R.F. POWER TRIODE

TYS5-3000

R.F. power triode in silica envelope, rated for an anode dissipation of 3.5 kW. Primarily intended as a self-excited oscillator in R.F. heating equipment, but also suitable for use as R.F. amplifier in transmitting or industrial equipment.

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

FILAMENT

Thoriated tungsten suitable for use on a.c. or d.c. supply.

V_f	20.5	V
I_f (approx.)	26	A

MOUNTING POSITION

This valve must be operated in the vertical position with the filament leads downward.

CAPACITANCES

C_{a-g}	35	μμF
C_{a-f}	3.5	μμF
C_{g-f}	25	μμF

CHARACTERISTICS (At V_a=5.0kV; I_a=800mA)

g_m	15	mA/V
μ	32	
r_a	2.1	kΩ

LIMITING VALUES (Absolute Ratings)

V_a max. (natural cooling of seals)	6.0	kV
p_a max.	3.5	kW
I_g max. (at max. p_a)	400	mA
I_k max.	2.8	A
f max. for above ratings	12	Mc/s
*V_a max. (at 20 Mc/s with natural cooling)	4.0	kV
T_a max. (at hottest part of anode)	950	°C

*A small fan directed towards the terminals will allow this voltage to be raised to its maximum value.

LIMITING CONDITIONS AS CLASS "C" AMPLIFIER WITH NATURAL COOLING

f	3.0	Mc/s
V_a	6.0	kV
V_g	−550	V
I_a	2.33	A
I_g	350	mA
$V_{in(pk)}$	1.1	kV
η	75	%
p_a	3.5	kW
P_{out}	10.5	kW

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RECOMMENDED OPERATING CONDITIONS AS CLASS "C" SELF-EXCITED OSCILLATOR FOR A DIELECTRIC HEATER

A ventilating fan providing some cooling of the anode seals and a non-regulated supply are assumed.

f	20	Mc/s
V_a	6.0	kV
I_a	1.5	A
R_{g-f}	2.2	kΩ
I_g	250	mA
$V_{in(pk)}$	950	V
η	70	%
P_a	2.7	kW
P_{out}	6.3	kW
*P_{load}	5.0	kW

*Assuming a circuit transfer efficiency of approximately 85%.

RECOMMENDED OPERATING CONDITIONS AS CLASS "C" SELF-EXCITED OSCILLATOR IN AN INDUCTION HEATER

This is suitable for repetition work on a short duty cycle and with a non-regulated supply.

f	450	kc/s
V_a	6.0	kV
I_a	2.0	A
R_{g-f}	1.7	kΩ
I_g	320	mA
$V_{in(pk)}$	1.0	kV
η	76	%
P_a	2.9	kW
P_{out}	9.1	kW
*P_{load}	7.0	kW

*Assuming a circuit transfer efficiency of approximately 80%.

WEIGHT

Valve only { 2 lb. 14 oz. / 1.3 kg.

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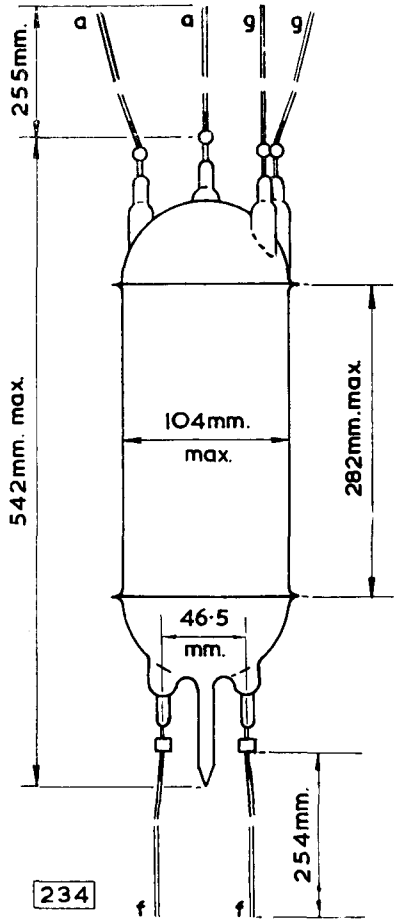

