

The TBL6/4000A is a RF power triode in metal ceramic construction, forced-air cooled.

GENERAL CHARACTERISTICS

HEATING

Direct, thoriated tungsten filament

Filament voltage	Vf	=	6.3 V
Filament current	If	=	65 A

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

CAPACITANCES

Anode to all other elements except grid	Ca	<	0,5 pF
Grid to all other elements except anode	Cg	=	13 pF
Anode to grid	Cag	=	7.5 pF

TYPICAL CHARACTERISTICS

Anode voltage	Va	=	6 kV
Anode current	Ia	=	0.24 A
Mutual conductance	S	=	7 mA/V
Amplification factor	μ	=	23

TEMPERATURE LIMITS (Absolute limits)

Temperature of all seals	max. 220°C
Temperature of external parts of anode	max. 270°C

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Table 1 - COOLING**Continuous service**

Wa (kW)	qmin (m3/min)	ΔP (Pa)*
1.3	1.6	160
1.7	2.1	250

* 1 Pa $\approx$ 0,1 mm H₂O

For intermittent service : see figure page 3

At higher altitudes and/or temperatures, a corresponding higher amount of air should be applied.

RECOMMENDED COOLING DEVICE

- (1) = metal housing
- (2) = glass cylinder
- (3) = socket 2422 511 05001
- (4) = ground plate

Dimensions of the glass cylinder :

Height = 118 mm
 Outside diameter = 150 mm
 Inside diameter = 144 mm

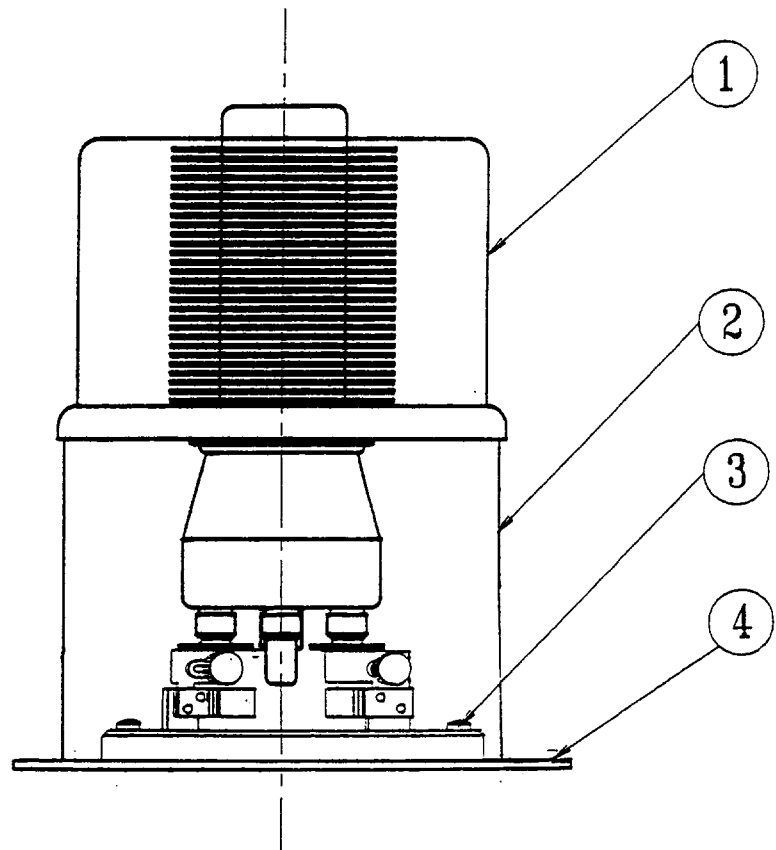


Fig. 1 - Recommended cooling device

The cooling air should preferably be supplied through the space under the ground plate (4). This ground plate should have holes of sufficient cross section to pass the required air flow.

The housing (1) should be connected to the anode connector. At frequencies above 4 MHz, both grid terminals should be connected in parallel. At the highest frequencies, care should be taken to distribute the RF current equally between both grid terminals to avoid excessive grid seal temperatures.

