

RF POWER TRIODE

Triode in metal-ceramic construction, intended for use as industrial oscillator.
The tube is forced-air cooled, with integral cooler.

QUICK REFERENCE DATA

Oscillator output power ($W_O - W_{\text{feedb}}$), typical	W_{osc}	4,75 kW
Frequency for full ratings	f max.	85 MHz

To be read in conjunction with "General Operational Recommendations".

RF CLASS C OSCILLATOR FOR INDUSTRIAL USE

OPERATING CONDITIONS

Frequency	f	30	30 MHz
Filament voltage	V_f	6,3	6,3 V
Oscillator output power ($W_O - W_{\text{feedb}}$)	W_{osc}	4,7	3,8 kW
Anode voltage	V_a	6	5 kV
Anode current	I_a	1	1 A
Anode input power	W_{ia}	6	5 kW
Anode dissipation	W_a	1,1	1,0 kW
Anode output power	W_O	4,9	4 kW
Anode efficiency	η_a	81,5	80 %
Oscillator efficiency	η_{osc}	78	76 %
Feedback ratio	V_{gp}/V_{ap}	17,6	19,4 %
Grid resistor	R_g	3,1	2,75 k Ω
Grid current, on load	I_g	205	200 mA
Grid voltage, negative	$-V_g$	640	550 V
Grid dissipation	W_g	60	60 W
Grid resistor dissipation	W_{Rg}	130	110 W

LIMITING VALUES (Absolute maximum rating system)

Frequency	f	up to 85 MHz *
Anode voltage	V_a	7,2 kV
Anode current	I_a	1,1 A
Anode input power	W_{ia}	6,5 kW
Anode dissipation	W_a	2,5 kW
Grid voltage	$-V_g$	1 kV
Grid current, on load	I_g	250 mA
off load	I_g	350 mA
Grid dissipation	W_g	140 W
Grid circuit resistance	R_g	20 k Ω
Cathode current, mean	I_k	1,4 A
peak	I_{kp}	7,5 A
Envelope temperature	T_{env}	240 °C

HEATING: direct; thoriated tungsten filament

Filament voltage	V_f	6,3 V
Filament current at $V_f = 6,3$ V	I_f	33 A

The filament is designed to accept temporary fluctuations of + 5% and - 10%.

It is extremely important that the filament be properly decoupled. This should be done so that the resonance of the circuit formed by the filament and the decoupling elements remain below the fundamental oscillator frequency. In grounded-grid circuits this resonance should be below the grid-cathode resonance. For further information please see Application Book "Tubes for RF Heating" or contact the manufacturer.

CAPACITANCES

Anode-to-filament	C_{af}	0,4 pF
Grid to filament	C_{gf}	15 pF
Anode to grid	C_{ag}	12 pF

CHARACTERISTICS measured at $V_a = 2,0$ kV, $I_a = 0,5$ A

Transconductance	S	10 mA/V
Amplification factor	μ	17

* For operation above 85 MHz the tube manufacturer should be consulted.

COOLING

To obtain optimum life, the temperature of the seals and the envelope should, under normal operating conditions, be kept below 200 °C.

Table 1 Air cooling characteristics with insulating pedestal type 40630

anode + grid dissipation $W_a + W_g$ kW	altitude h m	inlet temperature T_i °C	rate of flow q_{min} m ³ /min	pressure drop ΔP Pa*	max. outlet temperature T_o °C
1	0	35	1,5	35	80
	0	45	1,9	50	81
1,5	0	35	2,7	83	70
	0	45	3,1	85	75
2,5	0	35	5,0	140	65
	0	45	5,4	160	73

ACCESSORIES

Filament connector	type 40688
Filament/cathode connector	type 40689
Grid connector	type 40686
Insulating pedestal	type 40630

* 1 Pa $\approx$ 0,1 mm H₂O.

