

R.F. POWER TRIODE

Application: R.F. industrial oscillator
Power output: 4.1kW continuous rating
Frequency: 50Mc/s at full ratings
Construction: External anode, forced-air cooled

TY6-I250A

PRELIMINARY DATA

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

FILAMENT Directly heated, thoriated tungsten

$*V_f$	6.3	V
I_f	65	A

*The filament has been designed to accept temporary voltage fluctuations of up to +5% or -10%

MOUNTING POSITION

Vertical only, anode up or down

CAPACITANCES

C_{a-g}	7.2	pF
C_{g-f}	13	pF
C_{a-f}	< 500	mpF

CHARACTERISTICS (measured at $V_a=6kV$, $I_a=240mA$)

g_m	7.0	mA/V
μ	23	

COOLING

Forced air		
$T_{seals\ max.}$	200	°C
$T_{anode\ max.}$	270	°C

An airflow should be directed to anode and seals in order to keep the temperature below the specified limits.

At sea level and at a temperature of 35°C an airflow of 70ft³(2m³) per minute is sufficient for cooling the anode in continuous operation at maximum anode dissipation.

At higher altitudes and/or higher inlet temperatures a correspondingly greater amount of air should be applied.

The filament and grid seals require an airflow of 11ft³(0.3m³) per minute.

The airflow should be directed on the valve as indicated in Fig. 1. To keep the anode seal, opposite the nozzle, below the maximum temperature a deflection plate as indicated in Fig. 1 should be used. This should be made of a suitable insulating material such as p.t.f.e. This deflection plate can be clipped on the anode or mounted on the valve socket or on the chassis.

CLASS 'C' OSCILLATOR

Anode supply from 3-phase rectifier without smoothing filter continuous operation.

Limiting values (absolute ratings)

f max.	50	Mc/s
V_a max.	7.0	kV
I_k max.	2.0	A
$i_{k(pk)}$ max.	12	A
P_a max.	1.3	kW
$-V_g$ max.	1.25	kV
I_g max.	400	mA
R_{g-f} max.	10	k Ω

Typical operation

f	50	Mc/s
$V_{tr(r.m.s.)}$	5.1	kV
V_a	6.0	kV
I_a	900	mA
I_g	280	mA
P_a	1.3	kW
η_a	76	%
R_{g-f}	2.0	k Ω
R_a	3.3	k Ω
Feedback ratio $\frac{V_{in(pk)}}{V_a(pk)}$	0.16	
P_{out}	4.1	kW
* P_{load}	3.3	kW
*0.85 ($P_{out}-P_{drive}$)		

CLASS 'C' OSCILLATOR

Anode supply from 3-phase rectifier without smoothing filter, intermittent operation.

Limiting values (absolute ratings)

f max.	50	Mc/s
V_a max.	7.0	kV
p_a max.	2.1	kW
I_k max.	2.3	A
$i_{k(pk)}$ max.	14	A
$-V_g$ max.	1.25	kV
I_g max.	400	mA
R_{g-f} max.	10	$k\Omega$

Typical operation

Duty cycle } t_{on}	see page C4	
f	50	Mc/s
$V_{tr(r.m.s.)}$	5.1	kV
V_a	6.0	kV
I_a	1.33	A
I_g	380	mA
p_a	2.1	kW
η_a	74	%
R_{g-f}	1.45	$k\Omega$
R_a	2.2	$k\Omega$
Feedback ratio $\frac{V_{in(pk)}}{V_a(pk)}$	0.17	
P_{out}	5.9	kW
* P_{load}	4.75	kW
*0.85 ($P_{out} - P_{drive}$)		

WEIGHT

Valve only	$\left\{ \begin{array}{l} 1 \text{ lb } 13\text{oz} \\ 800 \text{ g} \end{array} \right.$
Shipping weight	

