

TRIODE

TY5-500

Application: R.F. industrial heating.
Power output: 1.6kW continuous rating.
Frequency: 50Mc/s at full rating.
Construction: Glass; radiation cooled anode.

PRELIMINARY DATA

This data should be read in conjunction with GENERAL OPERATIONAL RECOMMENDATIONS—TRANSMITTING VALVES preceding this section of the handbook.

FILAMENT Thoriated tungsten

*V _f	5.0	V
I _f	32.5	A

*The filament has been designed to accept temporary fluctuations $\begin{matrix} +5\% \\ -10\% \end{matrix}$

MOUNTING POSITION

Vertical only, base down

CAPACITANCES

C _{a-g}	5.1	pF
C _{g-f}	9.2	pF
C _{a-f}	0.2	pF

CHARACTERISTICS (measured at V_a = 4kV, I_a = 120mA)

g _m	3.3	mA/V
g _m (at V _a = 1.0kV, I _a = 2.3A)	10	mA/V
μ	21	

COOLING

Normally	Low velocity air flow
*At reduced input or with intermittent ratings	Natural
T _{seals} max.	220 °C
T _{bulb} max.	350 °C

*See examples in typical data.

ACCESSORIES

Socket	B8.700.51
Anode clip	40626

CLASS 'C' OSCILLATOR

With d.c. anode supply

LIMITING VALUES (absolute ratings)

f max.			50	Mc/s
V _a max.			5.0	kV
V _g max.			-1.25	kV
R _{g-t} max.			15	kΩ
Duty factor max.	1	0.5	0.2	
Averaging time max.	—	10	5.0	s
p _a max.	500	700	1000	W
I _a max.	560	780	1100	mA
p _g max.	85	95	110	W
I _g max. (at p _a max.)	210	290	420	mA

OPERATING CONDITIONS

Cooling	Additional	Natural		
		≤ 50	≤ 50	Mc/s
f	≤ 50	≤ 50	≤ 50	
Duty factor	1	0.5	0.2	
t _{on}	—	5.0	1.0	s
t _{off}	—	5.0	4.0	s
V _a	4.0	4.0	4.0	kV
I _a	490	650	825	mA
I _g	140	190	240	mA
p _a	450	630	900	W
η _a	77	76	73	%
R _{g-t}	2.7	2.0	1.7	kΩ
R _a	4.7	3.4	2.7	kΩ
Feedback ratio $\frac{V_{in(pk)}}{V_a(pk)}$	0.2	0.22	0.24	
P _{out}	1.5	2.0	2.4	kW
*P _{load}	1.2	1.6	1.9	kW

*0.85 (P_{out}-P_{drive})

CLASS 'C' OSCILLATOR

Anode supply single phase, full wave rectifier without smoothing filter.

LIMITING VALUES (absolute ratings)

f max.			50	Mc/s
V_a max.			4.5	kV
V_g max.			850	V
R_{g-f} max.			15	k Ω
Duty factor max.	1.0	0.5	0.2	
Averaging time max.	—	10	5.0	s
p_a max.	500	700	1000	W
I_a max.	450	630	900	mA
p_g max.	85	95	110	W
I_g max. (at p_a max.)	190	195	380	mA

OPERATING CONDITIONS

Cooling	Additional	Natural		Mc/s
		≤ 50	≤ 50	
f	≤ 50	≤ 50	≤ 50	Mc/s
Duty factor	1.0	0.5	0.2	
t_{on}	—	5.0	1.0	s
t_{off}	—	5.0	4.0	s
$V_{tr(r.m.s.)}$	4.5	4.5	4.5	kV
V_a	4.05	4.05	4.05	kV
I_a	400	530	675	mA
I_g	125	165	210	mA
p_a	450	630	900	W
τ_{ia}	77	76	73	%
R_{g-f}	2.7	2.2	1.7	k Ω
R_a	5.9	4.3	3.5	k Ω
Feedback ratio $\frac{V_{in(pk)}}{V_a(pk)}$	0.16	0.17	0.18	
P_{out}	1.53	2.0	2.46	kW
* P_{load}	1.25	1.5	2.0	kW

* $0.85 (P_{out} - P_{drive})$

CLASS 'C' OSCILLATOR

Anode supply from three phase half-wave rectifier.

