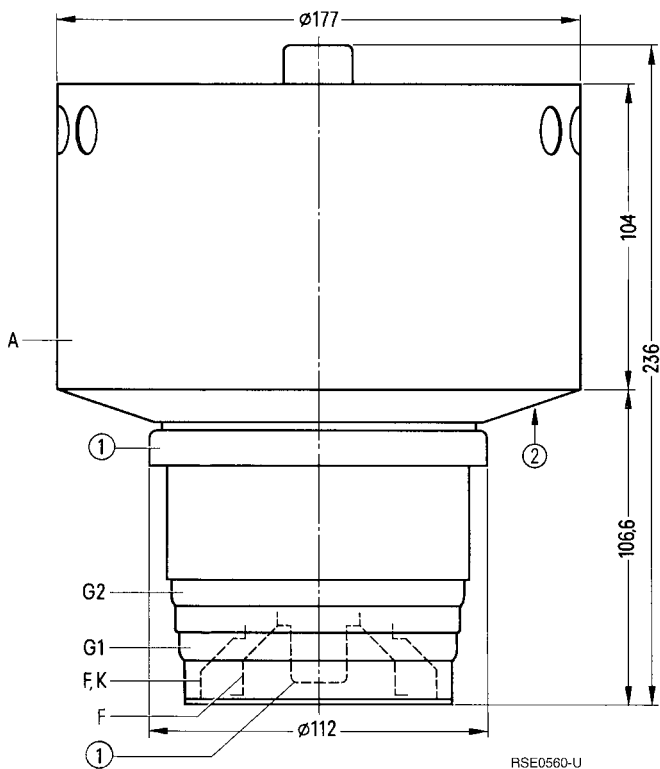


Ordering code Q51-X2794

Coaxial metal-ceramic tetrode, forced-air-cooled, for frequencies up to 110 MHz, particularly suitable for single-sideband communications transmitters up to 11 kW.



Dimensions in mm

- ① Do not use as terminal
- ② Air inlet

Approx. weight 8,5 kg

Heating

Heater voltage	U_F	7,5	V
Heater current	I_F	≈ 75	A
Heating: direct			
Cathode: thoriated tungsten			

Characteristics

Emission current at $U_A = U_{G2} = U_{G1} = 400 \text{ V}$	I_{em}	22	A
Amplification factor of screen grid at $U_A = 3 \text{ kV}$, $U_{G2} = 750 \text{ to } 1000 \text{ V}$, $I_A = 2 \text{ A}$	μ_{g2g1}	4,8	
Transconductance at $U_A = 3 \text{ kV}$, $U_{G2} = 750 \text{ V}$, $I_A = 2 \text{ A}$	S	36	mA/V

Capacitances

Cathode/control grid	C_{kg1}	≈ 54	pF
Cathode/screen grid	C_{kg2}	≈ 6,0	pF
Cathode/anode	C_{ka}	≈ 0,2	pF ¹⁾
Control grid/screen grid	C_{g1g2}	≈ 84	pF
Control grid/anode	C_{g1a}	≈ 1,0	pF ¹⁾
Screen grid/anode	C_{g2a}	≈ 22,5	pF

Accessories

Ordering code

Socket (header connector)	RöFsg2794	Q1001-X27
Air duct	RöAnst2794	Q1001-X84

¹⁾ Measured by means of a 50 cm diameter screening plate in the screen grid terminal plane.

RF linear amplifier,
single-sideband modulation, grounded cathode circuit, $I_{G1} = 0$

Maximum ratings

Frequency	f	30	MHz
Anode voltage (dc)	U_A	8,0	kV
Screen grid voltage (dc)	U_{G2}	1,5	kV
Control grid voltage (dc)	U_{G1}	– 500	V
Cathode current (dc)	I_K	4,0	A
Peak cathode current	$I_{K M}$	22	A
Anode dissipation	P_A	12	kW
Screen grid dissipation	P_{G2}	300	W
Control grid dissipation	P_{G1}	75	W

Operating characteristics

Output power	P_2	0	12,5	6,25	kW ¹⁾
Anode voltage (dc)	U_A	7,5	7,5	7,5	kV
Screen grid voltage (dc)	U_{G2}	1,25	1,25	1,25	kV
Control grid voltage	U_{G1}	– 260	– 260	– 260	V
Peak control grid voltage (ac)	$U_{g1 m}$	0	240	240	V
Anode current (dc)	I_A	0,9	2,65	1,8	A
Screen grid current (dc)	I_{G2}	0	120	56	mA
Anode input power	$P_{B A}$	6,7	19,9	13,5	kW
Anode dissipation	P_A	6,7	7,4	7,25	kW
Screen grid dissipation	P_{G2}	0	150	70	W
Efficiency	η	—	63	46	%
Anode load resistance	R_A	—	1560	1560	Ω
Third order intermodulation product	d_3	—	—	≥ 44	dB ²⁾
Fifth order intermodulation product	d_5	—	—	≥ 50	dB ²⁾

- I No modulation
- II 1-tone modulation
- III 2-tone modulation

1) Circuit losses are not included.
2) Intermodulation product calculated from the total characteristic measured by the differential method at $f = 3$ MHz.

Tube mounting

Axis vertical, anode up or down.

For connection of the tube use the terminals listed under "Accessories".

Maximum tube surface temperature

The temperature of both the metal-ceramic seals and the anode body must not exceed 250 °C at any point.

