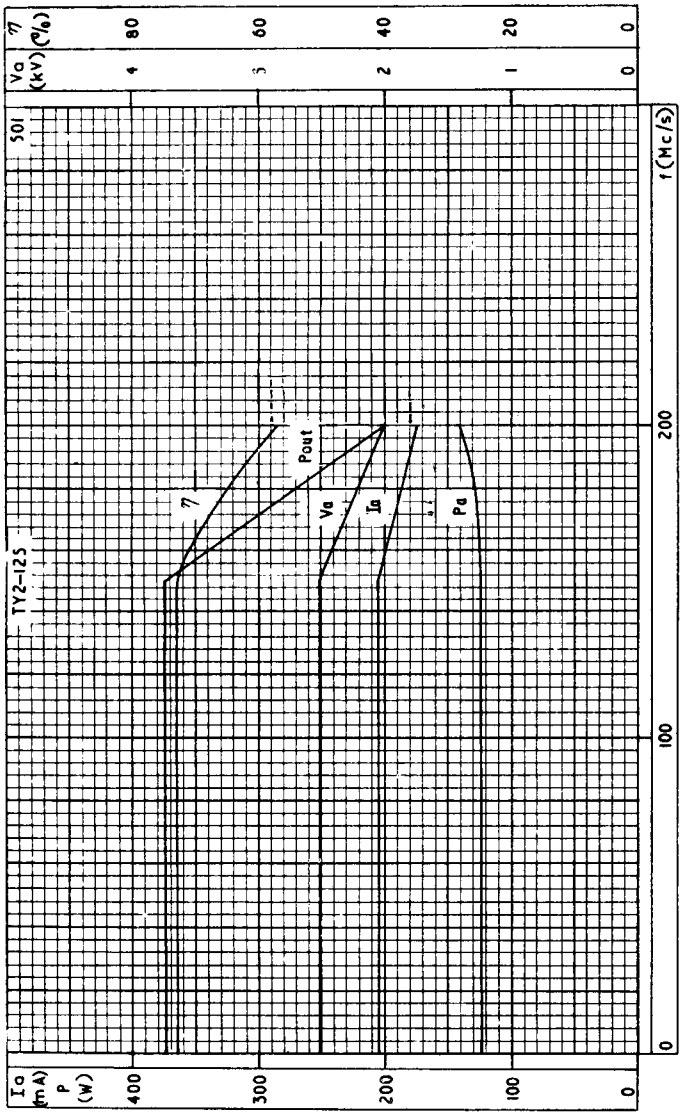


TWO VALVES AS CLASS "C" GROUNDED-GRID R.F. AMPLIFIER

V.H.F. POWER TRIODE

TY2-125

All-glass triode rated for a maximum anode dissipation of 135 W and suitable for use at frequencies up to 200 Mc/s.



FREQUENCY CHARACTERISTICS

TY2-125

V.H.F. POWER TRIODE

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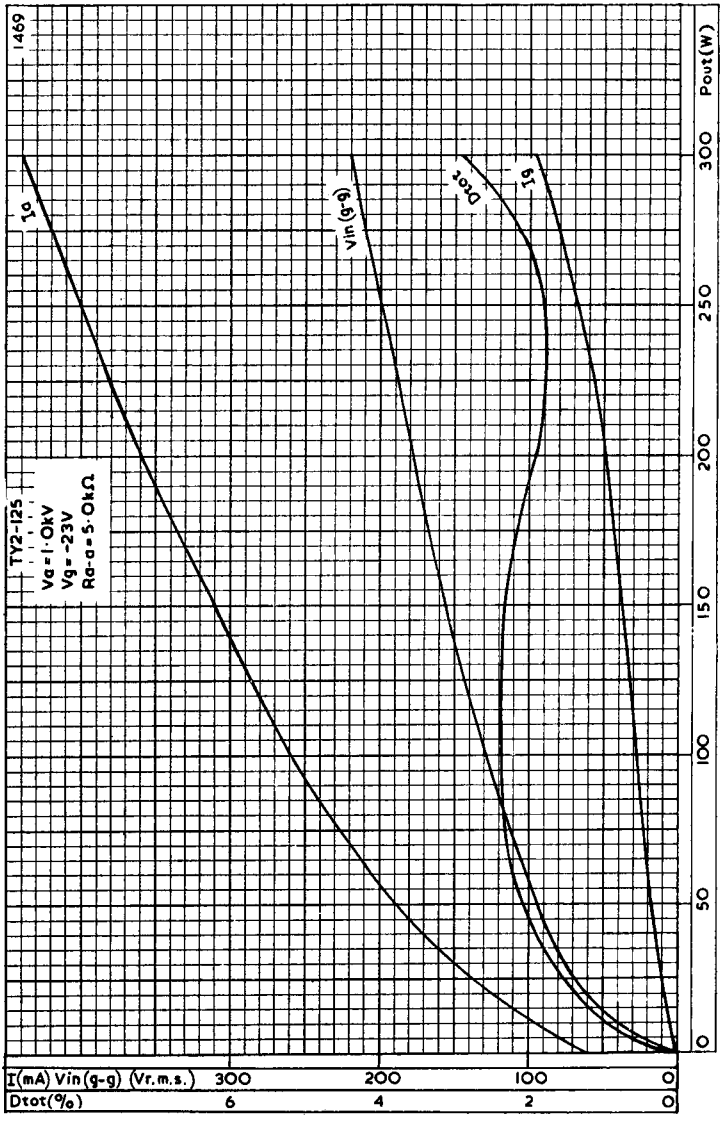

