

AIR COOLED R.F. POWER TRIODE

QUICK REFERENCE DATA								
Frequency (MHz)	C telegraphy		C anode mod.		RF class B		AF class B Two tubes	
	V _a (kV)	W _o (kW)	V _a (kV)	W _o (kW)	V _a (kV)	W _o (kW)	V _a (kV)	W _o (kW)
10	15	120			15	110	12	78
30	12	90	11	66	12	110	10	78

HEATING: direct by A.C. or D.C.; filament thoriated tungsten

Filament voltage	V _f	=	12.6 V
Filament current	I _f	=	160 A

CAPACITANCES

Grid to filament	C _{gf}	=	120 pF
Anode to filament	C _{af}	=	1.4 pF
Anode to grid	C _{ag}	=	50 pF

TYPICAL CHARACTERISTICS

Anode voltage	V _a	=	3 kV
Anode current	I _a	=	1 A
Amplification factor	μ	=	58
Mutual conductance	S	=	60 mA/V

TEMPERATURE LIMITS (Absolute limits)

Bulb temperature	t	=	max. 220 °C
Seal temperature	t	=	max. 220 °C

COOLING

For cooling data see cooling curves. These curves are for an air inlet temperature of 25 °C.

At lower temperatures the amount of air should be the same.

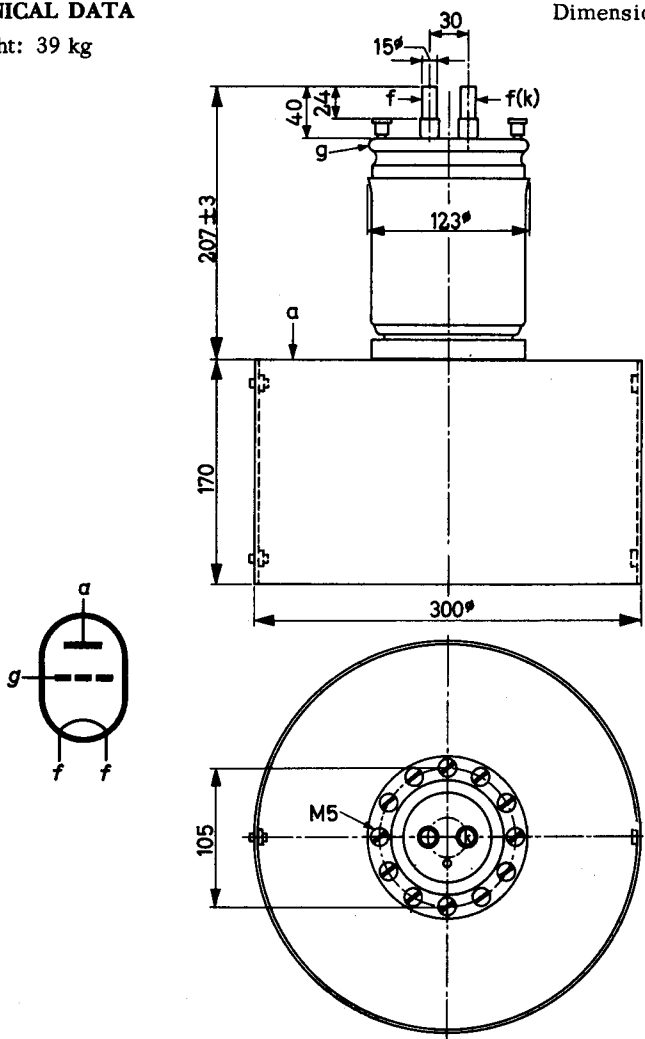
At higher temperatures the amount of air should be increased so that the outlet air temperature is not higher than at t_i = 25 °C.

At frequencies higher than 10 MHz a low velocity air flow should be directed to the grid and filament seals.