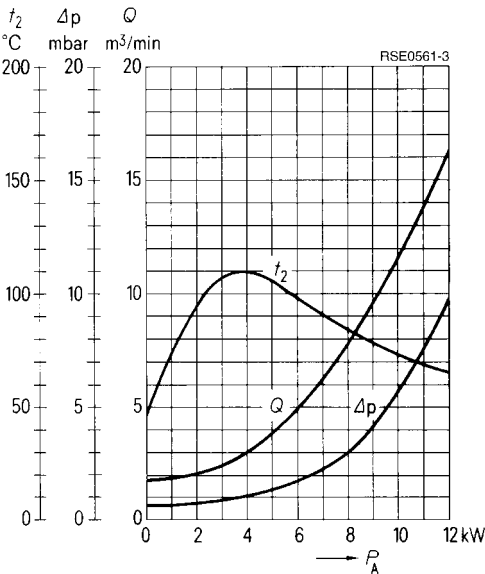
Forced-air cooling

The minimum air flow rate required for maximum anode dissipation is given in the cooling air diagram valid for 25 °C inlet temperature at a normal air pressure of 1 bar (sea level). The cooling air must be supplied from the side of the electrode terminals. For further information on forced-air cooling refer to "Explanations on Technical Data".

Safety precautions

The section "Safety precautions" under "Explanations on Technical Data" describes how the tube is to be protected against damage due to electric overload or insufficient cooling. A copper wire with 0,20 mm diameter should be used to test the anode overcurrent trip circuit.

Cooling air diagram

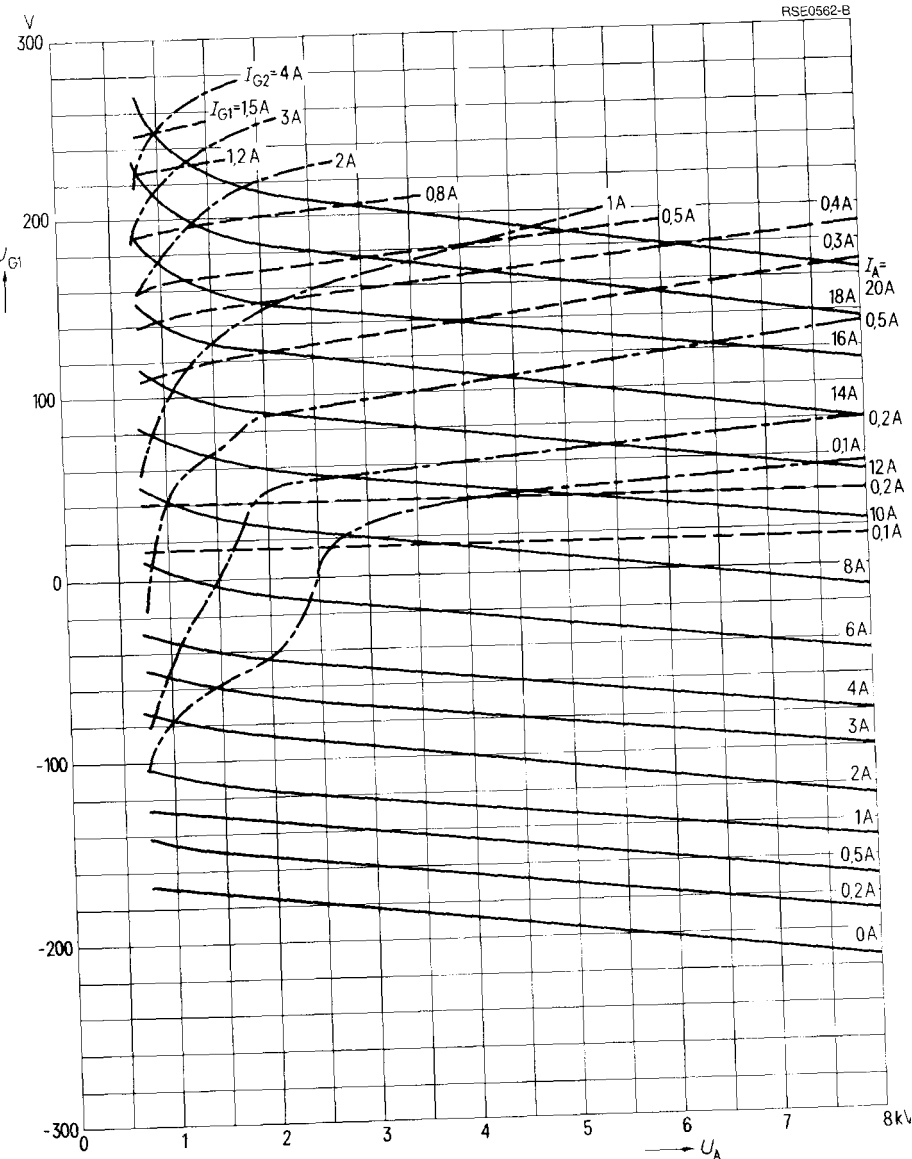


The cooling air is supplied from the electrode terminal side.

Air pressure = 1 bar

$t_1 = 25\text{ °C}$

$U_{G1} = f(U_A)$
 $U_{G2} = 750 \text{ V}$
Parameter = I_A _____
Parameter = I_{G2}
Parameter = I_{G1} - - - - -



$U_{G1} = f(U_A)$
 $U_{G2} = 1250 \text{ V}$

Parameter = I_A _____
Parameter = I_{G2}
Parameter = I_{G1} - - - - -