TWO VALVES AS CLASS "B" A.F. AMPLIFIER V_a=1.0 kV

V.H.F. POWER TRIODE

TY2-125

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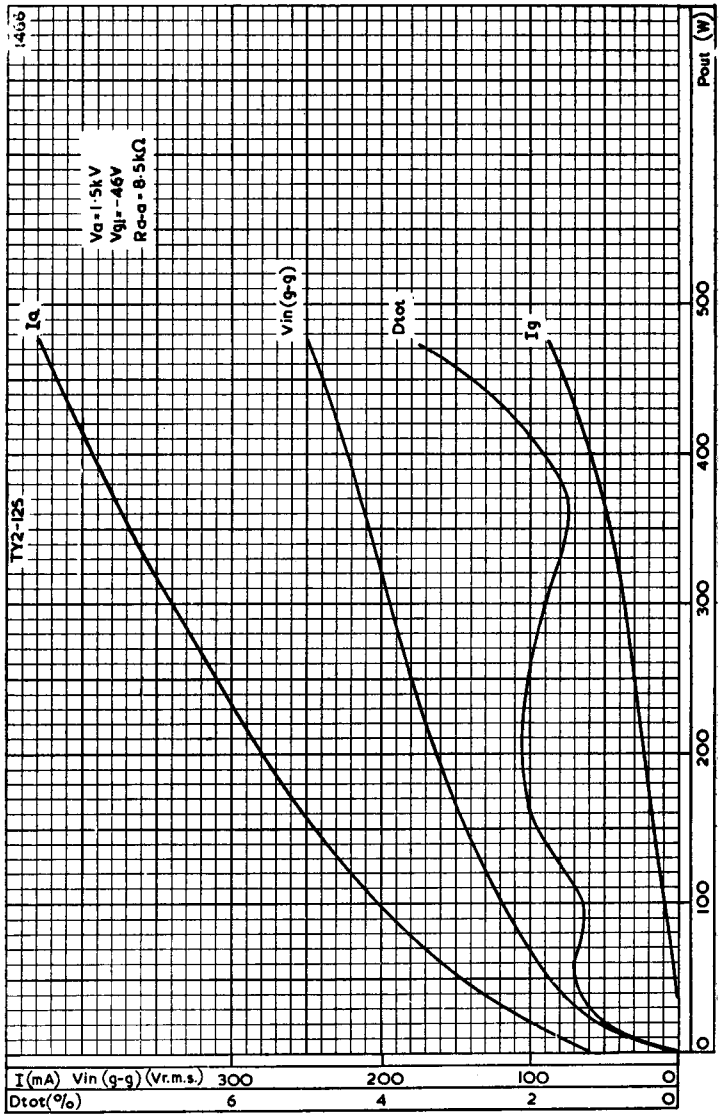

