SIEMENS
RÖHREN

CERAMIC DISC-SEAL TRIODE

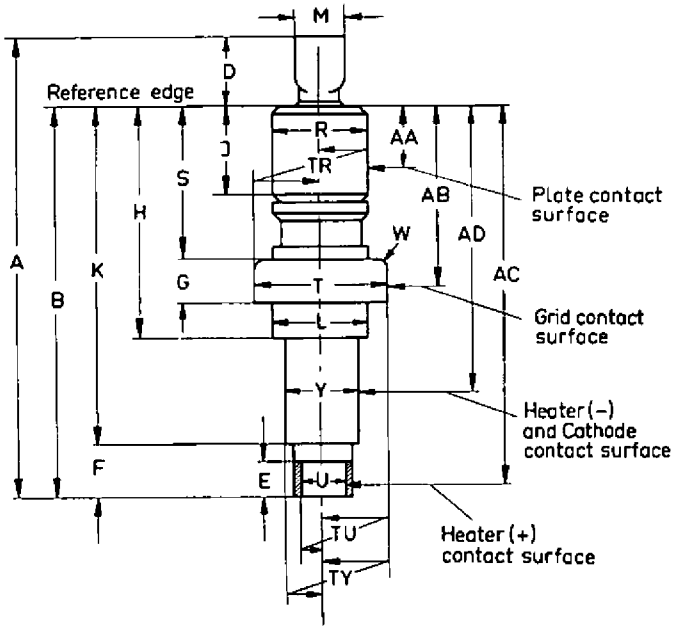
RH 7 C
YD 1070
8413

Design and Application

Preliminary Data

Ceramic disc-seal triode with contact cooling or air cooling for use as oscillator or amplifier up to approx. 7000 Mc and as frequency multiplier up to approx. 9000 Mc.

This tube is also available with radiator under the type designation RH 6 C.



Dimensions in mm

	min.	max.	
A		48.40	
B	37.90	39.40	
D		9.00	
E	3.90	4.30	
F	4.80	5.80	
G	4.60	4.85	
H	21.00	22.20	
J		8.80	(1)
K	32.70	34.00	
L	8.60	8.80	
M		7.00	
R	8.80	8.90	
S	13.65	14.05	
T	12.95	13.10	
U	4.00	4.20	
W		0.60	
Y	7.20	7.35	
AA	3.00	8.00	(2)
AB	14.80	18.20	(2)
AC	35.70	37.70	(2)
AD	23.00	32.00	(2)
TR		0.15	(3)
TU		0.30	(3)
TY		0.15	(3)

1) Admissible length of clamp contact
(2) For connection of contact springs
(3) Deviation from center

Weight: approx. 11 gm net, approx 30 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

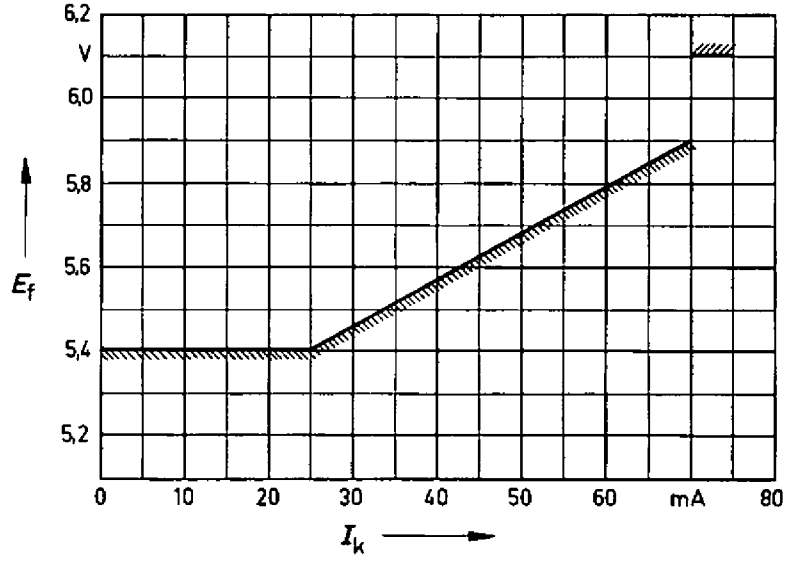
Grid to cathode	=	2.6 ± 0.6	µµf
Plate to grid	=	1.7 ± 0.2	µµf
Plate to cathode	≤	0.020	µµf
Grid to cathode	=	3.4 ± 0.7	µµf (2)
Plate to cathode	≤	0.035	µµf (2)