LIMITING VALUES (absolute ratings)

f max.			50	Mc/s
V _a max.			5.0	kV
V _g max.			-1.25	kV
R _{g-t} max.			15	kΩ
Duty factor max.	1.0	0.5	0.2	
Averaging time max.	—	10	5.0	s
p _a max.	500	700	1000	W
I _a max.	560	780	1100	mA
p _g max.	85	95	110	mA
I _g max. (at p _a max.)	210	290	420	mA

OPERATING CONDITIONS

Cooling	Additional	Natural		
	≤ 50	≤ 50	≤ 50	Mc/s
f	≤ 50	≤ 50	≤ 50	
Duty factor	1	0.5	0.2	
t _{on}	—	5.0	1.0	s
t _{off}	—	5.0	4.0	s
V _{tr(r.m.s.)}	3.4	3.4	3.4	kV
V _a	4.0	4.0	4.0	kV
I _a	480	640	820	mA
I _g	140	190	240	mA
p _a	450	630	900	W
η _a	77	76	73	%
R _{g-t}	2.7	2.0	1.7	kΩ
R _a	4.7	3.4	2.7	kΩ
Feedback ratio $\frac{V_{in(pk)}}{V_a(pk)}$	0.2	0.22	0.24	
P _{out}	1.5	2.0	2.4	kW
*P _{load}	1.2	1.6	1.9	kW

*0.85 (P_{load} - P_{drive})

CLASS 'C' OSCILLATOR

Anode supply from transformer without intermediate rectifier.

LIMITING VALUES (absolute ratings)

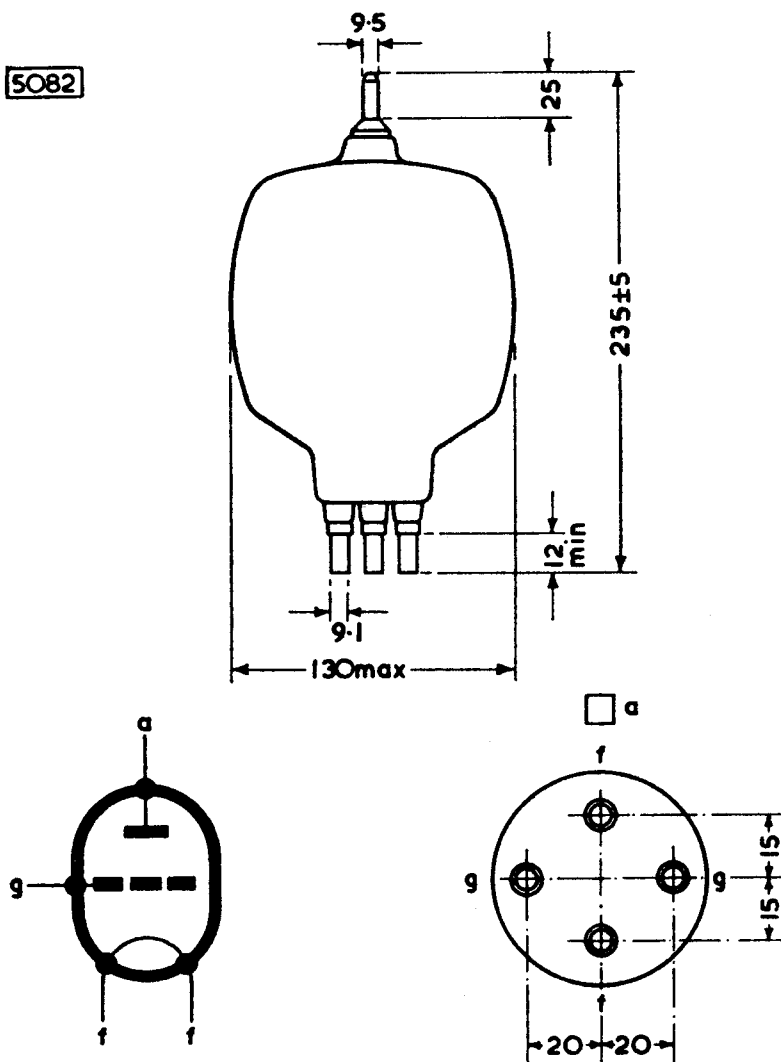
f max.			50	Mc/s
$V_{tr(r.m.s.)}$ max.			5.0	kV
V_g max.			-850	V
R_{g-f} max.			15	k Ω
Duty factor max.	1	0.5	0.2	
Averaging time max.	—	10	5.0	s
p_a max.	500	700	1000	W
I_a max.	320	450	640	mA
p_g max.	85	95	110	W
I_g max. (at p_a max.)	110	155	220	mA