TWO VALVES AS CLASS "B" A.F. AMPLIFIER. $V_a = 1.5$ kV

TY2-125

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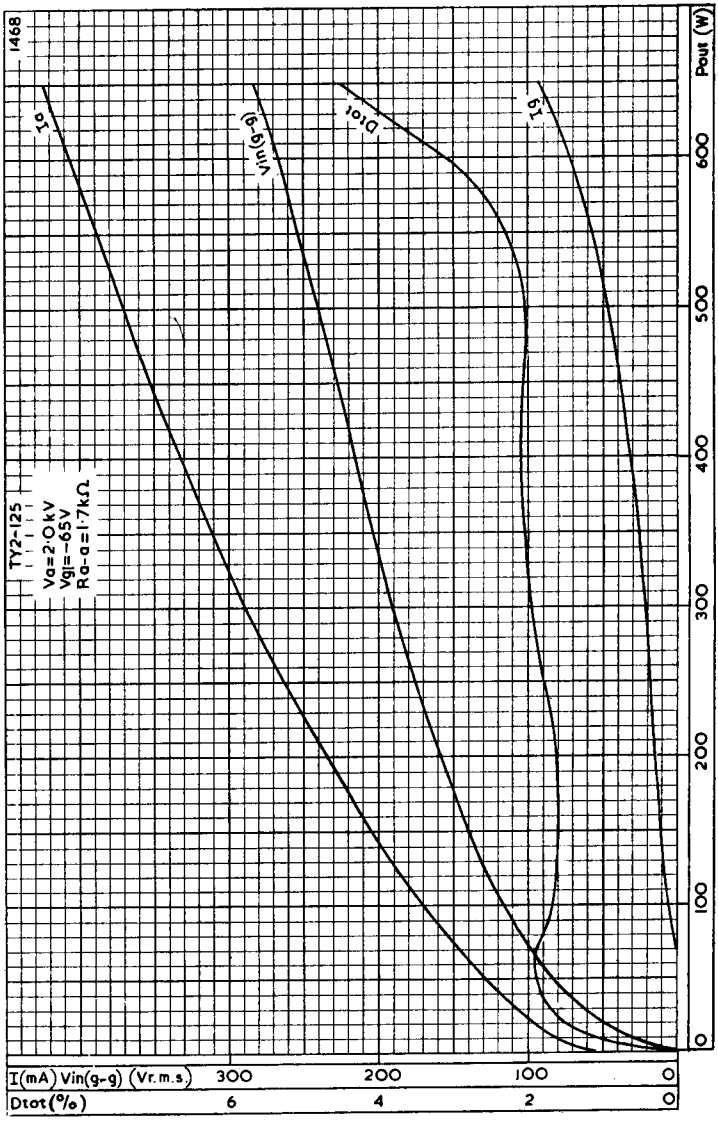

TWO VALVES AS CLASS "B" A.F. AMPLIFIER. V_a=2.0 kV

V.H.F. POWER TRIODE

TY2-125

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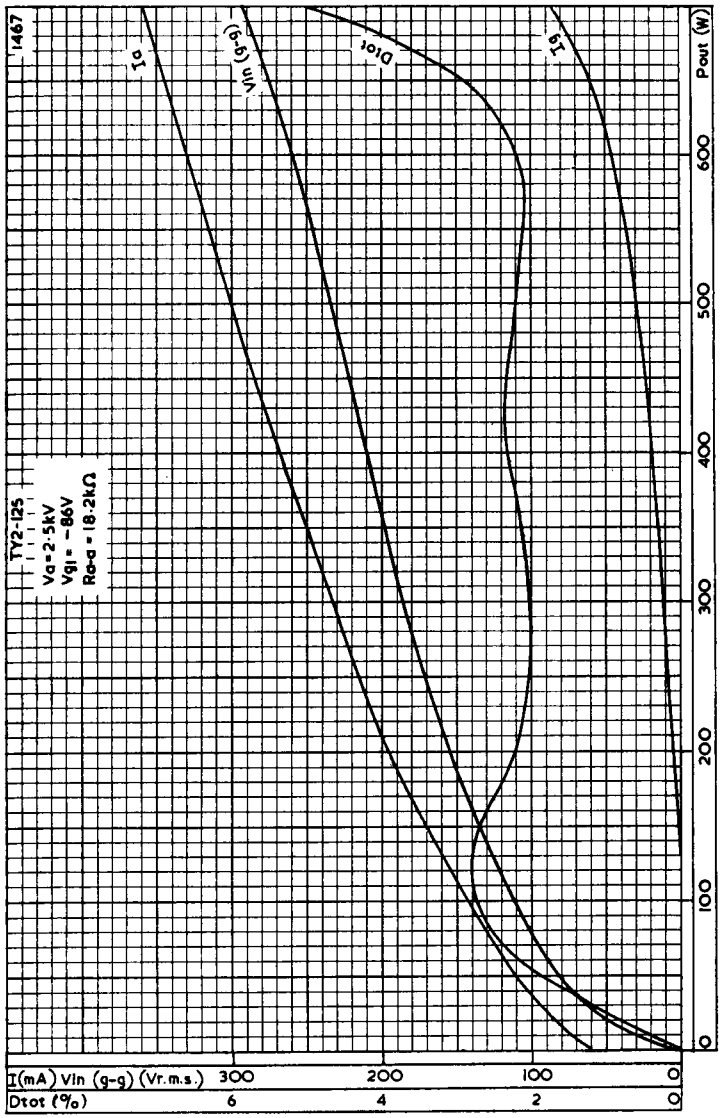

TWO VALVES AS CLASS "B" A.F. AMPLIFIER. V_a = 2.5 kV