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 U_f over long periods of time should be on or above the curve, it should never exceed 6.1 V. The characteristics on Sheet 9 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	25	W (1)
Negative grid voltage	max	50	Vdc
Positive grid voltage	max	0	Vdc
Grid dissipation	max	0.2	W
Grid current	max	12	mAdc (2)
Grid resistor	max	50000	ohms
Power input	max	1	W
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 (4)
Heater voltage	=	5.4	5.7	6.0	5.7	6.0	Vdc
Plate voltage	=	260	320	420	320	420	Vdc
Grid supply voltage	=	+10	+20	+20	+20	+20	Vdc
Cathode resistor	=	800	800	800	800	800	ohms (5)
Plate current	=	20	45	60	45	60	mAdc
Grid current	≈	5	7	9	6	8	mAdc
Power output	=	0.4	1.7	4.5	0.65	1.8	W

Frequency Doubler

Frequency	=	3/6	4.5/9	kMc
Heater voltage	=	5.8	5.8	Vdc
Plate supply voltage	=	420	420	Vdc
Grid supply voltage	=	+20	+20	Vdc
Cathode resistor	=	1000	1000	ohms (5)
Power input	=	500	500	mW
Plate current	=	35	35	mAdc
Grid current	≈	3	3	mAdc
Power output	=	440	150	mW

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

Frequency Tripler

Frequency	=	2/6	3/9	kMc
Heater voltage	=	5.7	5.7	Vdc
Plate supply voltage	=	420	420	Vdc
Grid supply voltage	=	+20	+20	Vdc
Cathode resistor	=	2000	2000	ohms (1)
Power input	=	500	500	mW
Plate current	=	20	20	mAdc
Grid current	=	1	1	mAdc
Power output	=	130	40	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. The evacuation tubulation must not be used as DC voltage lead.

Cooling

The heat must be removed from the plate by means of contact cooling. Particularly good thermal contact must be provided at a dissipation of approximately > 10 W. To convey the heat to the environment or to large metal parts, e.g. the chassis, it is recommended to clamp a suitable adapter to the plate connection. Under certain circumstances it may be practical to design the adapter as a radiator and to provide for additional air cooling. It may also be necessary to provide the cathode connection with a heat sink. In all applications it is essential that the maximum admissible temperature of 180° C (absolute limit) should not be exceeded at any point of the tube surface.

