

AIR COOLED V.H.F. POWER TETRODE

Forced air cooled coaxial power tetrode in metal-ceramic construction primarily intended for use as a linear broad-band amplifier in T V transmitters in the bands I and III. This type is also very suitable for A.M. and F.M. broadcast and A.F. modulator applications, and in T V transposer service.

QUICK REFERENCE DATA			
Class AB linear amplifier (vision)			
Frequency	f	175, 25	MHz
Anode voltage	V_a	8	kV
Output power in load	W_l	27, 5	kW
Power gain	G	28, 5	
Class C telegraphy or F.M. telephony			
Frequency	f	260	MHz
Anode voltage	V_a	8, 5	kV
Output power in load	W_l	25	kW
Power gain	G	31	
Television transposer service			
Frequency	f	175 to 225	MHz
Anode voltage	V_a	8	kV
Output power in load	W	10, 5	kW
Power gain	G	42	

HEATING : direct; filament thoriated tungsten, mesh type.

Filament voltage	V_f	11, 5	V \pm 5 %
Filament current	I_f	120	A
Filament peak starting current	I_{fp} max.	750	A
Cold filament resistance	R_{f0}	10, 5	m Ω
Waiting time	T_w min.	1	s

TYPICAL CHARACTERISTICS

Anode voltage	V_a	8	kV
Grid no. 2 voltage	V_{g_2}	700	V
Anode current	I_a	2,4	A
Transconductance	S	60	mA/V
Amplification factor	μ	8,5	

CAPACITANCES

	grounded cathode		grounded grid	
Input	$C_{g_1(a)}$	135	$C_{f(a)}$	69 pF
Output	$C_{a(g_1)}$	23	$C_{a(f)}$	23 pF
Anode to grid no. 1	C_{ag_1}	0,85		pF
Anode to filament			C_{af}	0,25 pF

TEMPERATURE LIMITS

Absolute max. envelope temperature	t_{env}	max.	240	$^{\circ}\text{C}$
Recommended max. seal temperature	t	max.	200	$^{\circ}\text{C}$

COOLING

See cooling curves.

Direction of airflow: see outline drawing.

→ ACCESSORIES

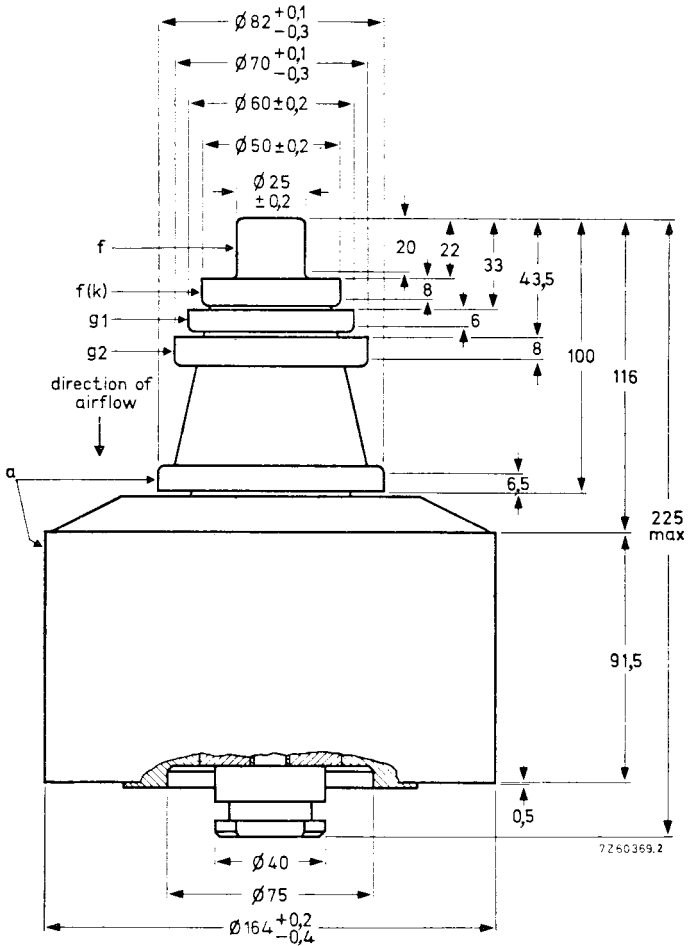
Band I amplifier circuit assembly (vision)	type	40759
Band I amplifier circuit assembly (sound)	type	40760
Band III amplifier circuit assembly (vision)	type	40768
Band III amplifier circuit assembly (sound)	type	40769

MECHANICAL DATA

Dimensions in mm

Net weight : approx. 11 kg

Mounting position : vertical with anode up or down



R.F. CLASS-AB LINEAR AMPLIFIER FOR TELEVISION SERVICE +

Negative modulation, positive synchronization (C.C.I.R. system)
 Unless otherwise specified the voltages are given with respect to the cathode.