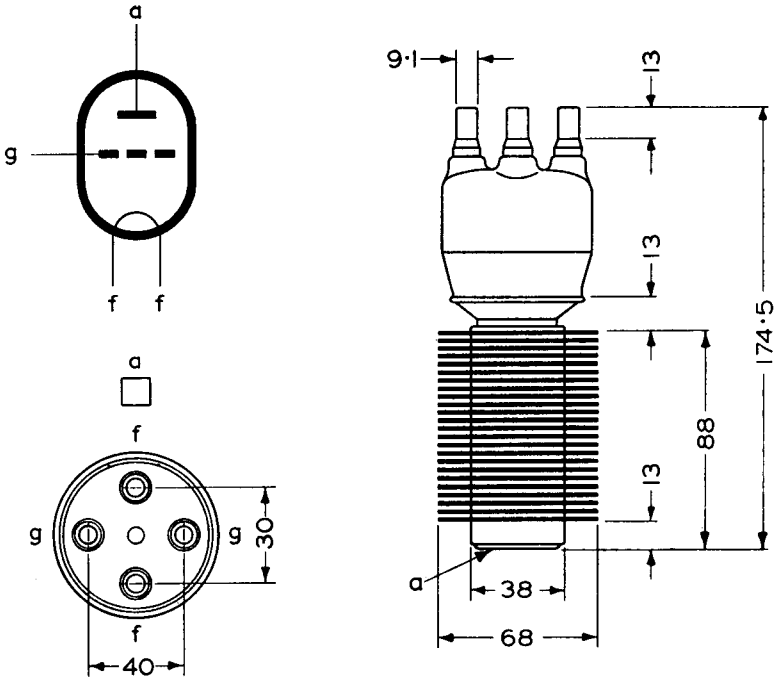
ACCESSORIES

Socket

B8.700.51

TY6-I250A

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All dimensions in mm

7452

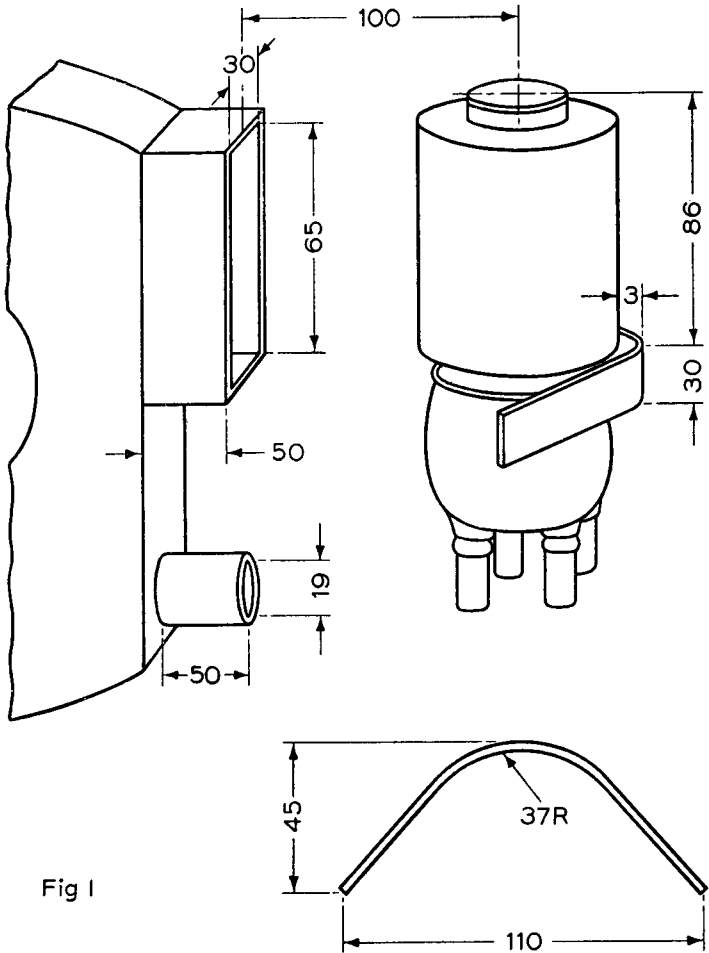
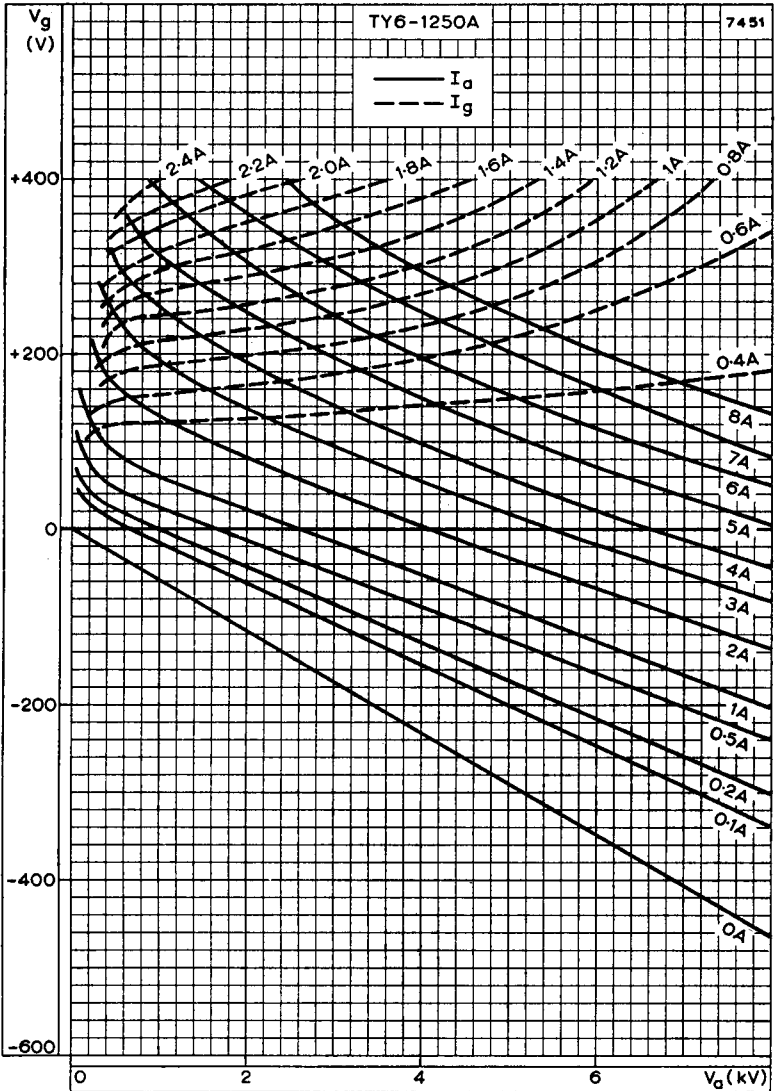


