SIEMENS
RÖHREN

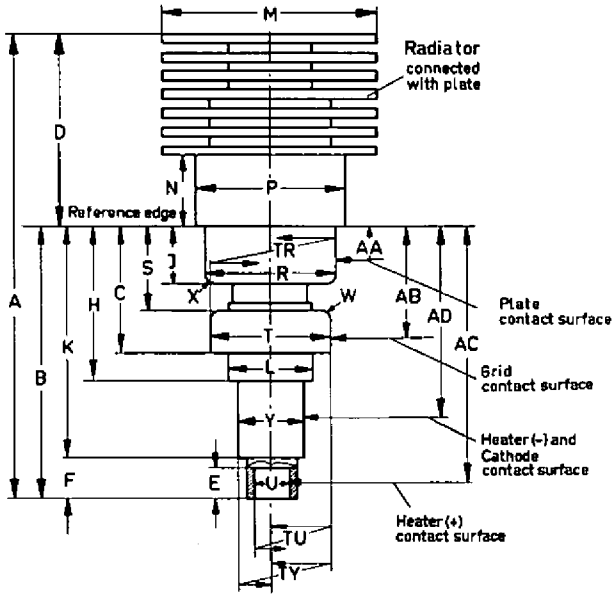
CERAMIC DISC-SEAL TRIODE

RH 6 C
YD 1060
8412

Design and Application

Preliminary Data

Air-cooled disk-seal triode of metal-ceramic design, for oscillators, frequency multipliers, and amplifiers up to approximately 7 kMc. With dissipations < 10 W, the tube may be operated without air cooling. The tube is designed for plug-in connection at one end and is therefore easily replaceable. This tube is also available without radiator under the type designation RH 7 C.



Dimensions in mm

	min.	max.	
A	58.60	61.30	
B	34.80	36.50	
C	15.30	15.90	
D	23.80	24.80	
E	3.90	4.30	
F	4.80	5.80	
H	18.00	19.20	
J	7.44	7.56	
K	29.60	31.10	
L	8.60	8.80	
M	22.60	23.40	
N	8.90	10.10	
P	16.90	19.80	
R	14.95	15.10	
S	10.70	11.00	
T	12.95	13.10	
U	4.00	4.20	
W		0.60	
X		0.60	
Y	7.20	7.35	
AA	3.00	6.50	(1)
AB	11.60	15.00	(1)
AC	32.80	34.60	(1)
AD	19.50	28.50	(1)
TR		0.15	(2)
TU		0.3	(2)
TY		0.15	(2)

(1) For connection of contact springs
(2) Deviation from center

Weight: approx. 65 gm net, approx. 85 gm gross
Dimensions of packing: 40 x 40 x 120 mm

from JEDEC release #4459, Oct. 21, 1963

Heating

Heater voltage	=	6.0	V (1)
Heater current	≈	0.8	A

indirect by AC or DC, parallel supply
MK dispenser cathode

Capacitances

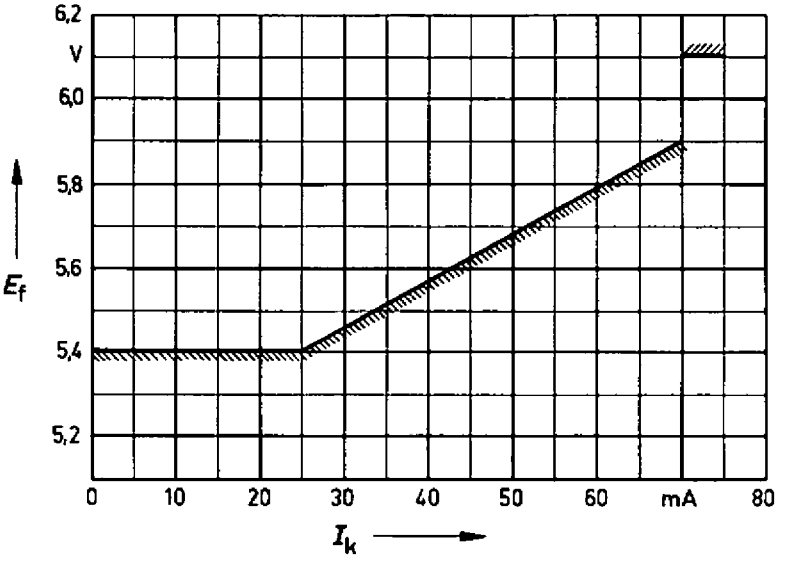
Grid to cathode	=	2.6 + 0.6	µµf
Plate to grid	=	1.7 ± 0.2	µµf
Plate to cathode	≤	0.020	µµf
Grid to cathode	=	3.4 ± 0.7	µµf (2)
Plate to cathode	≤	0.035	µµf (2)

