

R.F. POWER TETRODE

QUICK REFERENCE DATA						
Freq.	C teleg.		C _{ag2} mod.		S.S.B.	
(MHz)	V _a (V)	W _o (W)	V _a (V)	W _o (W)	V _a (V)	W _L (W)
50	3000	280	2500	230		
50	1500	165	1500	140		
50	600	45	600	45		
220	1500	110	1500	75		
30					2500	87
30					2000	77
30					1500	58

B mod. ¹⁾			
I _{g1} = 0		I _{g1} > 0	
V _a (V)	W _o (W)	V _a (V)	W _o (W)
1750	175	1800	270
1500	145	1500	250
1000	80	1000	170
		600	90

HEATING: direct; filament thoriated tungsten

Filament voltage $V_f = 6$ V
 Filament current $I_f = 3.5$ A

COOLING: radiation/low-velocity air flow

CAPACITANCES

Anode to all other elements except grid No. 1 $C_a = 2.1$ pF
 Grid No. 1 to all other elements except anode $C_{g1} = 8$ pF
 Anode to grid No. 1 $C_{ag1} = 0.08$ pF

¹⁾ Two tubes

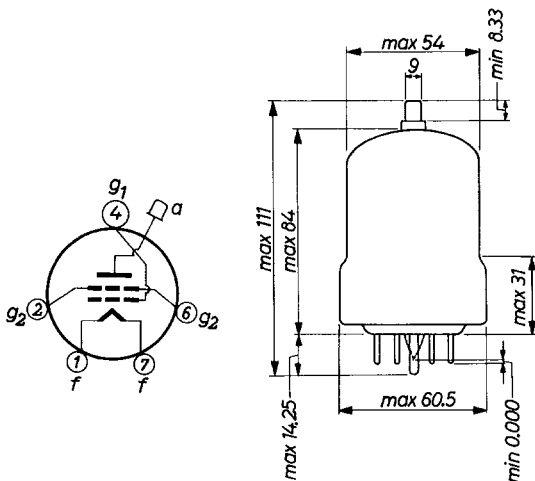
TYPICAL CHARACTERISTICS

Anode voltage	V_a	=	500 V
Grid No. 2 voltage	V_{g_2}	=	250 V
Anode current	I_a	=	125 mA
Mutual conductance	S	=	4 mA/V
Amplification factor of grid No. 2 with respect to grid No. 1	$\mu_{g_2g_1}$	=	5

MECHANICAL DATA

Dimensions in mm

- Base : Septar
- Socket : 2422 513 00001
- Anode connector: 40712
- Net weight : 85 g



Mounting position: vertical with base up or down

TEMPERATURE LIMITS (Absolute limits)

Temperature of bulb and pin seals = max. 225 °C

R.F. CLASS C TELEGRAPHY

LIMITING VALUES (Absolute limits)

Frequency	f	up to 250	up to 150	MHz
Anode voltage	V_a	= max. 1500	max. 3000	V
Anode current	I_a	= max. 150		mA
Anode input power	W_{ia}	= max. 450		W
Anode dissipation	W_a	= max. 65		W
Grid No.2 voltage	V_{g2}	= max. 400		V
Grid No.2 dissipation	W_{g2}	= max. 10		W
Negative grid No.1 voltage	$-V_{g1}$	= max. 500		V
Grid No.1 current	I_{g1}	= max. 30		mA
Grid No.1 dissipation	W_{g1}	= max. 5		W

OPERATING CONDITIONS

Frequency	f	= 50	50	50	220	MHz
Anode voltage	V_a	= 3000	1500	600	1500	V
Grid No.2 voltage	V_{g2}	= 250	250	250	250	V
Grid No.1 voltage	V_{g1}	= -100	-85	-75	-85	V
Anode current	I_a	= 115	150	150	117	mA
Grid No.2 current	I_{g2}	= 8	24	40	24	mA
Grid No.1 current	I_{g1}	= 5	12	15	12	mA
Peak grid No.1 A.C. voltage	V_{g1p}	= 180	185	170	190	V
Grid No.1 input power	W_{ig1}	= 0.8	2.0	2.3	8	W
Grid No.2 dissipation	W_{g2}	= 2.0	6	10	6	W
Anode input power	W_{ia}	= 345	225	90	175	W
Anode dissipation	W_a	= 65	60	45	65	W
Output power	W_o	= 280	165	45	110	W
Efficiency	η	= 81	73	50	63	%

