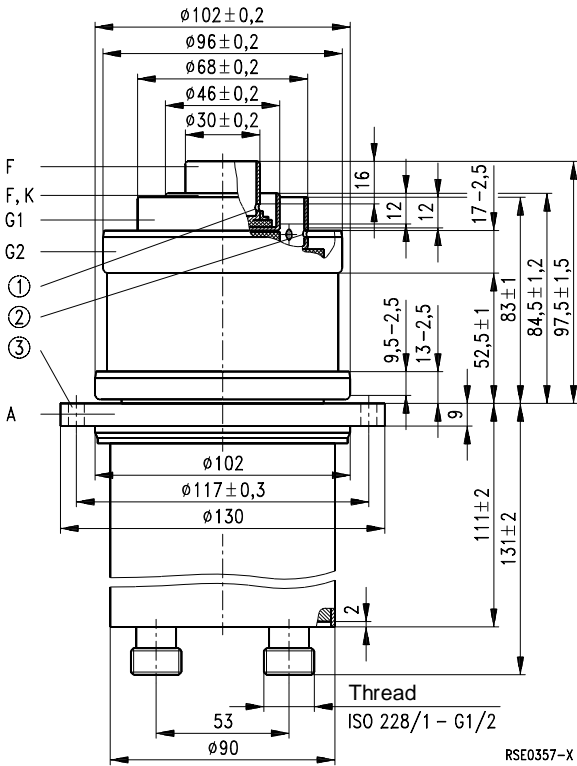


Ordering code Q53-2048

Compact, coaxial metal-ceramic tetrode, water-cooled. Due to the low feedback capacitance particularly suitable for high power gain in grounded cathode circuits.



Dimensions in mm

- ① 8 tapholes 3 mm dia.
- ② 12 tapholes 3 mm dia.
- ③ 6 tapholes 7 mm dia.

Approx. weight 4,4 kg

**Heating**

|                             |       |       |   |
|-----------------------------|-------|-------|---|
| Heater voltage              | $U_F$ | 9,0   | V |
| Heater current              | $I_F$ | ≈ 112 | A |
| Heating: direct             |       |       |   |
| Cathode: thoriated tungsten |       |       |   |

**Characteristics**

|  |              |     |      |
|--|--------------|-----|------|
| Emission current at $U_A = U_{G2} = U_{G1} = 300\text{ V}$   | $I_{em}$     | 40  | A    |
| Amplification factor of screen grid at $U_{G2} = 600\text{ to }1000\text{ V}$ , $U_A = 2\text{ kV}$ , $I_A = 3\text{ A}$ | $\mu_{g2g1}$ | 7,0 |      |
| Transconductance at $U_A = 2\text{ kV}$ , $U_{G2} = 800\text{ V}$ , $I_A = 2\text{ bis }4\text{ A}$                      | $s$          | 70  | mA/V |

**Capacitances**

|                          |            |        |       |
|--------------------------|------------|--------|-------|
| Cathode/control grid     | $C_{kg1}$  | ≈ 76   | pF    |
| Cathode/screen grid      | $C_{kg2}$  | ≈ 6    | pF    |
| Cathode/anode            | $C_{ka}$   | ≈ 0,09 | pF 1) |
| Control grid/screen grid | $C_{g1g2}$ | ≈ 112  | pF    |
| Control grid/anode       | $C_{g1a}$  | ≈ 0,8  | pF 1) |
| Screen grid/anode        | $C_{g2a}$  | ≈ 21   | pF    |

**Accessories**

Upon request

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

**RF amplifier,  
class C operation, grounded cathode circuit**

**Maximum ratings**

|                           |          |       |       |     |
|---------------------------|----------|-------|-------|-----|
| Frequency                 | $f$      | 50    | 110   | MHz |
| Anode voltage (dc)        | $U_A$    | 14    | 14    | kV  |
| Screen grid voltage (dc)  | $U_{G2}$ | 1000  | 1000  | V   |
| Control grid voltage (dc) | $U_{G1}$ | - 300 | - 300 | V   |
| Cathode current (dc)      | $I_K$    | 7     | 7     | A   |
| Peak cathode current      | $I_{KM}$ | 35    | 35    | A   |
| Anode dissipation         | $P_A$    | 30    | 30    | kW  |
| Control grid dissipation  | $P_{G1}$ | 70    | 70    | W   |
| Screen grid dissipation   | $P_{G2}$ | 300   | 250   | W   |