Fig 1

All dimensions in mm

7461

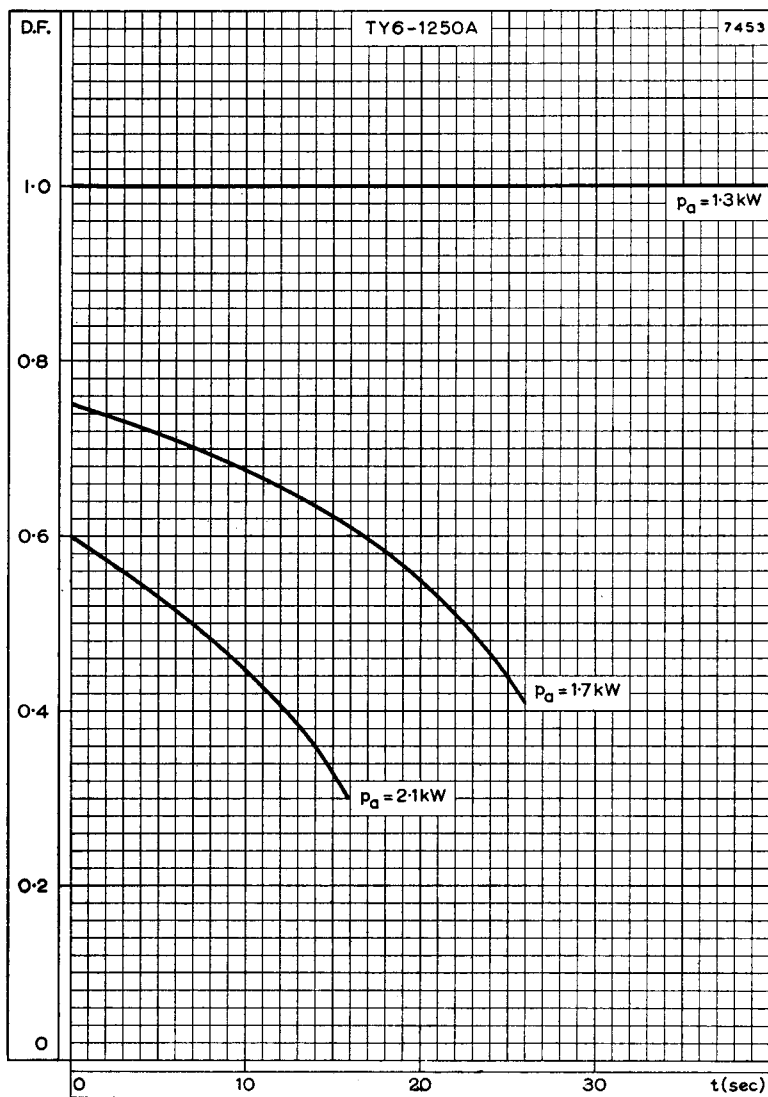
FIG. 1. COOLING ARRANGEMENT



CONSTANT CURRENT CURVES

TY6-1250A

R.F. POWER TRIODE



DUTY FACTOR PLOTTED AGAINST TIME FOR INTERMITTENT OPERATION