Characteristics

$I_b = f(E_c)$

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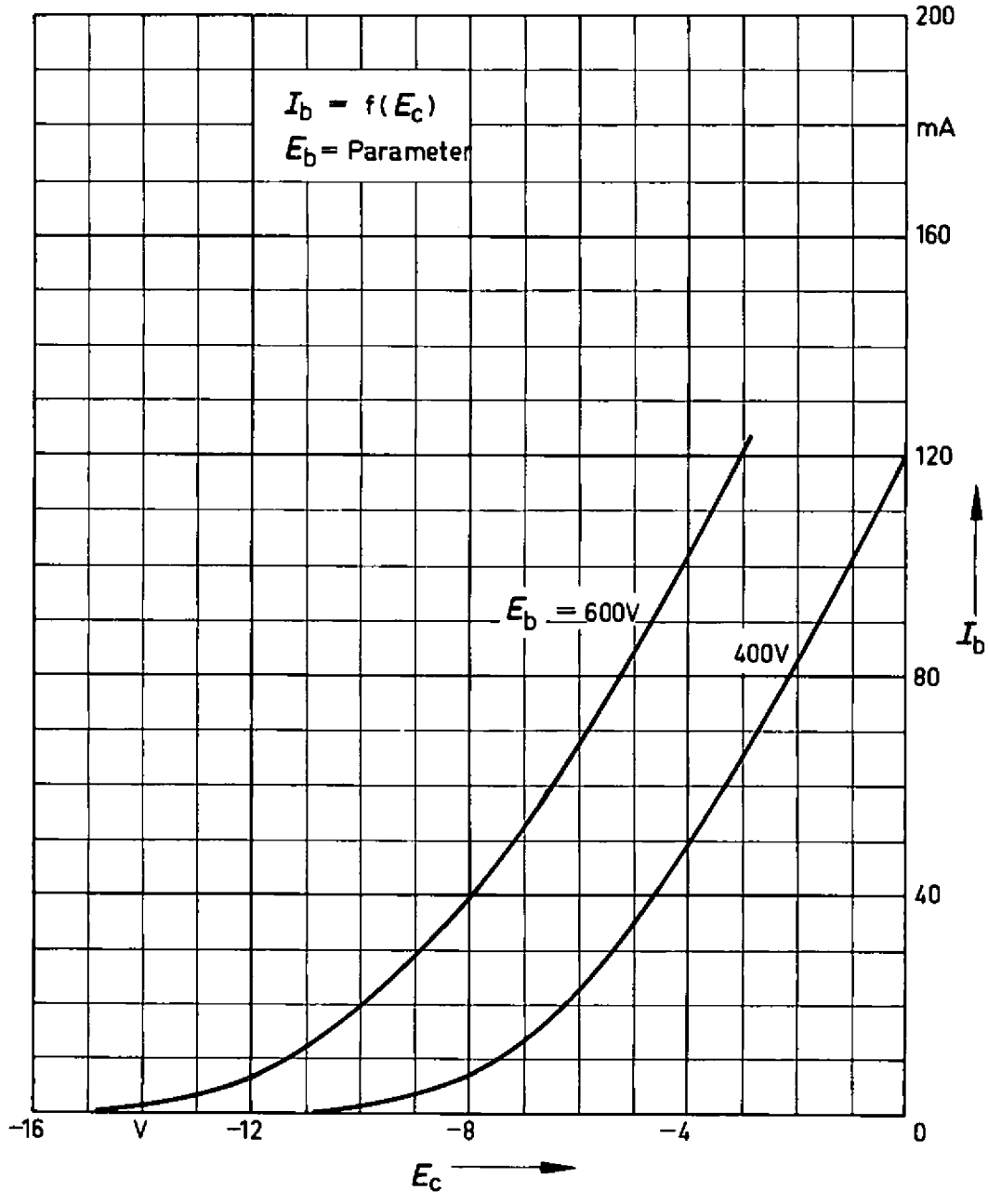
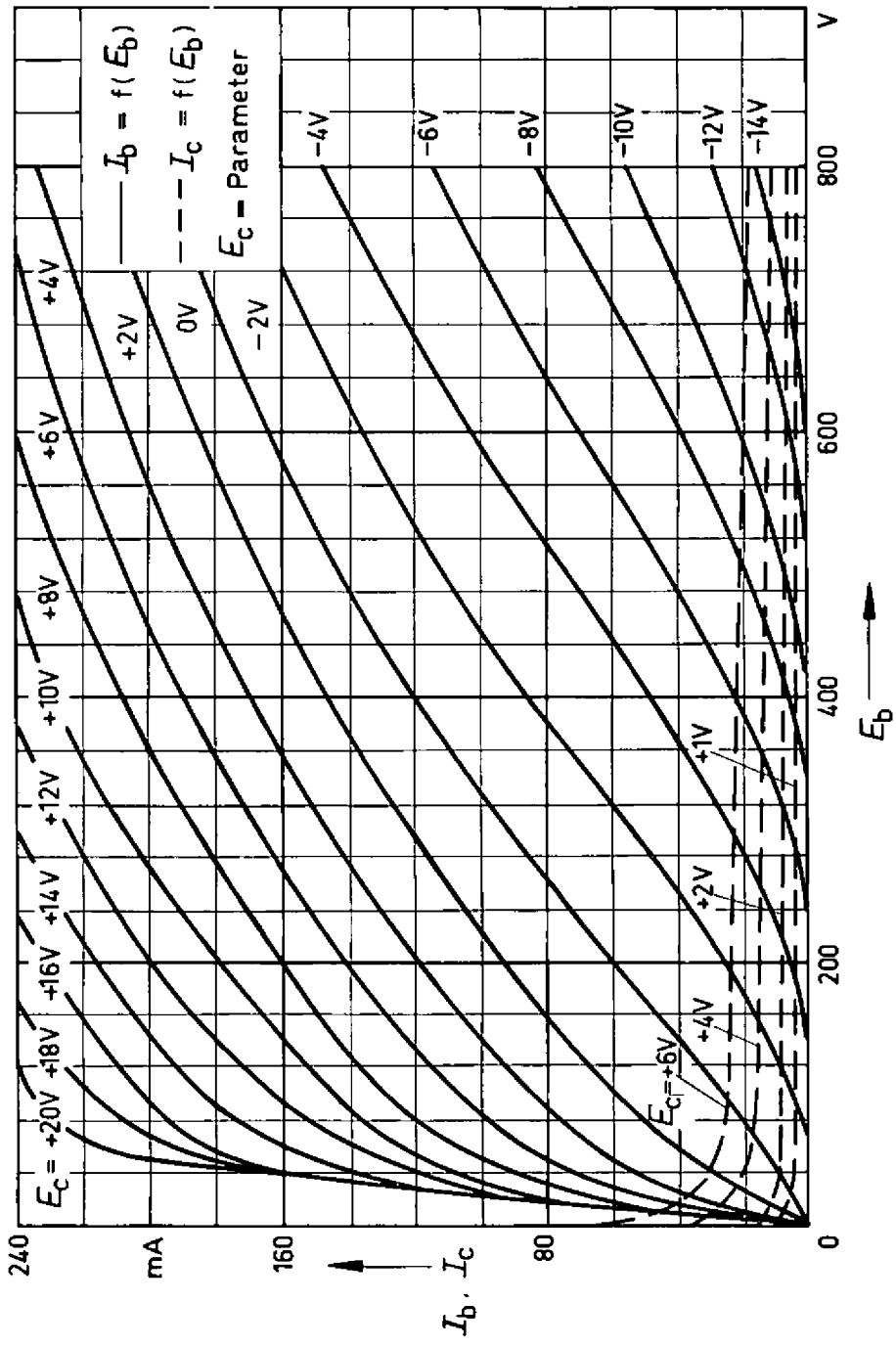


