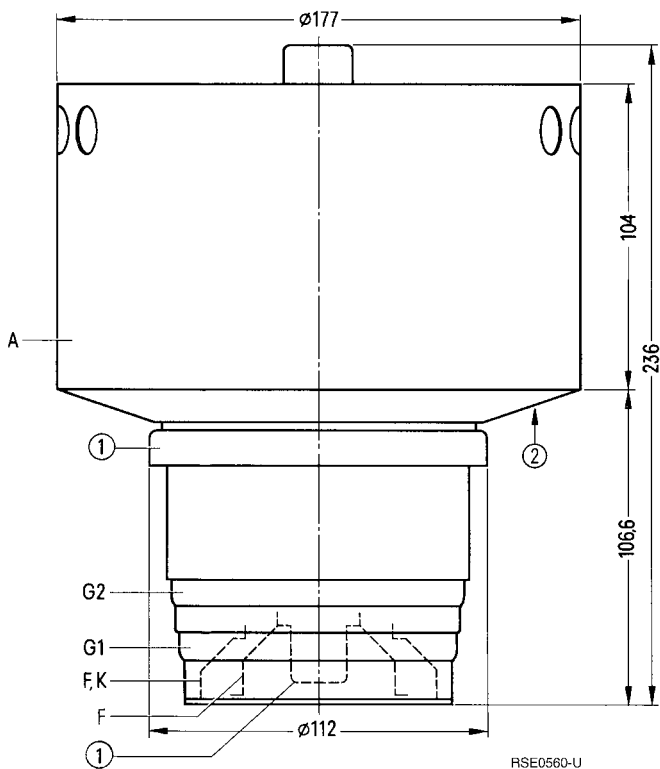


Ordering code Q51-X2794

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<br>at $U_A = 3 \text{ kV}$ , $U_{G2} = 750 \text{ to } 1000 \text{ V}$ , $I_A = 2 \text{ A}$ | $\mu_{g2g1}$ | 4,8 |      |
| Transconductance<br>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 <sup>1)</sup> |
| Control grid/screen grid | $C_{g1g2}$ | ≈ 84   | pF               |
| Control grid/anode       | $C_{g1a}$  | ≈ 1,0  | pF <sup>1)</sup> |
| Screen grid/anode        | $C_{g2a}$  | ≈ 22,5 | pF               |

**Accessories**

**Ordering code**

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

<sup>1)</sup> 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 <sup>1)</sup> |
| 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                          | $\eta$      | —     | 63    | 46        | %                |
| Anode load resistance               | $R_A$       | —     | 1560  | 1560      | $\Omega$         |
| Third order intermodulation product | $d_3$       | —     | —     | $\geq 44$ | dB <sup>2)</sup> |
| Fifth order intermodulation product | $d_5$       | —     | —     | $\geq 50$ | dB <sup>2)</sup> |

- 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.

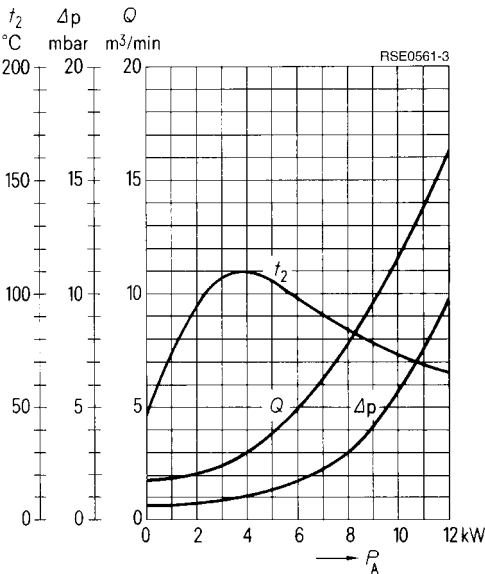
### Forced-air cooling

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

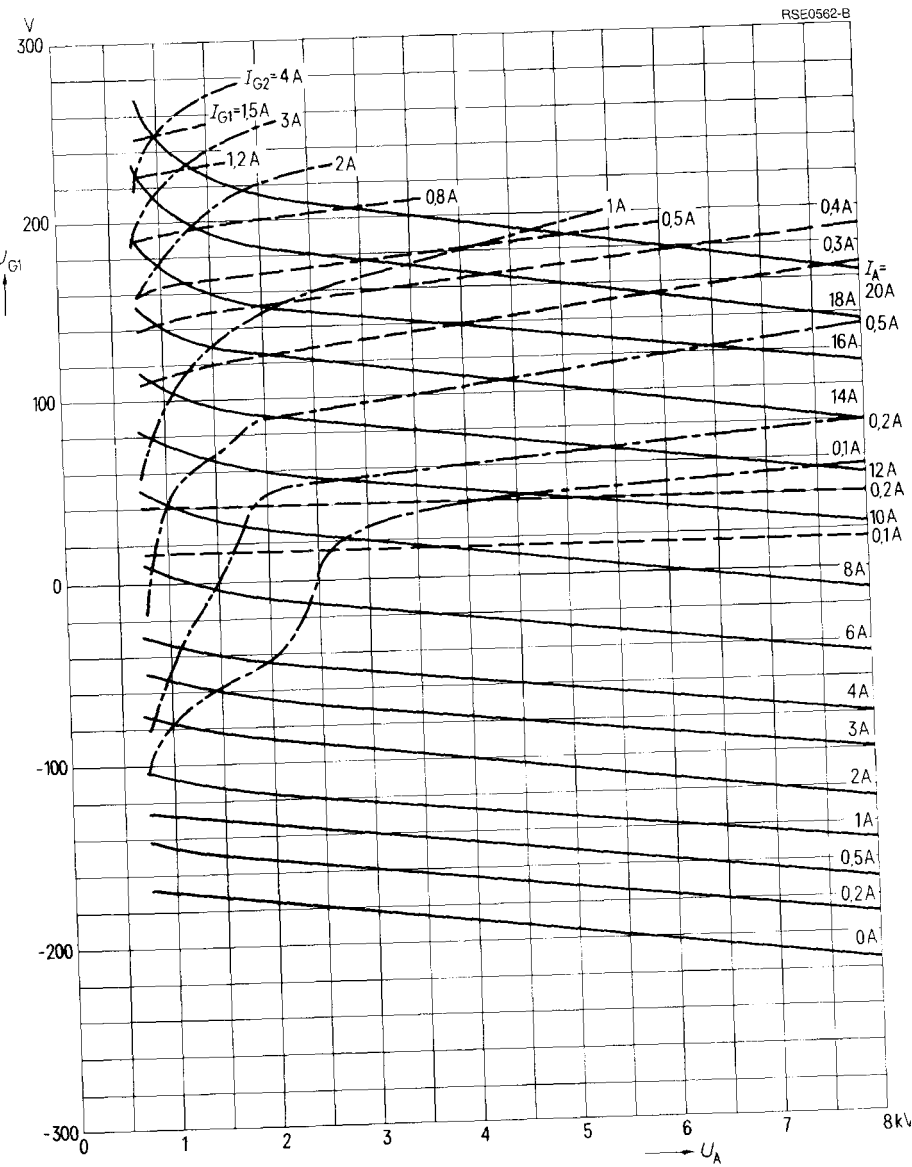


The cooling air is supplied from the electrode terminal side.

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 =  $I_{G1}$  - - - - -