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RECOMMENDED COOLING DEVICE (continued)

Dimensions in mm

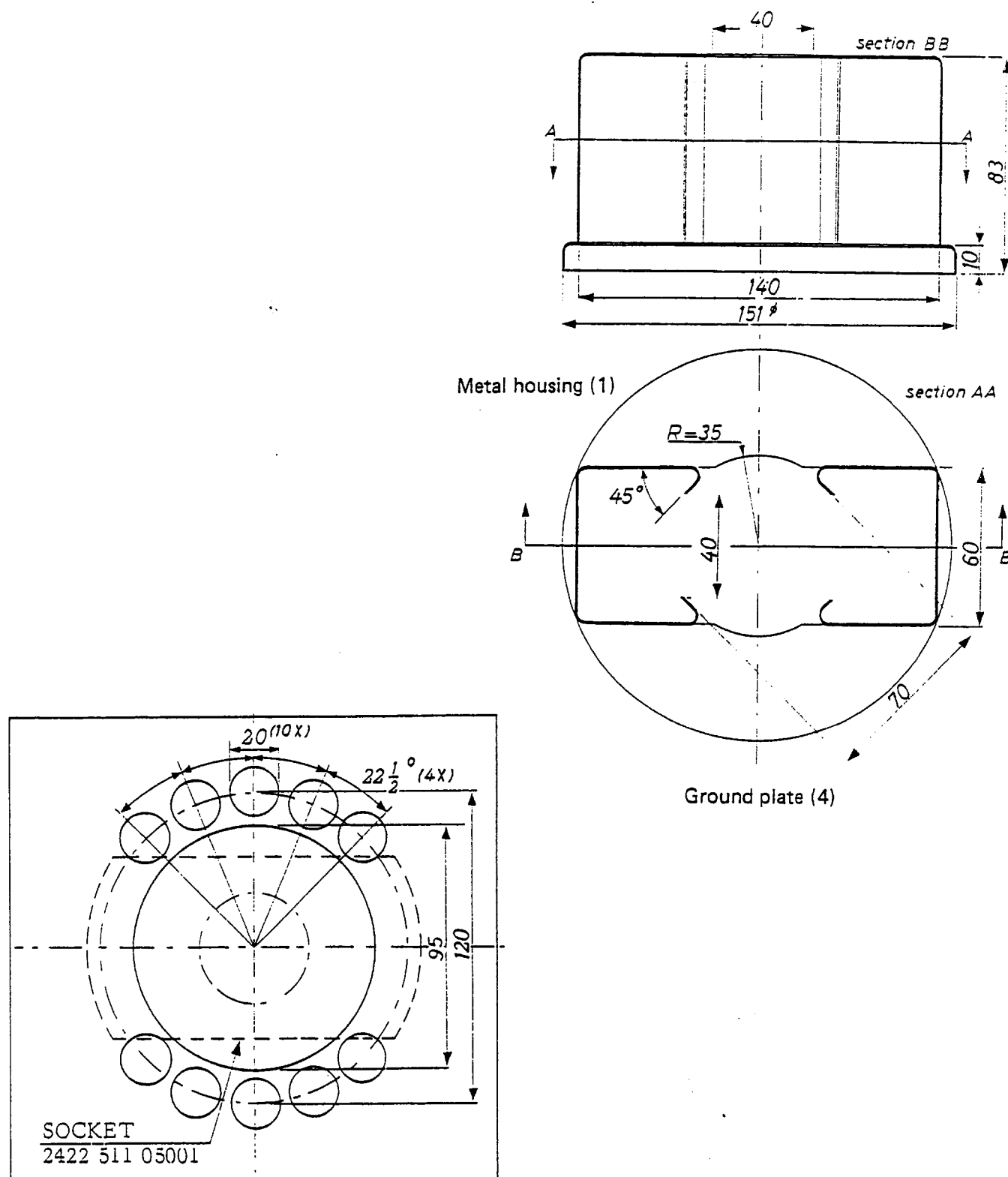
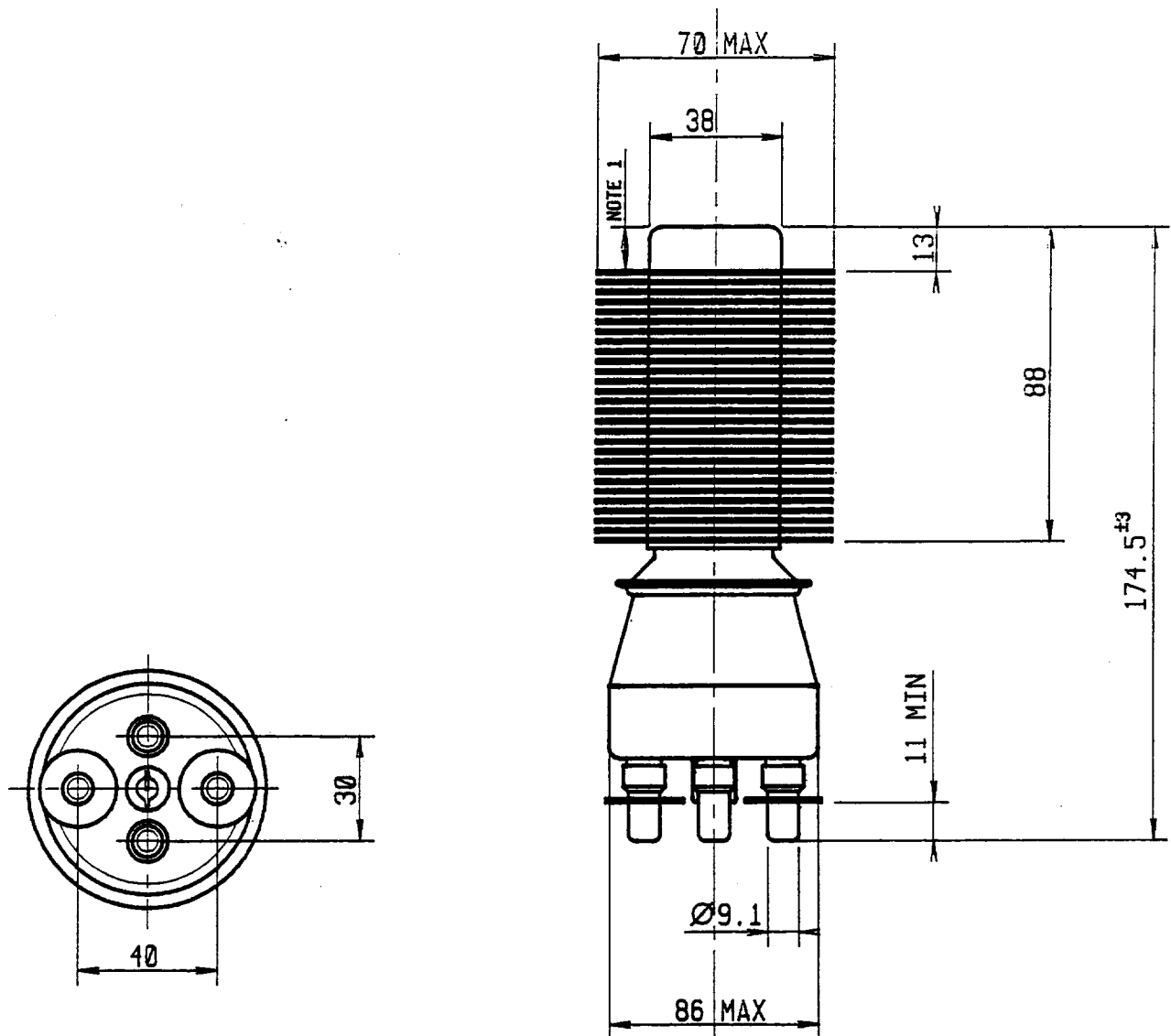