Characteristics

		min	bogey	max	
Plate supply voltage	=		420		Vdc
Grid supply voltage	=		+20		Vdc
Cathode resistor	=		390		ohms
Plate current	=	55	60	65	mAdc
Transconductance	=	13000	16000	20000	µmhos
Amplification factor	=		60		

(1) If the tube is operated as oscillator or amplifier with a cathode current of less than 70 mA, the heater voltage must be reduced to obtain maximum tube life. The curve below shows the minimum heater voltage as a function of the cathode current. The mean value of E_f over long periods of time should be on or above the curve, it should never exceed 6.1 V. The characteristics on Sheet K4 provide examples of the power output obtainable with reduced heater voltage. The heater voltage should be maintained within ± 2% (absolute limits) of the value set.

(2) E_f = 6.0 V, I_k = 0



Maximum Ratings (absolute values)

Plate voltage at zero plate current	max	800	Vdc
Plate voltage	max	600	Vdc
Plate dissipation	max	30	W
Negative grid voltage	max	50	Vdc
Positive grid voltage	max	0	Vdc
Grid dissipation	max	0.2	W
Grid current	max	12	mAdc (1)
Grid resistor	max	50000	ohms
Power input	max	1	W (2)
Cathode current	max	75	mAdc
Peak cathode current	max	250	madc
Surface temperature	max	180	°C

Operating Characteristics

CW Oscillator

Frequency	=	4	4	4	6	6	kMc (3)
Heater voltage	=	5.4	5.7	6.0	5.7	6.0	V
Plate supply voltage	=	260	320	420	320	420	Vdc
Grid supply voltage	=	+10	+20	+20	+20	+20	Vdc
Cathode resistor	=	800	800	800	800	800	ohms (4)
Plate current	=	20	45	60	45	60	mAdc
Grid current	≈	5	7	9	6	9	mAdc
Power output	=	0.4	1.7	4.5	0.65	1.8	W

Frequency Doubler

Frequency	=	3/6	kMc
Heater voltage	=	5.8	Vdc
Plate supply voltage	=	420	Vdc
Grid supply voltage	=	+20	Vdc
Cathode resistor	=	1000	ohms (4)
Power input	=	500	mW
Plate current	=	35	mAdc
Grid current	≈	3	mAdc
Power output	=	440	mW

(1) The specified value must not be exceeded even briefly (e.g. in tuning an oscillator).
(2) For grounded-grid operation.
(3) At frequencies above 5 kMc, rotation-symmetrical plate circuits must be used to avoid peripheral waves.
(4) A variable cathode resistor of the specified rating must be used for adjusting the plate current to the specified value.

Operating Characteristics

Frequency Tripler

Frequency	=	2/6	kMc
Heater voltage	=	5.7	Vdc
Plate supply voltage	=	420	Vdc
Grid supply voltage	=	+20	Vdc
Cathode resistor	=	2000	ohms (1)
Power input	=	500	mW
Plate current	=	20	mAdc
Grid current	≈	1	mAdc
Power output	=	130	mW

Amplifier

Frequency	=	1	3	kMc
Bandwidth	=	20	30	Mc
Heater voltage	=	6.0	6.0	Vdc
Plate voltage	=	400	400	Vdc
Plate current	=	60	60	mAdc
Gain (P_o < 1 W)	=	14	14	db
Power output (G = 10 db)	=	9	6	W

(1) A variable cathode resistor of the specified rating must be used for adjusting the plate current to the specified value.