Characteristics

$I_b, I_c = f(E_b)$



Characteristics

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

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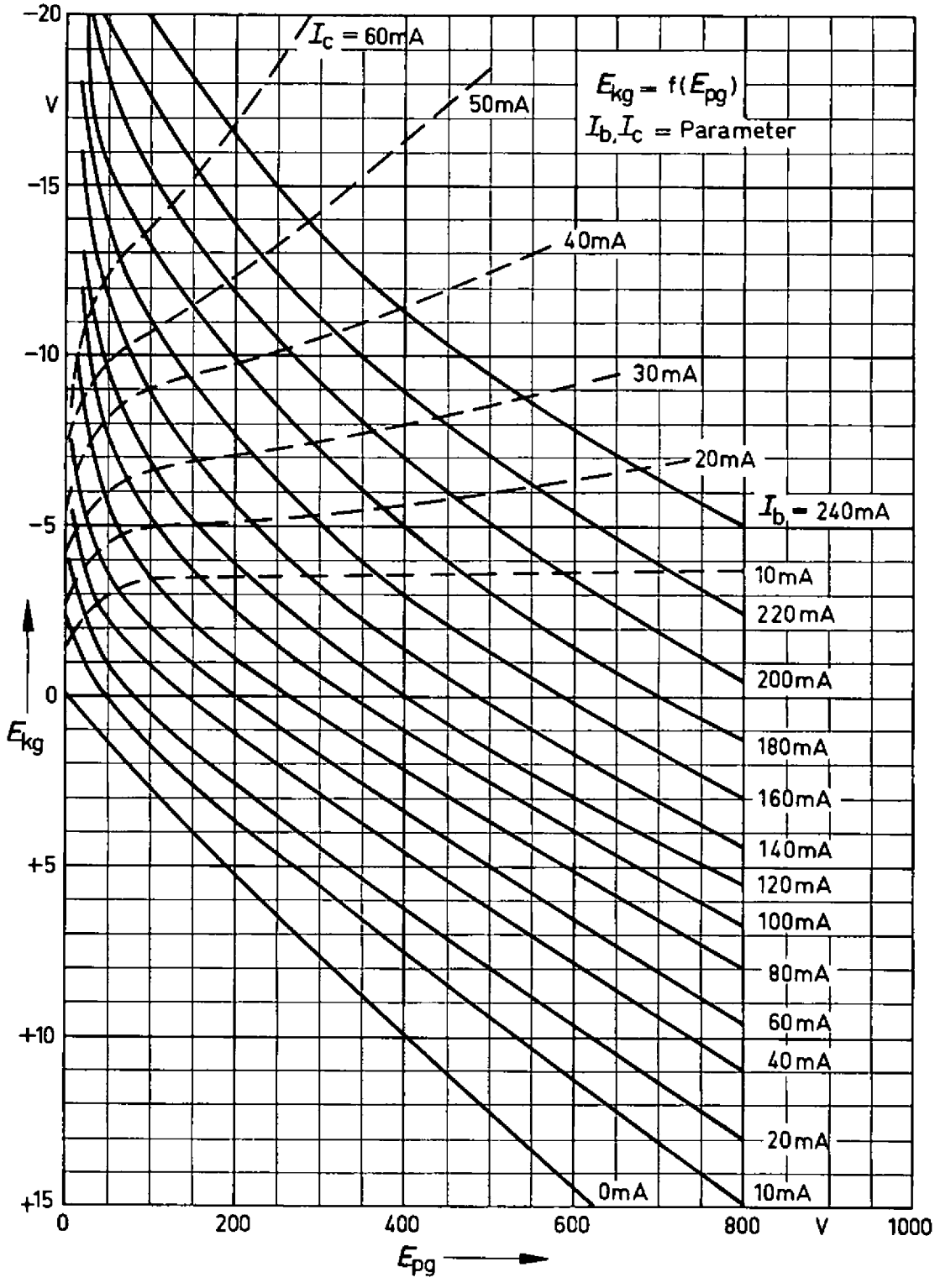
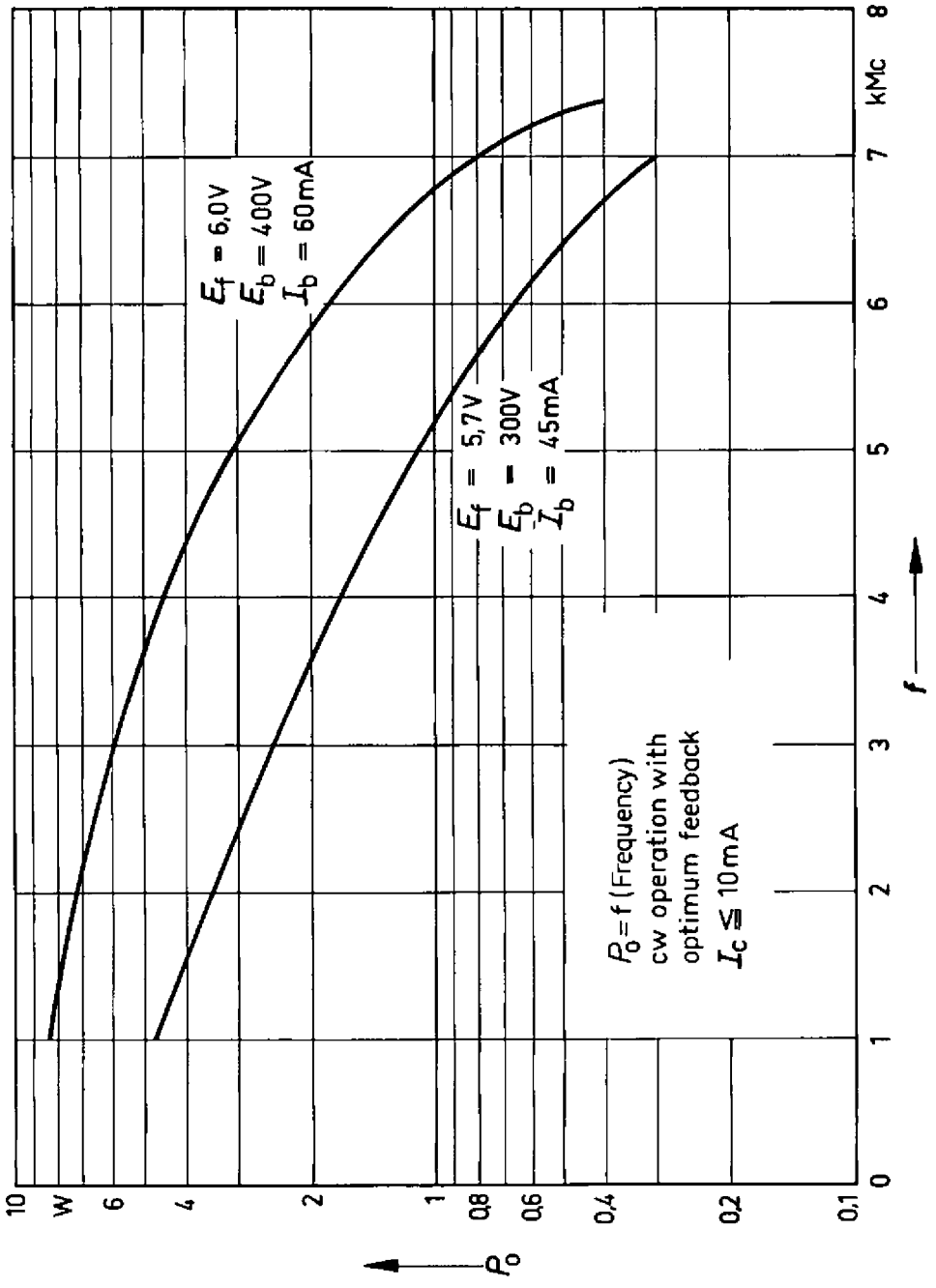