Fig. 2 - Cooling device details

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MECHANICAL DATA (Dimensions in mm)

Socket : 2422 511 05001



Mounting position : vertical with anode up or down

Fig. 3 - Mechanical outline

1) Area for anode connector

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RF CLASS OSCILLATOR FOR INDUSTRIAL USE with anode voltage from three-phase rectifier without filter

LIMITING VALUES (Absolute limits) continuous service

Frequency	f	up to	50	MHz
Anode voltage	Va	= max.	8	kV
Anode current	Ia	= max.	1	A
Anode dissipation	Wa	= max.	1.7	kW
Negative grid voltage	- Vg	= max.	1250	V
Grid current, loaded	Ig	= max.	0.4	A
Grid current, unloaded	Ig	= max.	0.5	A
Grid resistor	Rg	= max.	10	kΩ

OPERATING CONDITIONS - Continuous service

Frequency	f	=	50	50	MHz
Transformer voltage	Vtr	=	6.0	5.1	kV _{RMS}
Anode voltage	Va	=	7	6	kV
Anode current, loaded	Ia	=	0.9	0.9	A
Anode current, unloaded	Ia	=	0.2	0.2	A (1)
Grid current, loaded	Ig	=	0.25	0.28	A
Grid current, unloaded	Ig	=	0.30	0.35	A (1)
Grid resistor	Rg	=	2.5	2	kΩ
Load resistance	Ra~	=	3.85	3.3	kΩ
Feedback ratio under loaded conditions	Vg~/Va~	=	15	16	%
Anode input power	Wia	=	6.3	5.4	kW
Anode dissipation	Wa	=	1.45	1.3	kW
Output power	Wo	=	4.85	4.1	kW
Efficiency	η	=	77	76	%
Output power in the load	Wl	=	4.0	3.3	kW (2)