Operating Instructions

Mounting

The tube should be mounted with the aid of adequately resilient spring contacts. It may be operated in any position. The reference edge (cf. dimensional drawing of the tube, Sheet 1) is to serve at the same time as fitting edge.

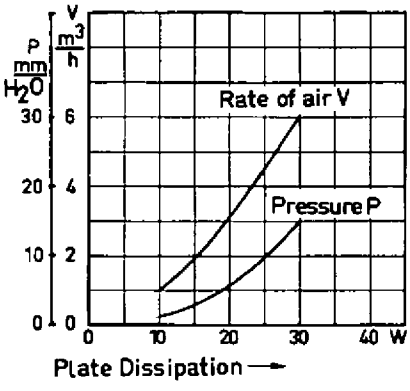
Cooling

The maximum temperature at the surface of the tube is 180° C (absolute limit). To dissipate the heat from the radiator a sufficient air flow through a suitable air duct is necessary. The minimum air flow and associated air pressure required for an air duct having the dimensions indicated in the drawing can be determined from the diagram below.

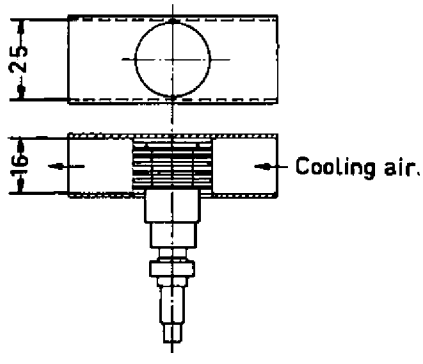
As the constructional design of the ventilation system has to be adapted to the particular type of equipment in which the tube is used, it cannot be furnished as an accessory together with the tube.

If the tube is operated with a dissipation of less than 10 W in concentric coaxial circuits, the heat sink provided by the contact springs and the coaxial circuits is, as a rule, sufficient so that air cooling can be dispensed with.