MECHANICAL DATA

Net weight: 39 kg

Dimensions in mm



ACCESSORIES

Insulating pedestal	40672
Filament connector	40670
Grid connector	40671

Mounting position: vertical
with anode down

R.F. CLASS C TELEGRAPHY or F.M. TELEPHONY

LIMITING VALUES (Absolute limits)

Frequency	f	up to	10	up to	30	MHz
Anode voltage	V_a	= max.	16	max.	12.5	kV
Anode dissipation	W_a	= max.	35	max.	35	kW
Negative grid voltage	$-V_g$	= max.	1000	max.	1000	V
Grid dissipation	W_g	= max.	1.3	max.	1.3	kW
Anode current	I_a	= max.	13	max.	13	A
Grid current	I_g	= max.	3.3	max.	3.3	A

OPERATING CONDITIONS

Frequency	f	=	10	30	30	30	MHz
Anode voltage	V_a	=	15	12	10	8	kV
Grid voltage	V_g	=	-600	-550	-500	-450	V
Anode current	I_a	=	9.75	9.25	9.0	8.75	A
Grid current	I_g	=	2.2	2.2	2.1	1.85	A
Peak grid driving voltage	V_{gp}	=	1000	940	875	810	V
Grid driving power	W_{dr}	=	2.1	1.9	1.7	1.55	kW
Anode input power	W_{ia}	=	146	111	90	70	kW
Anode dissipation	W_a	=	26	21	18	15	kW
Output power	W_o	=	120	90	72	55	kW
Efficiency	η	=	82	81	80	78.5	%

R.F. CLASS B AMPLIFIER

LIMITING VALUES (Absolute limits)

Frequency	f	up to	10	up to	30	MHz
Anode voltage	V_a	= max.	16	max.	12.5	kV
Anode dissipation	W_a	= max.	35	max.	35	kW
Negative grid voltage	$-V_g$	= max.	1000	max.	1000	V
Grid dissipation	W_g	= max.	1.3	max.	1.3	kW
Anode current	I_a	= max.	13	max.	13	A
Grid current	I_g	= max.	3.3	max.	3.3	A

OPERATING CONDITIONS

Frequency	f	=	10	10	30	30	MHz
Anode voltage	V_a	=	15	15	12	12	kV
Grid voltage	V_g	=	-260	-260	-210	-210	V
Anode current	I_a	=	10.1	7.75	12.7	9.85	A
Grid current	I_g	=	2.0	1.3	3.0	1.9	A
Peak grid driving voltage	V_{gp}	=	600	520	650	520	V
Grid driving power	W_{dr}	=	1080	610	1770	880	W
Anode input power	W_{i_a}	=	151	116.3	153	118	kW
Anode dissipation	W_a	=	41	31.3	43	33	kW
Output power	W_o	=	110	85	110	85	kW
Efficiency	η	=	73	73	72	72	%

R.F. CLASS C ANODE MODULATION

LIMITING VALUES (Absolute limits)

Frequency	f	up to	30	MHz
Anode voltage	V_a	= max.	11.5	kV
Anode dissipation	W_a	= max.	30	kW
Negative grid voltage	$-V_g$	= max.	1000	V
Grid dissipation	W_g	= max.	1.3	kW
Anode current	I_a	= max.	9	A
Grid current	I_g	= max.	3.3	A

OPERATING CONDITIONS

Frequency	f	=	30	30	MHz
Anode voltage	V_a	=	11	10	kV
Grid voltage	V_g	=	-480	-440	V ¹⁾
Anode current	I_a	=	7.6	6.9	A
Grid current	I_g	=	3.1	3.1	A
Grid resistor	R_g	=	90	80	Ω
Peak grid driving voltage	V_{gp}	=	880	810	V
Grid driving power	W_{dr}	=	2.7	2.4	kW
Anode input power	W_{i_a}	=	83.6	69	kW
Anode dissipation	W_a	=	17.6	14	kW
Output power	W_o	=	66	55	kW
Efficiency	η	=	79	79	%
Modulation depth	m	=	100	100	%
Modulation power	W_{mod}	=	41.8	34.5	kW

¹⁾ Partially obtained by the grid resistor and grid current.