(1) In a typical circuit

(2) Useful power in the load measured in a circuit having an efficiency of 85 %

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RF CLASS OSCILLATOR FOR INDUSTRIAL USE with anode voltage from three-phase rectifier without filter

LIMITING VALUES (Absolute limits) intermittent service

Frequency	f	up to	50	MHz
Anode voltage	Va	= max.	8	kV
Anode current	Ia	= max.	1.5	A
Anode input power	Wia	= max.	9	kW
Anode dissipation	Wa	= max.	2.1	kW (1)
Negative grid voltage	- Vg	= max.	1250	V
Grid current, loaded	Ig	= max.	0.4	A
Grid current, unloaded	Ig	= max.	0.5	A
Grid resistor	Rg	= max.	10	kΩ

OPERATING CONDITIONS - Intermittent service

Frequency	f	=	50	MHz
Transformer voltage	Vtr	=	5.1	kV _{RMS}
Anode voltage	Va	=	6	kV
Anode current, loaded	Ia	=	1.33	A
Anode current, unloaded	Ia	=	0.33	A (2)
Grid current, loaded	Ig	=	0.38	A
Grid current, unloaded	Ig	=	0.48	A (2)
Grid resistor	Rg	=	1.45	kΩ
Load resistance	Ra~	=	2.2	kΩ
Feedback ratio under loaded conditions	Vg ~ / Va~	=	17	%
Anode input power	Wia	=	8	kW
Anode dissipation	Wa	=	2.1	kW (1)
Output power	Wo	=	5.9	kW
Efficiency	η	=	74	%
Output power in the load	Wl	=	4.75	kW (3)

(1) See Fig. 4

(2) In a typical circuit

(3) Useful power in the load measured in a circuit having an efficiency of 85 %

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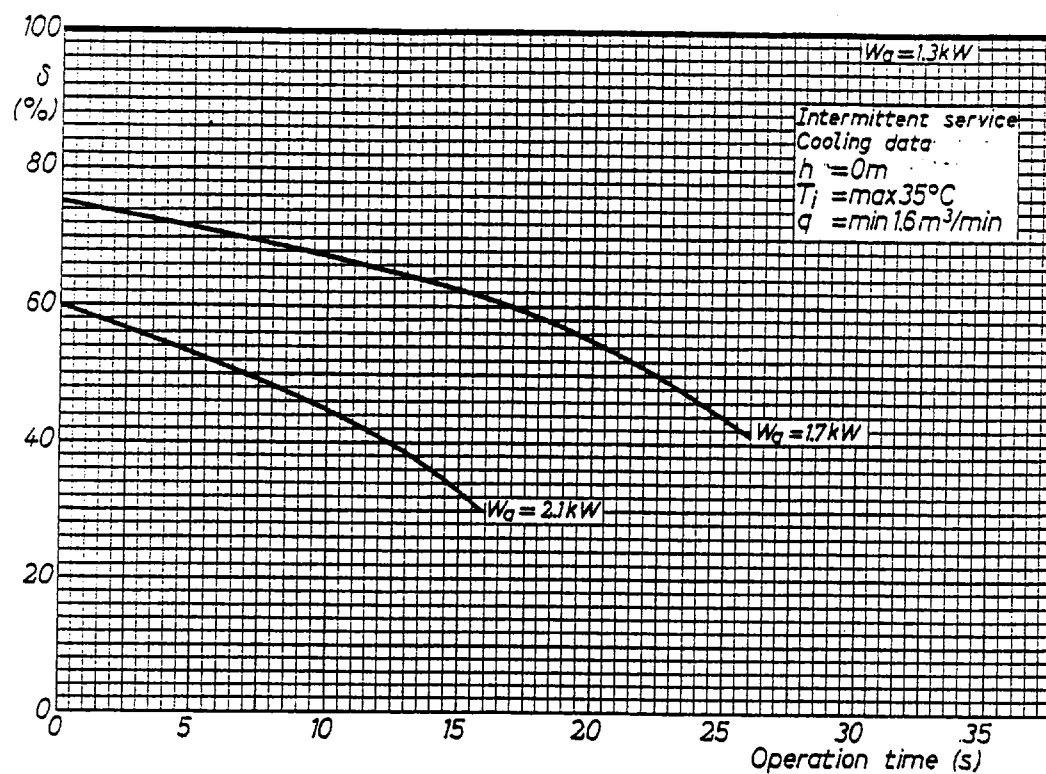