OPERATING CONDITIONS

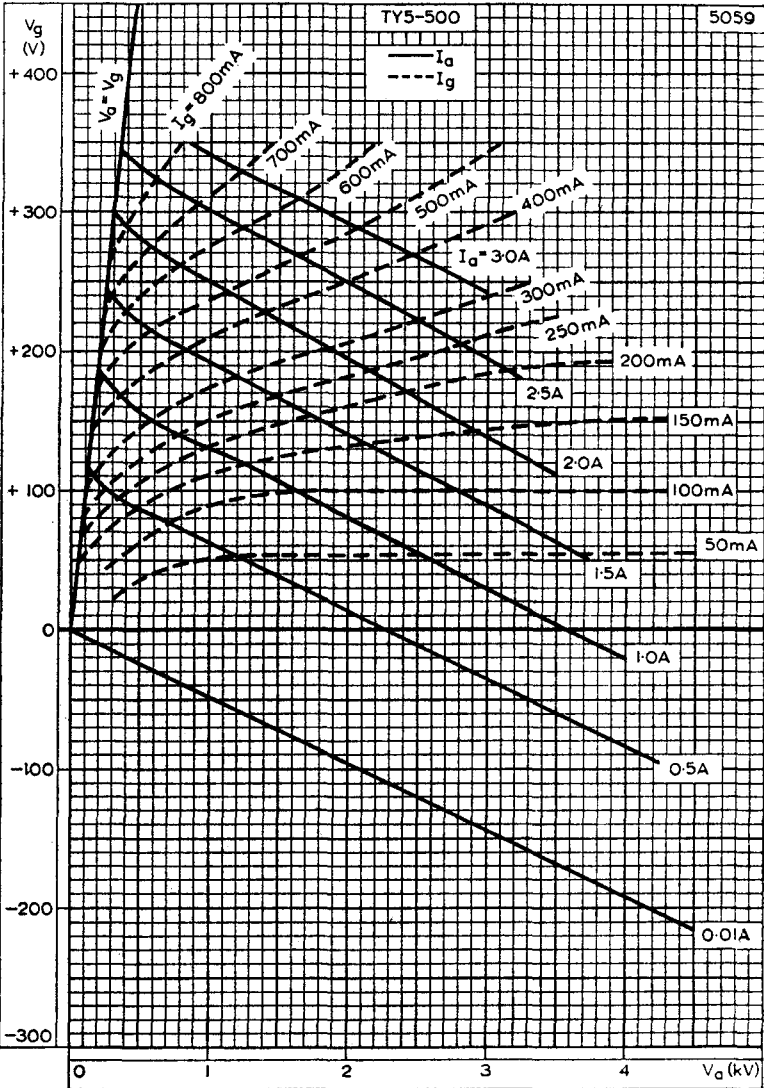
Cooling	Additional	Natural		
		≤ 50	≤ 50	
f	≤ 50	≤ 50	≤ 50	Mc/s
Duty factor	1.0	0.5	0.2	
t_{on}	—	5.0	1.0	s
t_{off}	—	5.0	4.0	s
$V_{tr(r.m.s.)}$	4.5	4.5	4.5	kV
* I_a	280	420	600	mA
* I_g	80	120	170	mA
p_a	380	500	800	W
η_a	77	76	73	%
R_{g-f}	2.7	1.8	1.3	k Ω
R_a	4.3	2.9	2.0	k Ω
Feedback ratio $\frac{V_{in(pk)}}{V_a(pk)}$	0.18	0.22	0.25	
P_{out}	1.08	1.6	2.2	kW
** P_{load}	0.9	1.3	1.7	kW

*Averaged over one cycle of supply frequency.

**0.85 ($P_{out} - P_{drive}$)



All dimensions in mm



CONSTANT CURRENT CURVES

