

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			
Class AB linear amplifier (vision)			
Frequency	f	175, 25	MHz
Anode voltage	V_a	3	kV
Output power in load	W_l	1, 55	kW
Power gain	G	26	
Class B amplifier			
Frequency	f	260	MHz
Anode voltage	V_a	3, 5	kV
Output power in load	W_l	2, 4	kW
Power gain	G	26	
TV transposer service			
Frequency	f	175 to 225	MHz
Anode voltage	V_a	2, 5	kV
Output power in load	W_l	0, 55	kW
Power gain	G	30	

HEATING: direct: filament thoriated tungsten, mesh type.

Filament voltage	V_f	4, 2	$V \pm 5\%$
Filament current	I_f	53	A
Filament peak starting current	I_{fp} max.	300	A
Cold filament resistance	R_{f0}	8, 5	m Ω
Waiting time	T_w min.	1	s

TYPICAL CHARACTERISTICS

Anode voltage	V_a	4	kV
Grid no. 2 voltage	V_{g2}	500	V
Anode current	I_a	0, 4	A
Transconductance	S	25	mA/V
Amplification factor	μ_{g2g1}	16	

CAPACITANCES

	grounded cathode		grounded grid		
Input	$C_{g1(a)}$	47	$C_{f(a)}$	24	pF
Output	$C_{a(g1)}$	9	$C_{a(f)}$	9	pF
Anode to grid no. 1	C_{ag1}	0, 1			pF
Anode to filament			C_{af}	< 0, 1	pF

TEMPERATURE LIMITS

Absolute max. envelope temperature	t_{env}	max.	240	°C
Recommended max. seal temperature	t	max.	200	°C

COOLING

See curves

Direction of air flow: see drawing.

ACCESSORIES

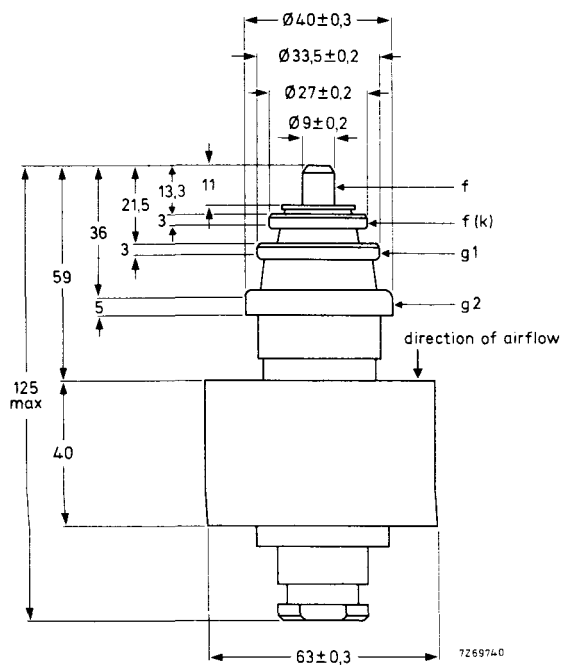
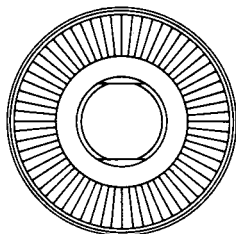
Band I amplifier circuit assembly (vision)	type 40755
Band I amplifier circuit assembly (sound)	type 40756
Band III amplifier circuit assembly (vision)	type 40743
Band III amplifier circuit assembly (sound)	type 40744

MECHANICAL DATA

Dimensions in mm

Net mass : approx. 0,55 kg

Mounting position: vertical with anode up or down.