Fig.4 - Intermittent service. Limits of anode dissipation and cooling

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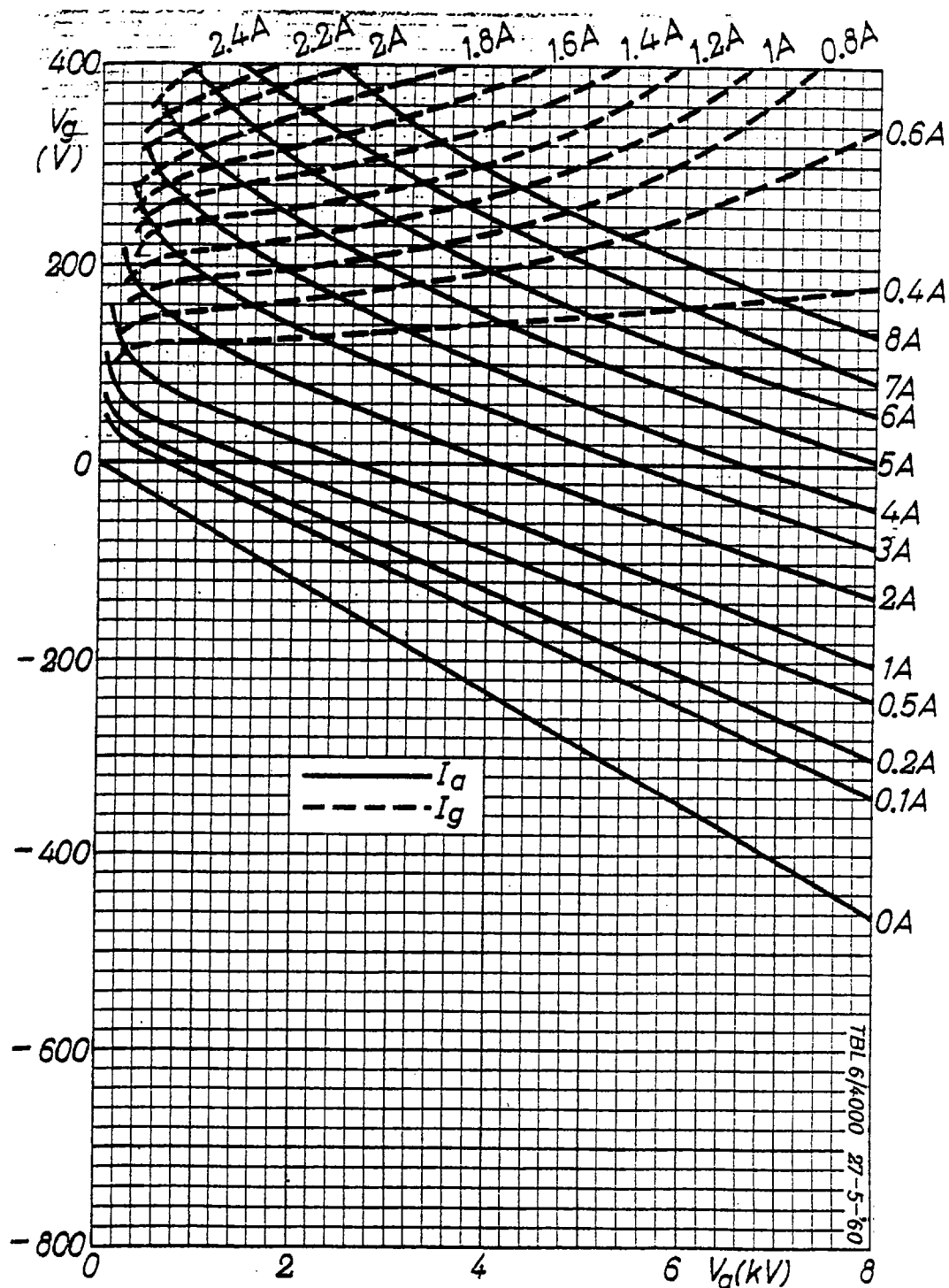


Fig.5 - Constant current characteristics

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