LIMITING VALUES (Absolute max. rating system)

Frequency	f	up to	260	MHz
Anode voltage	V_a	max.	9	kV
Grid no. 2 voltage	V_{g2}	max.	1	kV
Grid no. 1 voltage	$-V_{g1}$	max.	500	V
Anode current, black	I_a black	max.	7	A
Anode input power, black	W_{ia} black	max.	40	kW
Anode dissipation	W_a	max.	18	kW
Grid no. 2 dissipation	W_{g2}	max.	100	W
Grid no. 1 dissipation	W_{g1}	max.	50	W
Cathode current	I_k	max.	9	A

OPERATING CONDITIONS, grounded grid

Frequency of vision carrier	f	175, 25	MHz
Bandwidth (-1 dB)	B	7, 5	MHz 2)
Anode voltage	V_a	8	kV
Grid no. 2 voltage	V_{g2}	700	V
Grid no. 1 voltage	V_{g1}	-84	V 1)
Anode current, no-signal condition	I_a	900	mA
Anode current, black	I_a black	3, 9	A 3)
Grid no. 2 current, black	I_{g2} black	55	mA 3)
Grid no. 1 current, black	I_{g1} black	180	mA 3)
Output power in load, sync	W_l sync	27, 5	kW
black	W_l black	16, 5	kW 3)
Anode dissipation, black	W_a black	14	kW
Driving power, sync	W_{dr} sync	965	W
black	W_{dr} black	520	W 2)
Gain, sync	G_{sync}	28, 5	
black	G_{black}	31, 6	
Sync compression	sync in/out	30/25	4)
Differential phase		< 3	deg 5)
Differential gain		≥ 85	% 5)
Anode resistance	$R_a \sim$	920	Ω

Notes see page 5.

+ Detailed information on definitions of terms and application suggestions are available on request.

OPERATING CONDITIONS (continued)

Frequency of vision carrier	f	83, 25	55, 25	MHz	2)
Bandwidth (-1 dB)	B	7	7	MHz	2)
Anode voltage	V_a	6, 5	6, 5	kV	
Grid no. 2 voltage	V_{g2}	700	700	V	1)
Grid no. 1 voltage	V_{g1}	-88	-88	V	1)
Anode current, no signal condition	I_a	900	900	mA	
Anode current, black	I_a black	4, 1	4, 5	A	3)
Grid no. 2 current, black	I_{g2} black	55	45	mA	3)
Grid no. 1 current, black	I_{g1} black	160	175	mA	3)
Output power in load, sync	W_{ℓ} sync	20	20	kW	
black	W_{ℓ} black	12	12	kW	3)
Anode dissipation, black	W_a black	14, 6	17, 2	kW	
Driving power, sync	W_{dr} sync	835	910	W	
black	W_{dr} black	444	520	W	2)
Gain, sync	G_{sync}	24	22		
black	G_{black}	27	23		
Sync compression	sync in/out	30/25	27/25		4)
Differential phase		< 3	< 3	deg	5)
Differential gain	R_a	≥85	≥85	%	5)
Anode resistance	$R_a \sim$	720	580	Ω	

NOTES

- 1) To be adjusted for the stated no signal anode current.
- 2) With double tuned circuit.
- 3) Black signal including line sync pulses.
- 4) A picture/sync ratio of 75/25 for the outgoing signal requires a ratio of max. 70/30 for the incoming signal in which case the sync compression sync in/out = 30/25.
- 5) Measured with a sawtooth amplitude, running from 17% to 75% of the peak sync value, with superimposed a 4, 43 MHz sine wave with a 10% peak to peak value.
- 6) At c. w. output power = 10, 5 kW.
- 7) Three-tone test method (vision carrier -8 dB, sound carrier -7 dB, sideband signal -17 dB with respect to peak sync = 0 dB).

R.F. CLASS AB AMPLIFIER FOR TELEVISION TRANSPOSER SERVICE , grounded grid

LIMITING VALUES

See page 4

OPERATING CONDITIONS , grounded gridNegative modulation, positive synchronization, combined sound and vision
(CCIR standard G)

Frequency	f	175 to 225	MHz
Bandwidth (-1 dB)	B	8	MHz
Anode voltage	V_a	8	kV
Grid no. 2 voltage	V_{g2}	900	V
Grid no. 1 voltage	1) V_{g1}	-95	V
Anode current, no signal condition	I_a	1, 8	A
Anode current	6) I_a	3, 3	A
Grid no. 2 current	6) I_{g2}	35	mA
Grid no. 1 current	6) I_{g1}	20	mA
Driving power, sync	W_{dr}	250	W
Output power in load, sync	W_l	10, 5	kW
Power gain	G	42	-
Intermodulation products	7) d	-55	dB

Notes : See page 5.

