

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, A.F. modulator applications, and in T V transposer service.

QUICK REFERENCE DATA			
Frequency	f	175, 25	MHz
Anode voltage	V_a	7	kV
Output power in load	W_l	18, 4	kW
Power gain	G	25	
Class B amplifier			
Frequency	f	260	MHz
Anode voltage	V_a	7, 5	kV
Output power in load	W_l	13	kW
Power gain	G	32, 5	
R.F. Class C telegraphy or F.M. telephony			
Frequency	f	260	MHz
Anode voltage	V_a	8	kV
Output power in load	W_l	18	kW
Power gain	G	30	
TV transposer service			
Frequency	f	175 to 225	MHz
Anode voltage	V_a	6	kV
Output power in load	W_l	7	kW
Power gain	G	32	

HEATING : direct; filament thoriated tungsten, mesh type.

Filament voltage	V_f	8	$V \pm 5\%$
Filament current	I_f	120	A
Filament peak starting current	I_{fp}	max. 750	A
Cold filament starting current	R_{fo}	7, 5	m Ω
Waiting time	T_w	min. 1	s

TYPICAL CHARACTERISTICS

Anode voltage	V_a	6	kV
Grid no. 2 voltage	V_{g2}	650	V
Anode current	I_a	2, 4	A
Transconductance	S	45	mA/V
Amplification factor	μ_{g2g1}	8, 5	

CAPACITANCES

	grounded cathode		grounded grid	
Input	$C_{g1(a)}$	110	$C_{f(a)}$	55 pF
Output	$C_{a(g1)}$	17, 5	$C_{a(f)}$	18 pF
Anode to grid no. 1	C_{ag1}	0, 7		pF
Anode to filament			C_{af}	0, 2 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 curves.

Direction of air flow: see drawing.

ACCESSORIES

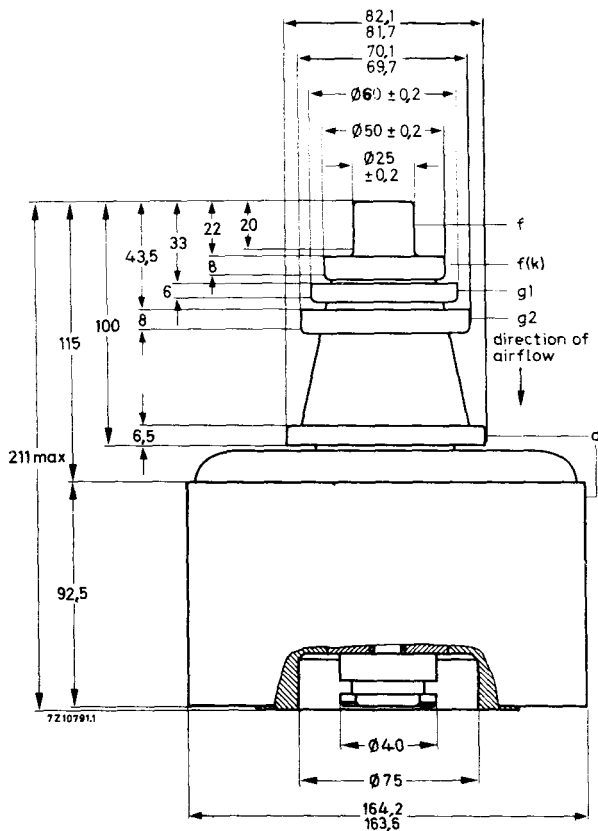
Band I	amplifier circuit assembly (vision)	type 40759
Band II	amplifier circuit assembly (sound)	type 40760
Band III	amplifier circuit assembly (vision)	type 40747
Band III	amplifier circuit assembly (sound)	type 40748

MECHANICAL DATA

Dimensions in mm

Net weight: approx. 11 kg

Mounting position: vertical with anode up or down



R.F. CLASS B SERVICE

Unless otherwise stated the voltages are specified with respect to 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	I_a	max.	5	A
Anode input power	W_{ia}	max.	24	kW
Anode dissipation	W_a	max.	12	kW
Grid no. 2 dissipation	W_{g2}	max.	100	W
Grid no. 1 dissipation	W_{g1}	max.	50	W
Cathode current	I_k	max.	6	A

OPERATING CONDITIONS , grounded grid

Frequency	f	up to	260	MHz
Anode voltage	V_a		7,5	kV
Grid no. 2 voltage	V_{g2}		650	V
Grid no. 1 voltage	V_{g1}		-125	V ¹⁾
Anode current, no signal condition	I_a		0,1	A
Anode current	I_a		2,5	A
Grid no. 2 current	I_{g2}		80	mA
Grid no. 1 current	I_{g1}		90	mA
Anode input power	W_{ia}		18,75	kW
Anode dissipation	W_a		5	kW
Output power in load	W_f		13	kW
Efficiency, total	η		69,3	%
Driving power	W_{dr}		400	W
Power gain	$\frac{W_f}{W_{dr}}$		32,5	

Note see page 9

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

LIMITING VALUES

See page 5

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	6	kV
Grid no. 2 voltage	V_{g2}	800	V
Grid no. 1 voltage 1)	V_{g1}	-80	V
Anode current, no signal condition	I_a	1, 2	A
Anode current 6)	I_a	2, 5	A
Grid no. 2 current 6)	I_{g2}	30	mA
Grid no. 1 current 6)	I_{g1}	50	mA
Driving power, sync	W_{dr}	220	W
Output power in load, sync	W_f	7	kW
Power gain	G	32	
Intermodulation products 7)	d	-52	dB

Notes: see page 9

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.	5	A
Anode input power	W_{ia}	max.	30	kW
Anode dissipation	W_a	max.	12	kW
Grid no. 2 dissipation	W_{g2}	max.	100	W
Grid no. 1 dissipation	W_{g1}	max.	50	W
Cathode current	I_k	max.	6	A

OPERATING CONDITIONS

Frequency	f	260	MHz
Anode voltage	V_a	8	kV
Grid no. 2 voltage	V_{g2}	700	V
Grid no. 1 voltage	V_{g1}	-115	V ¹⁾
Anode current, no signal condition	I_a	300	mA
Anode current	I_a	3.5	A
Grid no. 2 current	I_{g2}	100	mA
Grid no. 1 current	I_{g1}	300	mA
Anode input power	W_{ia}	28	kW
Anode dissipation	W_a	10	kW
Output power in load	W_ℓ	18	kW
Efficiency, total	η	64,3	%
Driving power	W_{dr}	600	W
Power gain	$\frac{W_\ell}{W_{dr}}$	30	

¹⁾ see page 9

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 72/25 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 saw tooth 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 = 7 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).