**Operating characteristics**

|                                |            |       |       |                  |
|--------------------------------|------------|-------|-------|------------------|
| Frequency                      | $f$        | < 50  | < 110 | MHz              |
| Output power                   | $P_2$      | 53    | 37,5  | kW <sup>1)</sup> |
| Anode voltage (dc)             | $U_A$      | 12    | 10    | kV               |
| Screen grid voltage (dc)       | $U_{G2}$   | 800   | 800   | V                |
| Control grid voltage (dc)      | $U_{G1}$   | - 230 | - 220 | V                |
| Peak control grid voltage (ac) | $U_{g1 m}$ | 320   | 300   | V                |
| Anode current (dc)             | $I_A$      | 5,6   | 4,9   | A                |
| Screen grid current (dc)       | $I_{G2}$   | 0,22  | 0,19  | A                |
| Control grid current (dc)      | $I_{G1}$   | 0,6   | 0,55  | A                |
| Anode input power              | $P_{BA}$   | 67    | 49    | kW               |
| Drive power                    | $P_1$      | 180   | 140   | W <sup>1)</sup>  |
| Anode dissipation              | $P_A$      | 14    | 11    | kW               |
| Screen grid dissipation        | $P_{G2}$   | 176   | 152   | W                |
| Control grid dissipation       | $P_{G1}$   | 45    | 33    | W                |
| Efficiency                     | $\eta$     | 79    | 77    | %                |
| Anode load resistance          | $R_A$      | 1160  | 1080  | $\Omega$         |

1) Circuit losses are not included.

## **Tube mounting**

Axis vertical, anode up or down.

## **Maximum tube surface temperature**

The temperature of the metal-ceramic seals must not exceed 220 °C at any point. Sufficient cooling of the terminal side has to be provided by an air flow of approx. 0,7 m<sup>3</sup>/min.

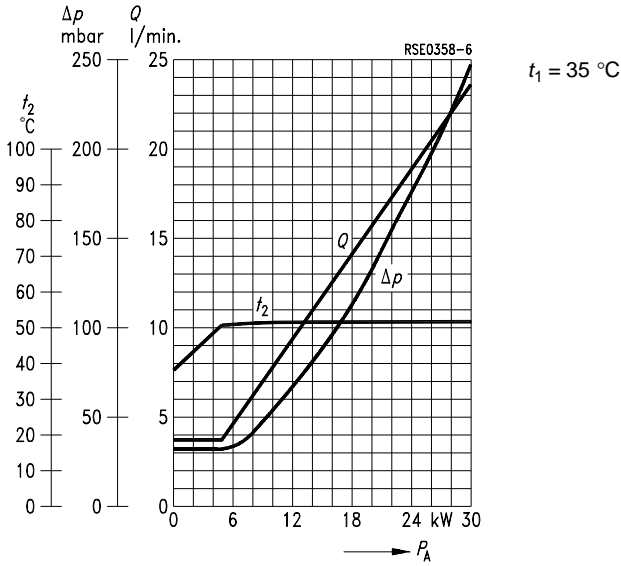
## **Water cooling**

The cooling water diagram is valid for a water inlet temperature of 35 °C. The maximum permissible pressure of the cooling water at the water inlet is 6 bar. Please observe the instructions on water cooling given under „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 0,25 mm diameter should be used to test the anode overcurrent trip circuit.

Cooling water diagram



$U_{G1} = f(U_A)$   
 $U_{G2} = 800 \text{ V}$   
 Parameter =  $I_A$  \_\_\_\_\_  
 Parameter =  $I_{G2}$  - - - - -  
 Parameter =  $I_{G1}$  - - - - -

RSE0359-E