R.F. CLASS B SERVICE

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.	4	kV
Grid no. 2 voltage	V_{g2}	max.	700	V
Grid no. 1 voltage	$-V_{g1}$	max.	100	V
Anode current	I_a	max.	1, 2	A
Anode input power	W_{ia}	max.	4	kW
Anode dissipation	W_a	max.	1, 5	kW
Grid no. 2 dissipation	W_{g2}	max.	50	W
Grid no. 1 dissipation	W_{g1}	max.	30	W
Cathode current	I_k	max.	1, 5	A
Grid no. 1 circuit resistance	R_{g1}	max.	10	k Ω

OPERATING CONDITIONS grounded grid

Frequency	f	up to	260	MHz
Anode voltage	V_a		3, 5	kV
Grid no. 2 voltage	V_{g2}		600	V
Grid no. 1 voltage	V_{g1}		- 30	V ²⁾
Anode current, no signal condition	I_a		100	mA
Anode current	I_a		980	mA
Grid no. 2 current	I_{g2}		70	mA
Grid no. 1 current	I_{g1}		120	mA
Anode input power	W_{ia}		3, 43	kW
Anode dissipation	W_a		0, 9	kW
Output power in load	W_{ℓ}		2, 4	kW
Efficiency, total	η		70	%
Driving power	W_{dr}		90	W
Power gain	$\frac{W_{\ell}}{W_{dr}}$		≈ 26	

²⁾ See page 8

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.	4	kV
Grid no. 2 voltage	V _{g2}	max.	700	V
Grid no. 1 voltage	-V _{g1}	max.	100	V
Anode current, black	I _a black	max.	1	A
Anode input power, black	W _{ia} black	max.	4	kW
Anode dissipation	W _a	max.	1,5	kW
Grid no. 2 dissipation	W _{g2}	max.	50	W
Grid no. 1 dissipation	W _{g1}	max.	30	W
Cathode current	I _k	max.	1,5	A
Grid no. 1 circuit resistance	R _{g1}	max.	10	kΩ

OPERATING CONDITIONS grounded grid.

Frequency of vision carrier	f	175, 25	MHz	
Bandwidth (-1 dB)	B	7	8	MHz 1)
Anode voltage	V _a	3	2,5	kV
Grid no. 2 voltage	V _{g2}	500	500	V
Grid no. 1 voltage	V _{g1}	-23	-14	V 2)
Anode current, no signal condition	I _a	200	400	mA
Anode current, black	I _a black	700	600	mA 3)
Grid no. 2 current, black	I _{g2} black	50	40	mA 3)
Grid no. 1 current, black	I _{g1} black	60	30	mA 3)
Output power in load, sync	W _l sync	1550	700	W
black	W _l black	930	420	W 3)
Driving power, sync	W _{dr} sync	60	30	W
black	W _{dr} black	32,5	17	W
Gain, sync	G _{sync}	26	23	
black	G _{black}	28,6	24,7	
Sync compression	sync in/out	28/25	27/25	4)
Differential phase		< 3	< 3	° 5)
Differential gain		≥ 85	≥ 85	%
Anode resistance	R _a ~	1,8	1,6	kΩ 1)

Notes: see page 8

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

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

LIMITING VALUES

See page 5

OPERATING CONDITIONS , grounded grid

Negative 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	2,5	kV
Grid no. 2 voltage	V_{g2}	600	V
Grid no. 1 voltage ²⁾	V_{g1}	-13,5	V
Anode current, no signal condition	I_a	550	mA
Anode current ⁶⁾	I_a	730	mA
Grid no. 2 current ⁶⁾	I_{g2}	50	mA
Grid no. 1 current ⁶⁾	I_{g1}	35	mA
Driving power, sync	W_{dr}	18	W
Output power in load, sync	W_f	0,55	kW
Power gain	G	30	-
Intermodulation products ⁷⁾	d	-52	dB

Notes: see page 8

NOTES

- 1) With double tuned circuit.
- 2) To be adjusted for the stated no signal anode current..
- 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 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 = 550 W
- 7) Three-tone test method (vision carrier -8 dB, sound carrier -7 dB, sideband signal -17 dB with respect to peak sync = 0 dB).