R.F. CLASS C ANODE AND SCREEN GRID MODULATION

LIMITING VALUES (Absolute limits)

Frequency	f	up to 250	up to 150	MHz
Anode voltage	V_a	= max. 1500	max. 2500	V
Anode current	I_a	= max. 120		mA
Anode input power	W_{ia}	= max. 300		W
Anode dissipation	W_a	= max. 45		W
Grid No.2 voltage	V_{g2}	= max. 400		V
Grid No.2 dissipation	W_{g2}	= max. 10		W
Negative grid No.1 voltage	$-V_{g1}$	= max. 500		V
Grid No.1 current	I_{g1}	= max. 25		mA

OPERATING CONDITIONS

Frequency	f	= 50	50	50	220	MHz
Anode voltage	V_a	= 2500	1500	600	1500	V
Grid No.2 voltage	V_{g2}	= 250	250	250	250	V
Grid No.1 voltage	V_{g1}	= -135	-125	-120	-85	V
Anode current	I_a	= 110	120	120	80	mA
Grid No.2 current	I_{g2}	= 10	15	30	27	mA
Grid No.1 current	I_{g1}	= 6	8	12	12	mA
Peak grid No.1 A.C. voltage	V_{g1p}	= 215	220	215	185	V
Grid No.1 input power	W_{ig1}	= 1.2	1.6	2.3	8	W
Grid No.2 dissipation	W_{g2}	= 2.5	3.8	7.5	6.25	W
Anode input power	W_{ia}	= 275	180	72	120	W
Anode dissipation	W_a	= 45	40	27	45	W
Output power	W_o	= 230	140	45	75	W
Efficiency	η	= 84	78	62	63	%
Modulation factor	m	= 100	100	100	100	%
Peak grid No.2 A.C. voltage	V_{g2p}	= 250	250	250	250	V
Modulation power	W_{mod}	= 137	90	36	60	W

R.F. CLASS B SINGLE SIDE BAND AMPLIFIER

LIMITING VALUES (Absolute limits)

Anode voltage	V_a	= max.	3000	V
Anode current	I_a	= max.	150	mA
Anode input power	W_{ia}	= max.	450	W
Anode dissipation	W_a	= max.	65	W
Grid No.2 voltage	V_{g2}	= max.	600	V
Grid No.2 dissipation	W_{g2}	= max.	10	W
Grid No.1 circuit resistance	R_{g1}	= max.	250	k Ω

OPERATING CONDITIONS

Frequency	f	=	30	30	30	MHz
Anode voltage	V_a	=	2500	2000	1500	V
Grid No.2 voltage	V_{g2}	=	405	450	480	V
Grid No.1 voltage ¹⁾	V_{g1}	=	-88	-100	-86	V
Peak grid No.1 A.C. voltage	V_{g1p}	=	0 165	0 190	0 150	V
Anode current	I_a	=	7 70	22 80	30 90	mA
Grid No.2 current	I_{g2}	=	- 2	- 2	- 3	mA
Grid No.1 current	I_{g1}	=	- 8	- 20	- 15	mA
Grid No.2 dissipation	W_{g2}	=	- 22.5	- 26	- 13.5	W
Grid No.1 input power	W_{ig1}	=	- 1.3	- 3.8	- 2.3	W
Anode input power	W_{ia}	=	42.5 175	44 160	45 135	W
Anode dissipation	W_a	=	42.5 60	44 60	45 60	W
Output power ²⁾	W_p	=	0 87	0 77	0 58	W

¹⁾ To be adjusted for the stated zero signal anode current

²⁾ Useful power in the load measured in a circuit having an efficiency of about 75 %.