Characteristics

$P_o = f$ (Frequency)



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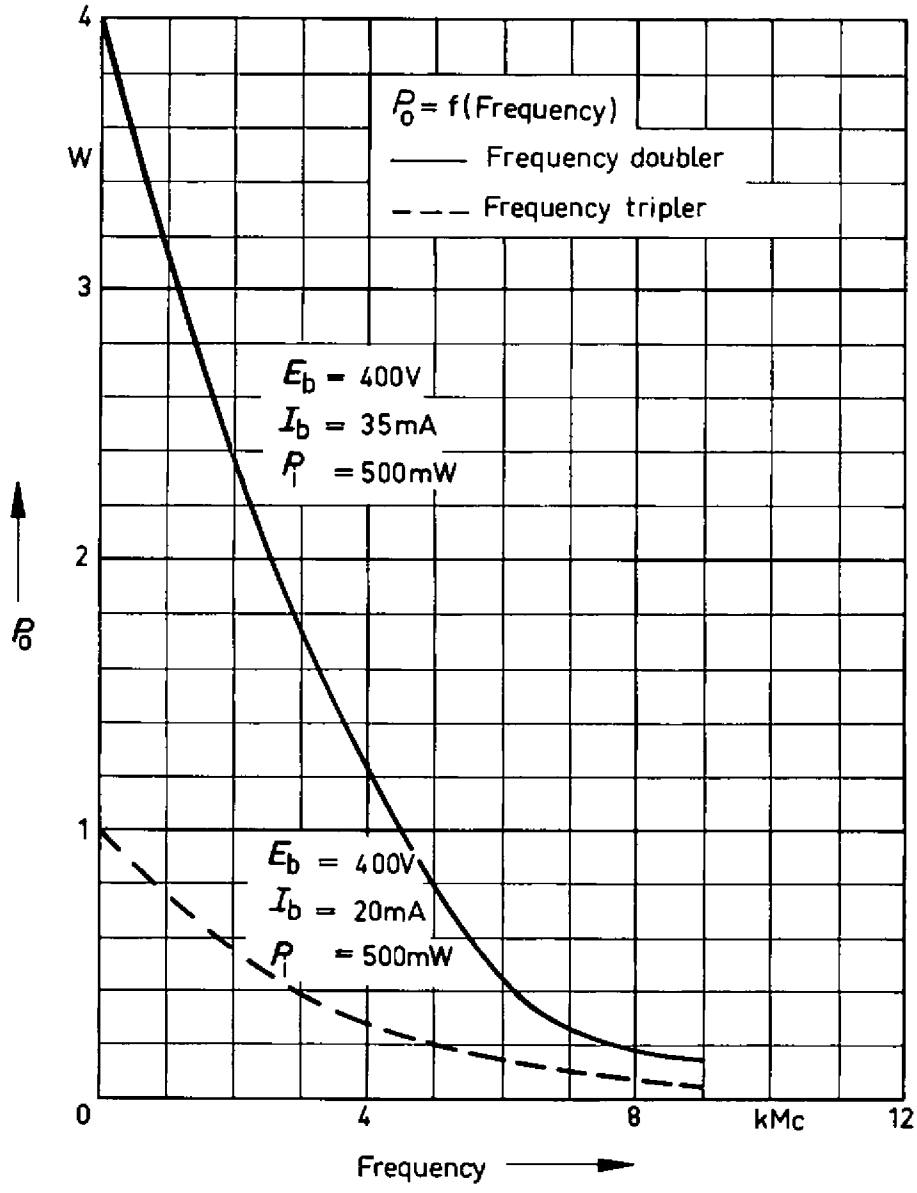
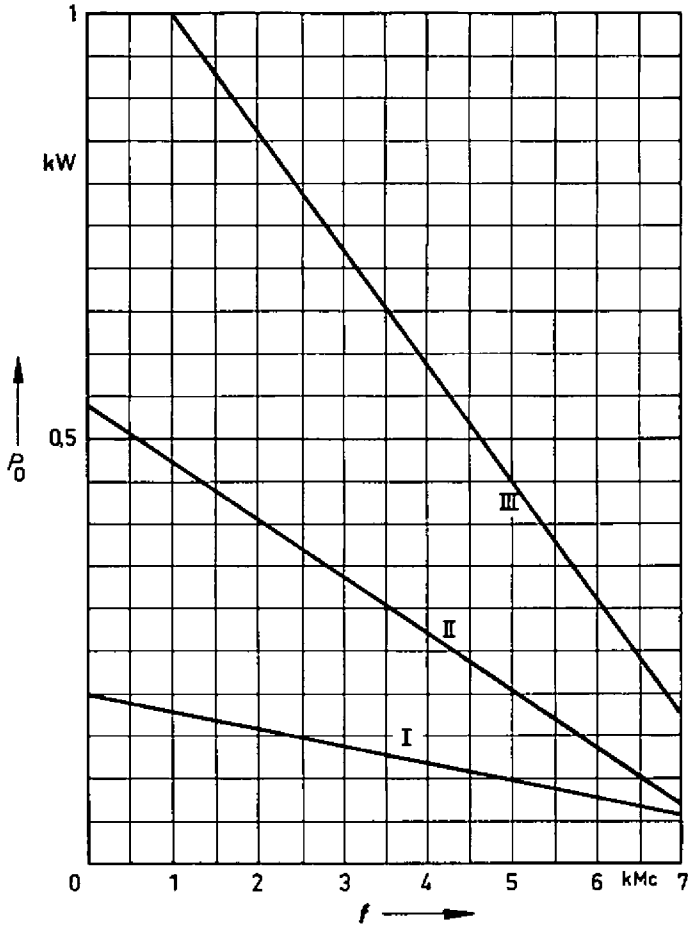


Power Output for Plate Pulse Operation

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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