Air-cooling diagram



Recommended cowling



Dimensions in mm

Characteristics
$I_b = f(E_c)$

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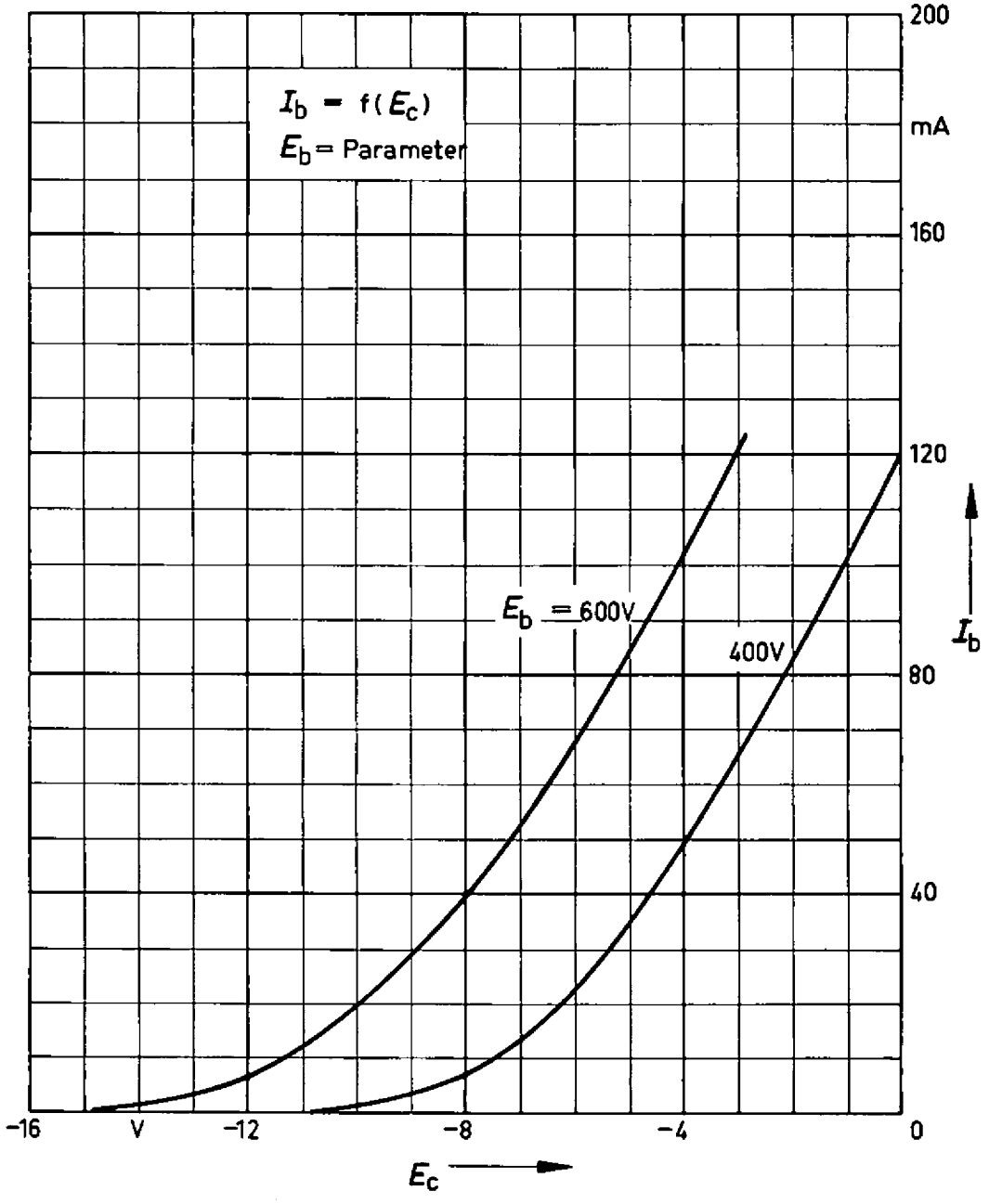
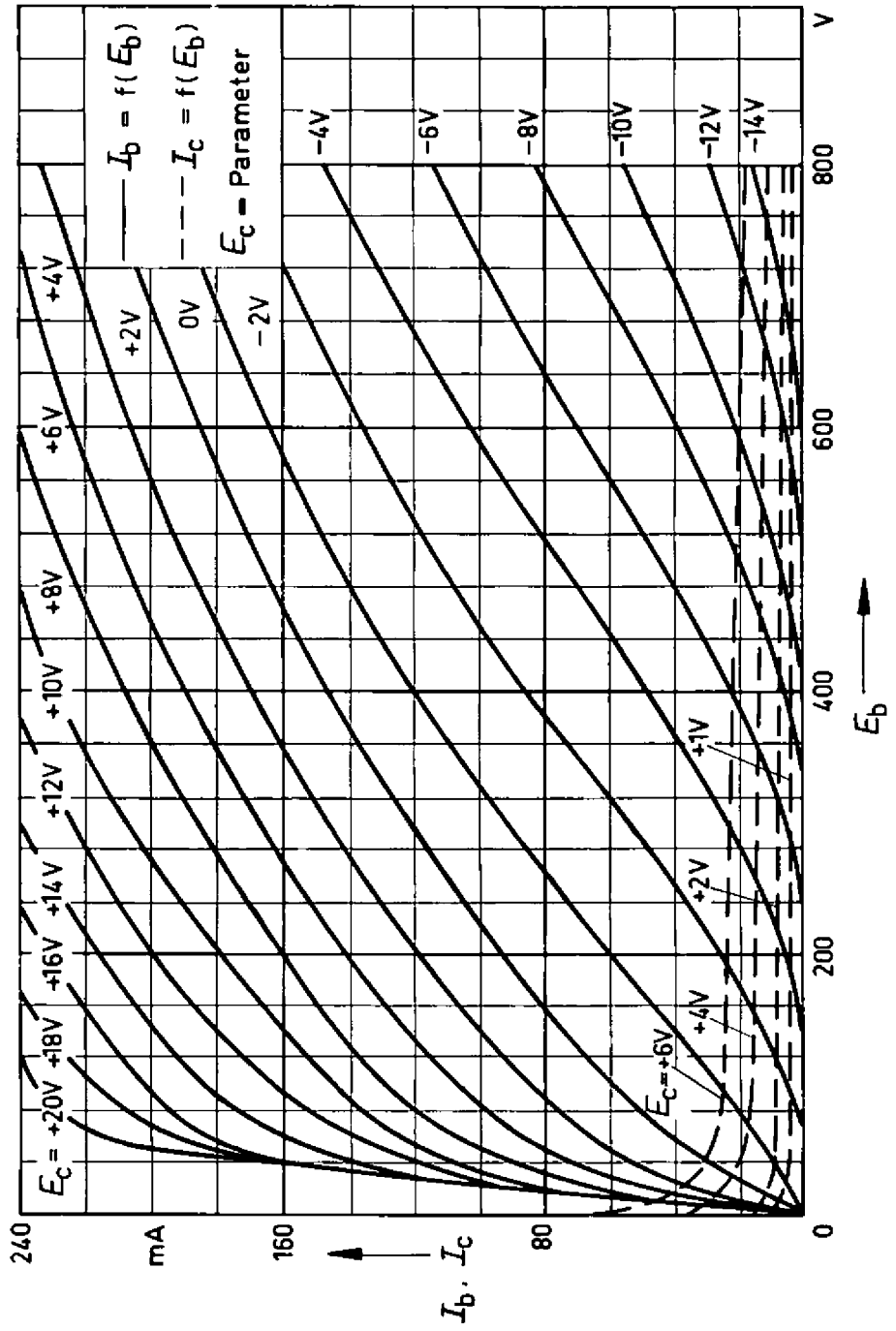