MECHANICAL DATA

Dimensions in mm

Mounting position: vertical with anode up or down

Net mass: 2,6 kg

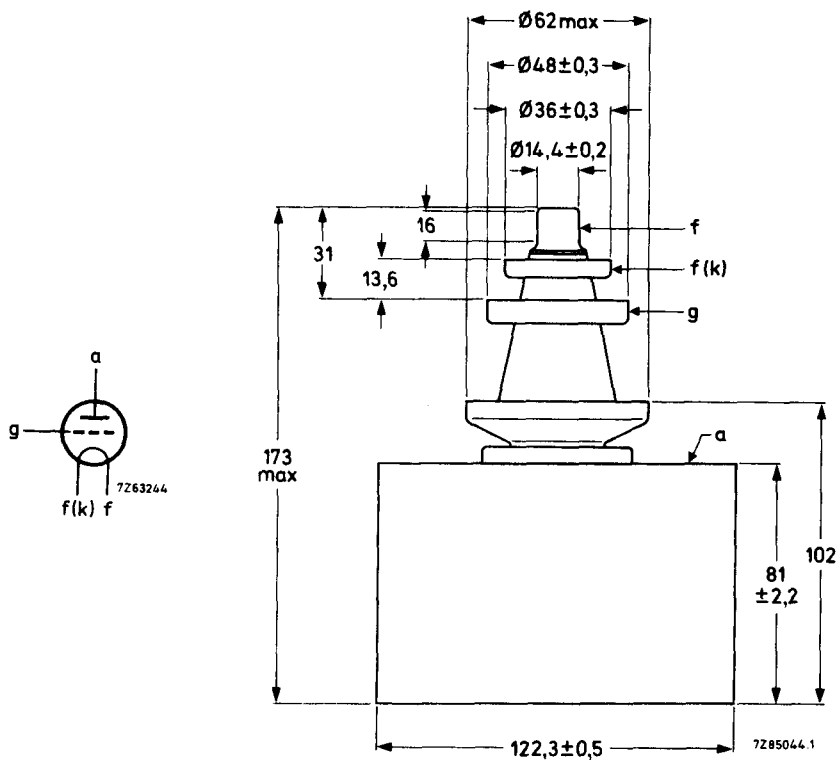


Fig. 1 Mechanical outline.

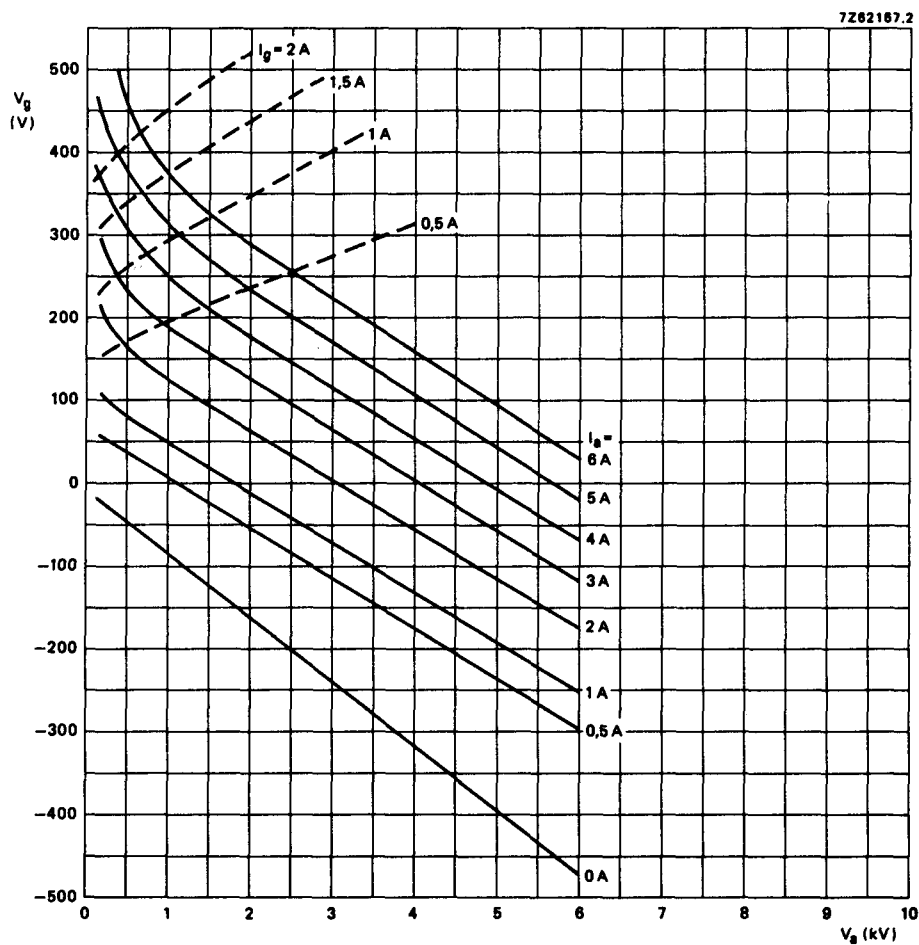


Fig. 2 Constant current characteristics.

PHILIPS

Data handbook



**Electronic
components
and materials**

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