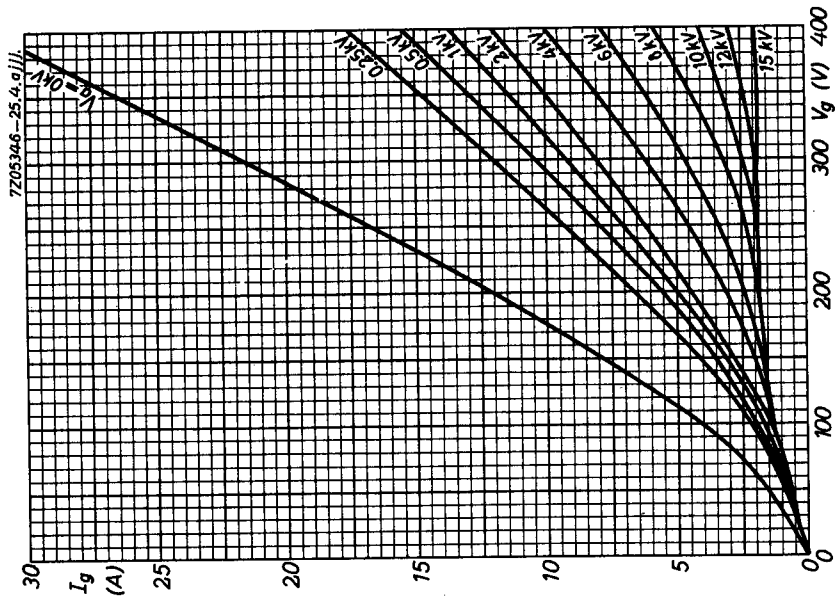
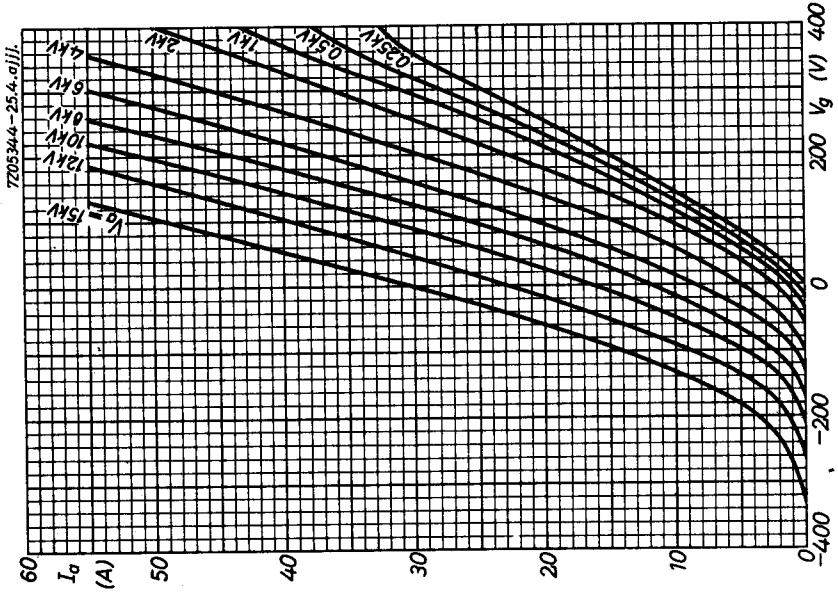
A.F. CLASS B AMPLIFIER AND MODULATOR