Characteristics

$I_b, I_c = f(E_b)$



Characteristics

$E_{kg} = f(E_{pg})$

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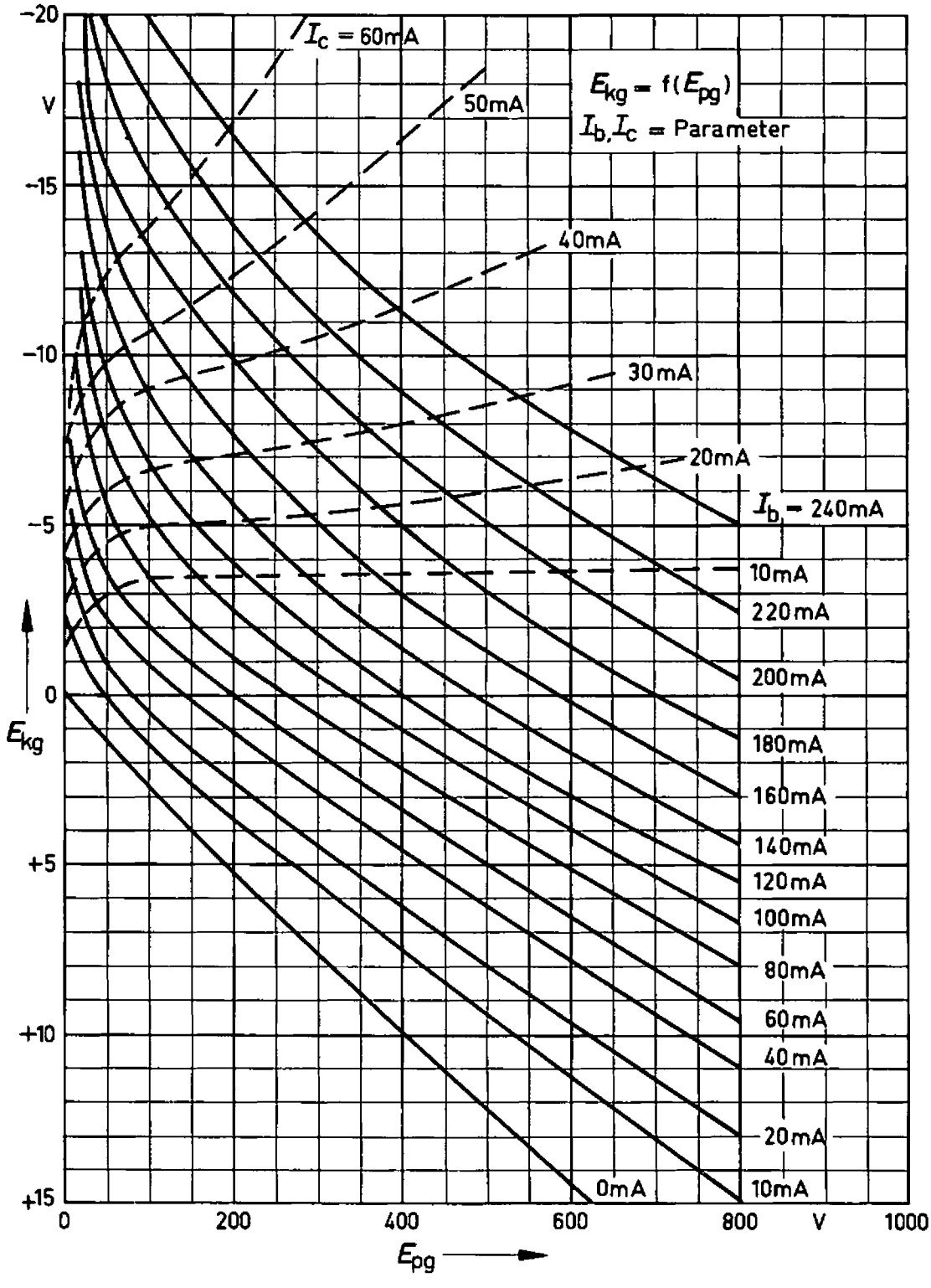
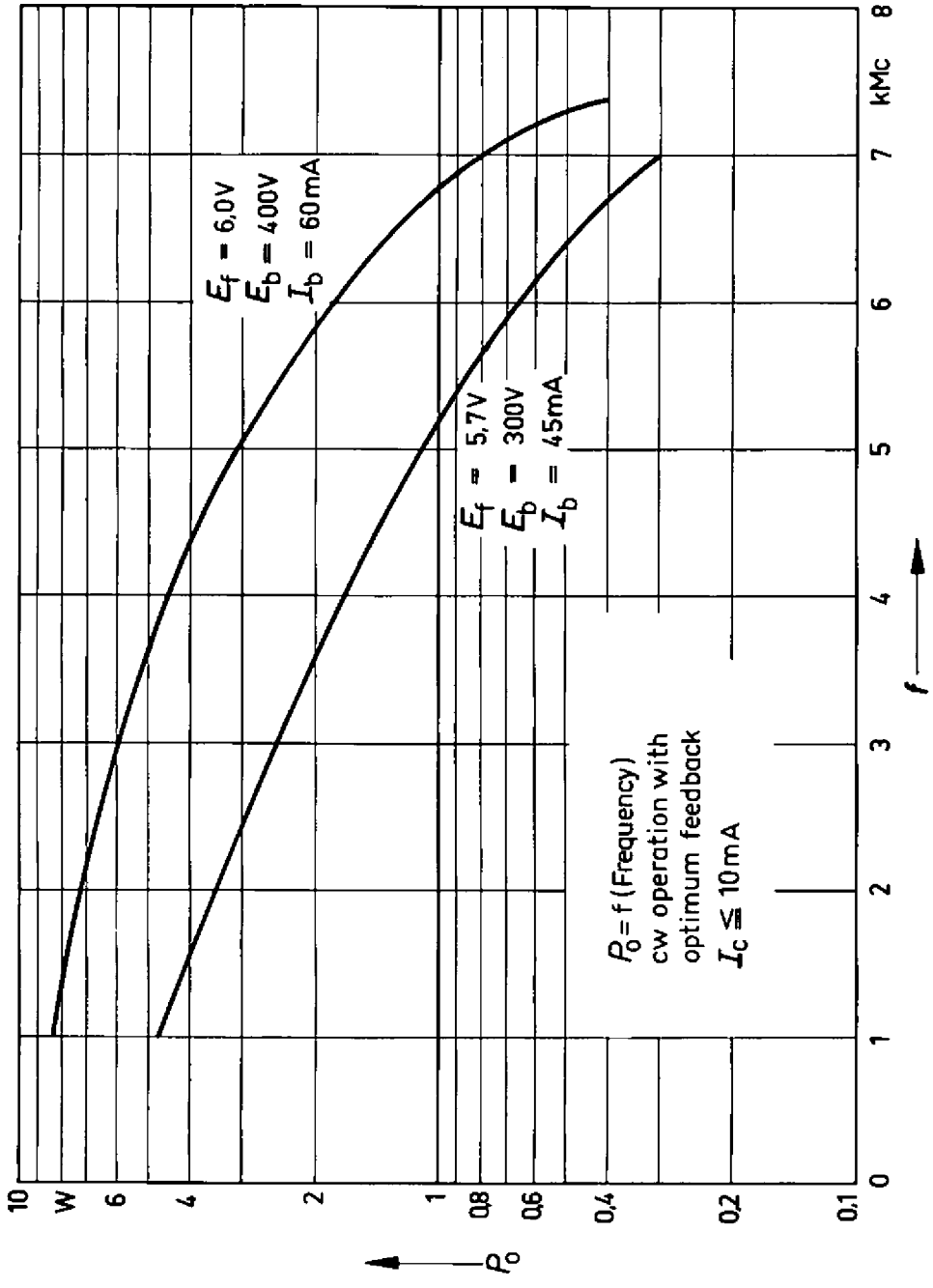