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

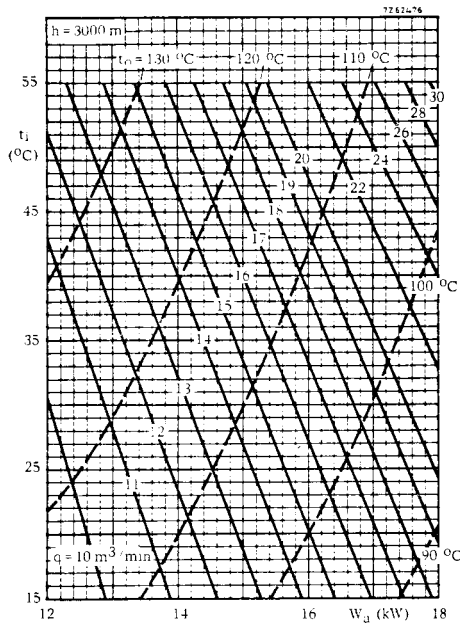
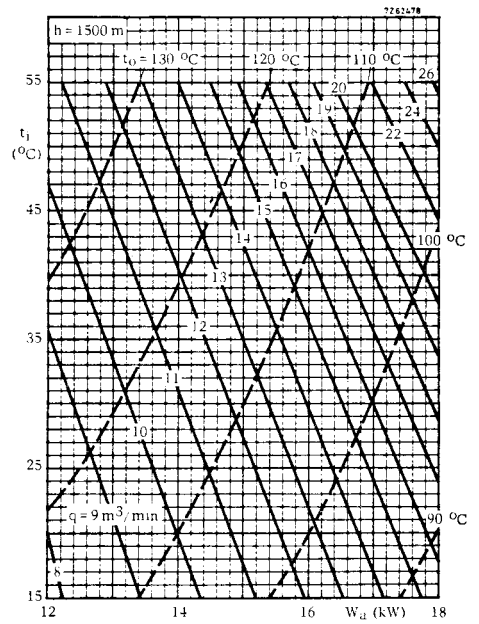
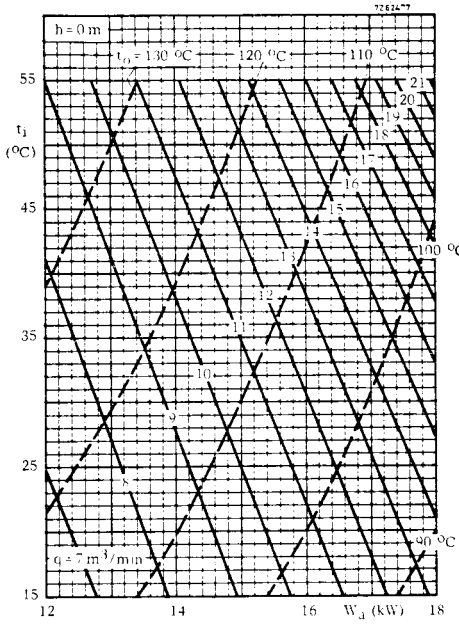
LIMITING VALUES (Absolute max. rating system)

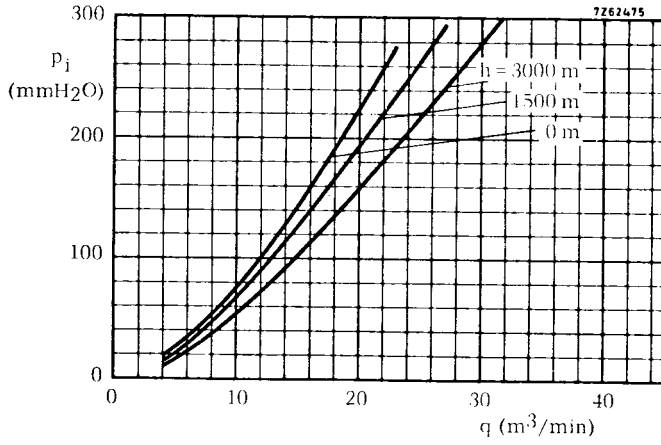
Frequency	f	up to	260 MHz
Anode voltage	V_a	max.	9,5 kV
Grid no. 2 voltage	V_{g2}	max.	1 kV
Grid no. 1 voltage	$-V_{g1}$	max.	500 V
Anode current	I_a	max.	7 A
Anode input power	W_{ia}	max.	42 kW
Anode dissipation	W_a	max.	18 kW
Grid no. 2 dissipation	W_{g2}	max.	100 W
Grid no. 1 dissipation	W_{g1}	max.	50 W
Cathode current	I_k	max.	9 A

OPERATING CONDITIONS

Frequency	f	260 MHz
Anode voltage	V_a	8,5 kV
Grid no. 2 voltage	V_{g2}	700 V
Grid no. 1 voltage	V_{g1}	-106 V ¹⁾
Anode current, no signal condition	I_a	300 mA
Anode current	I_a	4,6 A
Grid no. 2 current	I_{g2}	100 mA
Grid no. 1 current	I_{g1}	325 mA
Anode input power	W_{ia}	39,1 kW
Anode dissipation	W_a	14 kW
Output power in load	W_ℓ	25 kW
Efficiency, total		64 %
Driving power	W_{dr}	800 W
Power gain	$\frac{W_\ell}{W_{dr}}$	31

Note : See page 5





7Z62099