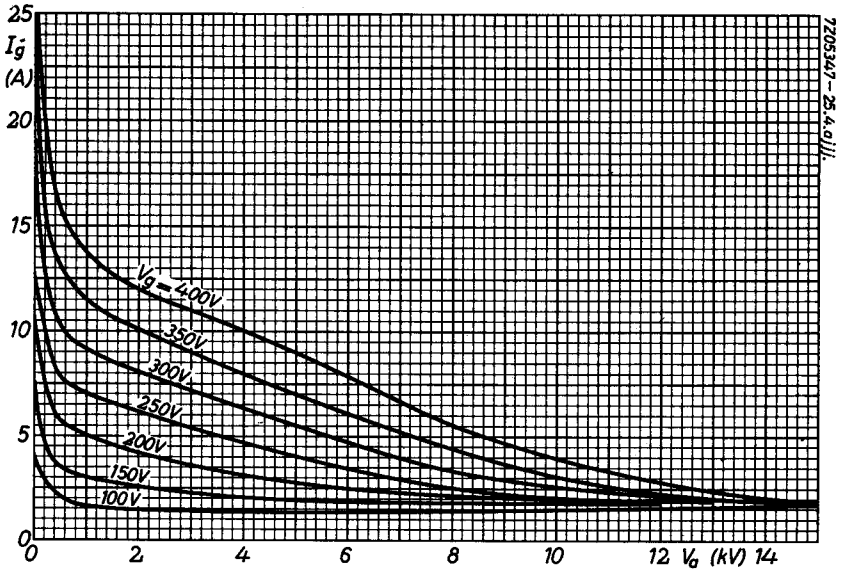
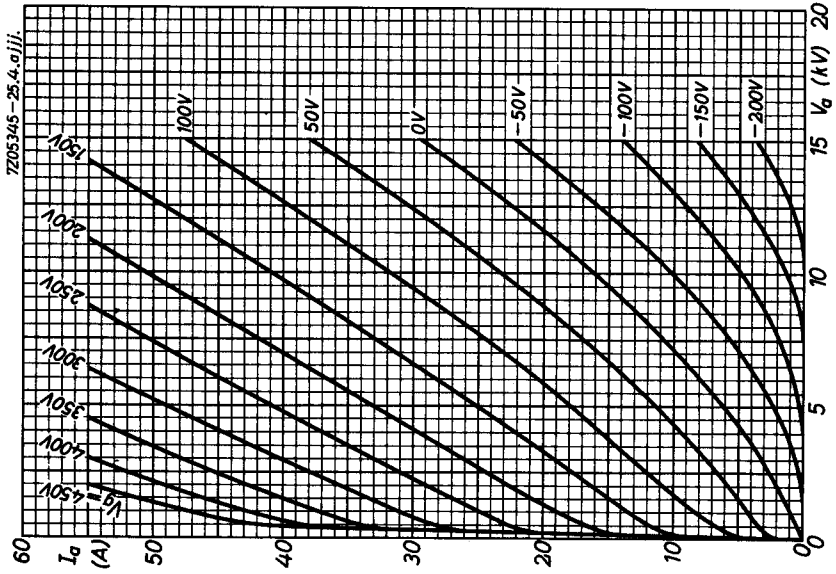
LIMITING VALUES (Absolute limits)

Anode voltage	$V_a = \text{max.}$	12	kV
Anode dissipation	$W_a = \text{max.}$	35	kW
Negative grid voltage	$-V_g = \text{max.}$	1000	V
Grid dissipation	$W_g = \text{max.}$	1.3	kW
Anode current	$I_a = \text{max.}$	13	A
Grid current	$I_g = \text{max.}$	3.3	A

OPERATING CONDITIONS (two tubes in push-pull)

Anode voltage	$V_a =$	12	10	kV		
Grid voltage	$V_g =$	-205	-170	V		
Load resistance	$R_{aa\sim} =$	2720	1810	Ω		
Peak grid driving voltage	$V_{ggp} =$	0	710	0	710	V
Anode current	$I_a =$	2x0.4	2x4.75	2x0.4	2x5.75	A
Average grid current	$I_g =$	0	2x0.45	0	2x0.72	A
Peak grid current	$I_{gp} =$	0	2x2.9	0	2x4.0	A
Grid driving power	$W_{dr} =$	0	2x150	0	2x235	W
Anode input power	$W_{i_a} =$	2x4.0	2x57	2x4.0	2x57.5	kW
Anode dissipation	$W_a =$	2x4.0	2x18	2x4.0	2x18.5	kW
Output power	$W_o =$	0	78	0	78	kW
Efficiency	$\eta =$	-	68.5	-	68	%





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