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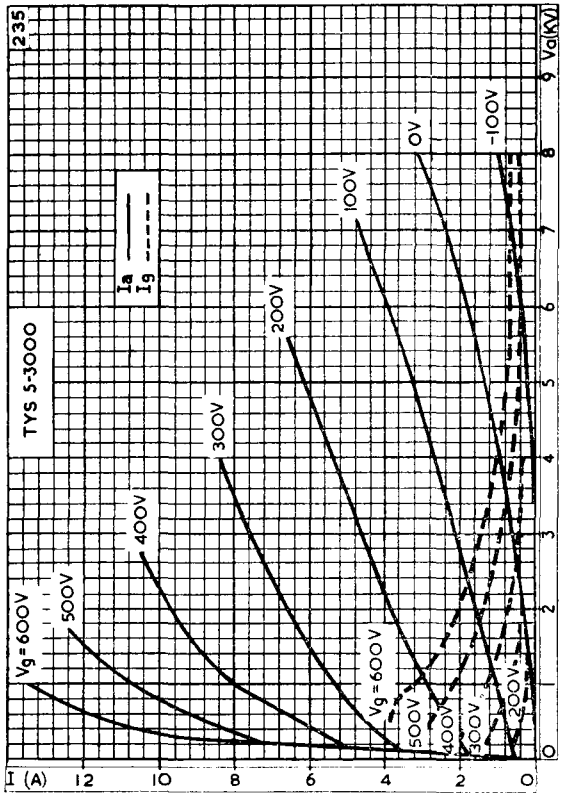

ANODE AND GRID CURRENT PLOTTED AGAINST ANODE VOLTAGE

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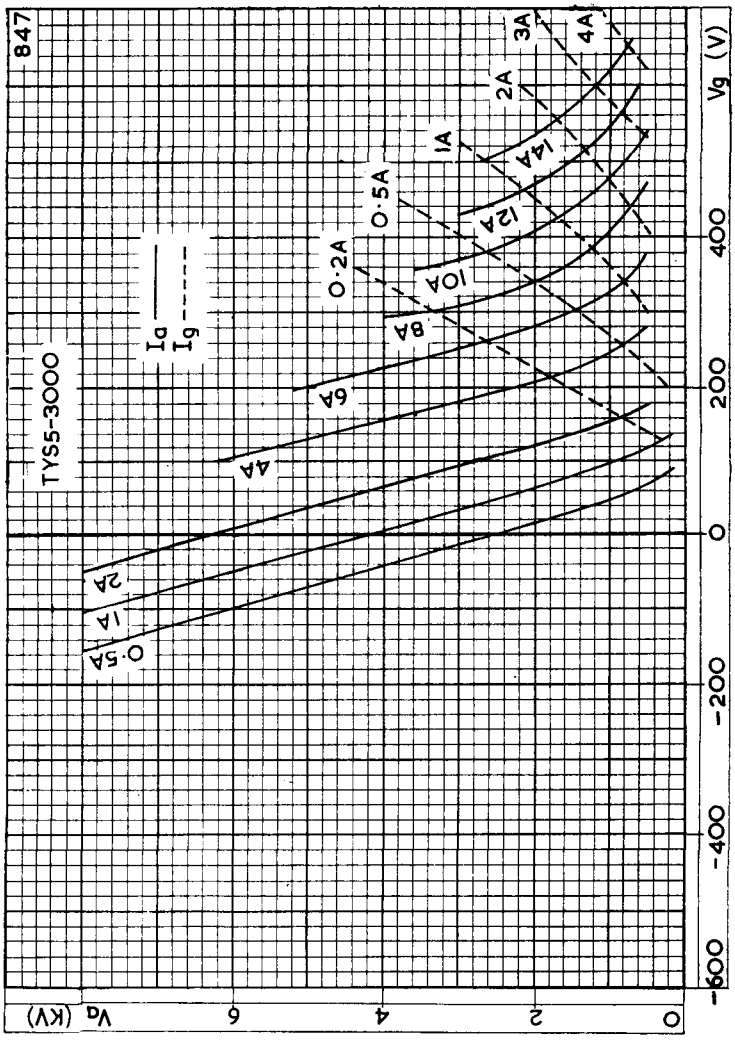

CONSTANT CURRENT CURVES.