A.F. CLASS B AMPLIFIER AND MODULATOR

LIMITING VALUES (Absolute limits)

Anode voltage	V_a	=	max.	3000	V
Anode current	I_a	=	max.	150	mA
Anode dissipation	W_a	=	max.	65	W
Grid No.2 voltage	V_{g2}	=	max.	600	V
Grid No.2 dissipation	W_{g2}	=	max.	20	W
Negative grid No.1 voltage	$-V_{g1}$	=	max.	500	V
Grid No.1 current	I_{g1}	=	max.	20	mA
Grid No.1 circuit resistance	R_{g1}	=	max.	250	k Ω

OPERATING CONDITIONS, two tubes. $I_{g1} = 0$

V_a	=	1750	1500	1000	V			
V_{g2}	=	500	500	500	V			
V_{g1}	=	-115	-110	-100	V			
$R_{aa\sim}$	=	20	15	9	k Ω			
V_{g1g1p}	=	0	180	0	170	V		
I_a	=	2x20	2x85	2x30	2x90	2x30	2x85	mA
I_{g2}	=	-	2x11.5	-	2x10	-	2x15	mA
W_{g2}	=	-	2x6	-	2x5	-	2x7.5	W
W_{ia}	=	2x35	2x150	2x45	2x135	2x30	2x85	W
W_a	=	2x35	2x62.5	2x45	2x62.5	2x30	2x45	W
W_o	=	0	175	0	145	0	80	W
η	=	-	59	-	54	-	47	%
d_{tot}	=	-	4.5	-	3	-	3	%

A.F. CLASS B AMPLIFIER AND MODULATOR (continued)

OPERATING CONDITIONS, two tubes. $I_{g1} > 0$

Anode voltage	V_a	=	1800	1500	V
Grid No.2 voltage	V_{g2}	=	250	250	V
Grid No.1 voltage	V_{g1}	=	-50	-45	V
Load resistance	$R_{aa\sim}$	=	20	14	k Ω
Peak grid to grid voltage	V_{g1g1p}	=	0 180	0 200	V
Anode current	I_a	=	2x25 2x110	2x30 2x125	mA
Grid No.2 current	I_{g2}	=	- 2x15	- 2x20	mA
Grid No.1 current	I_{g1}	=	0 2x9	0 2x10	mA
Grid No.2 dissipation	W_{g2}	=	- 2x4	- 2x5	W
Grid No.1 input power	W_{ig1}	=	0 2x0.8	0 2x0.9	W
Anode input power	W_{ia}	=	2x45 2x198	2x45 2x188	W
Anode dissipation	W_a	=	2x45 2x63	2x45 2x63	W
Output power	W_o	=	0 270	0 250	W
Efficiency	η	=	- 68	- 67	%
Total harmonic distortion	d_{tot}	=	- 5	- 6	%

Anode voltage	V_a	=	1000	600	V
Grid No.2 voltage	V_{g2}	=	250	250	V
Grid No.1 voltage	V_{g1}	=	-40	-40	V
Load resistance	$R_{aa\sim}$	=	6.8	3.6	k Ω
Peak grid to grid voltage	V_{g1g1p}	=	0 210	0 240	V
Anode current	I_a	=	2x30 2x150	2x30 2x150	mA
Grid No.2 current	I_{g2}	=	- 2x30	- 2x40	mA
Grid No.1 current	I_{g1}	=	0 2x14	0 2x15	mA
Grid No.2 dissipation	W_{g2}	=	- 2x7.5	- 2x10	W
Grid No.1 input power	W_{ig1}	=	0 2x1.3	0 2x1.6	W
Anode input power	W_{ia}	=	2x30 2x150	2x18 2x90	W
Anode dissipation	W_a	=	2x30 2x65	2x18 2x45	W
Output power	W_o	=	0 170	0 90	W
Efficiency	η	=	- 57	- 50	%
Total harmonic distortion	d_{tot}	=	- 6	- 10	%