Characteristics

$P_o = f$ (Frequency)



Characteristics

P_o = f (Frequency)

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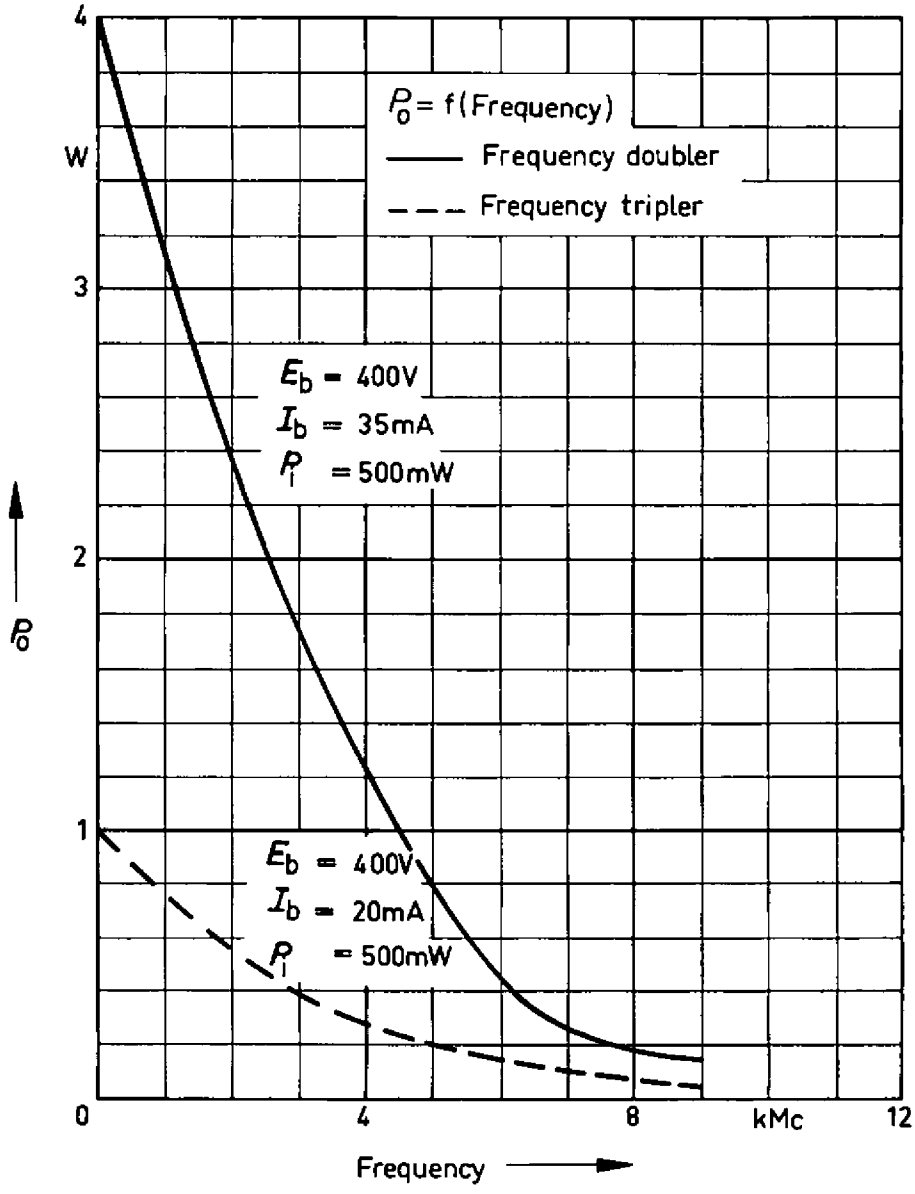
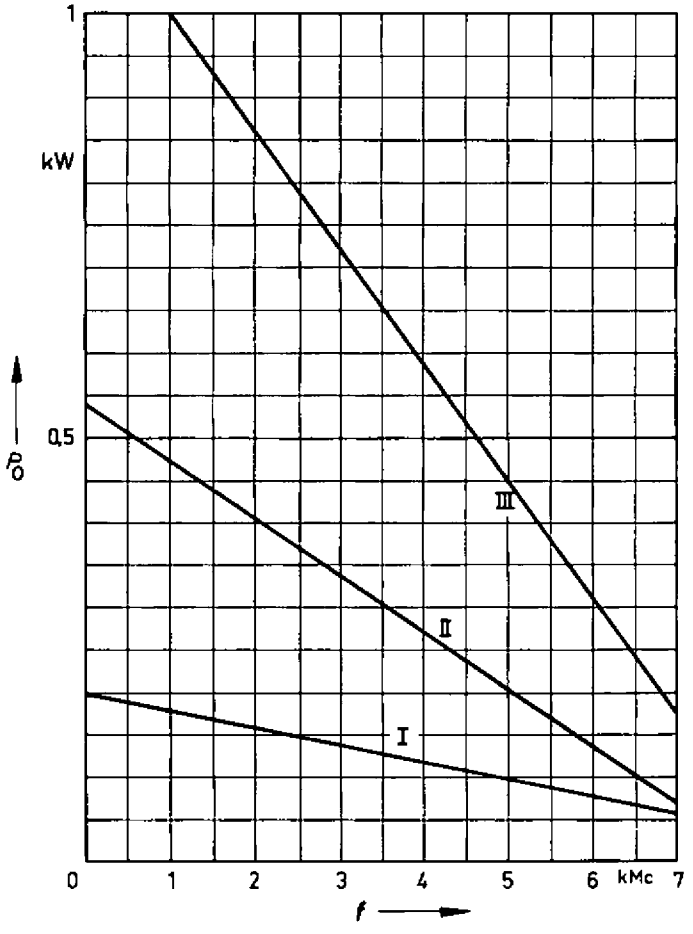


Power Output for Plate Pulse Operation

The types of operation mentioned below, in particular type III, refer to applications that only require short tube life. For this reason, these types of operation are excluded from the standard tube-life guarantee. For further details consult the manufacturer, stating the exact operating conditions.



Typical operation	I	II	III	
Plate pulse voltage	2000	2500	3000	V
Plate pulse current	200	400	700	mA
Heater voltage	6.4	6.7	7.2	V
Duty factor max.	0.05	0.02	0.01	
Pulse length max.	10	10	10	µsec

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