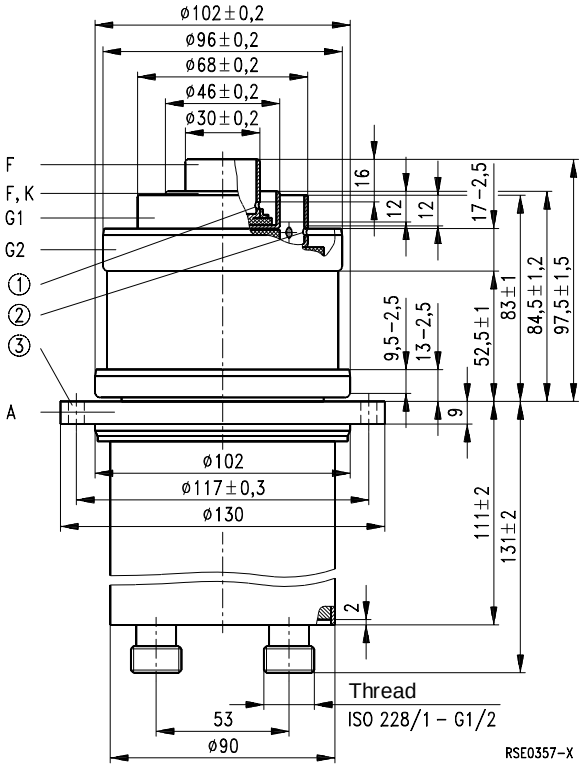
Ordering code Q53-2048

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

①8 tapholes 3 mm dia.
②12 tapholes 3 mm dia.
③6 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 $U_A = U_{G2} = U_{G1} = 300$ V | $I_{em}$ | 40 | A |
| Amplification factor of screen grid at $U_{G2}$ = 600 to 1000 V, $U_A$ = 2 kV, $I_A$ = 3 A | $\mu_{g2g1}$ | 7,0 | |
| Transconductance at $U_A$ = 2 kV, $U_{G2}$ = 800 V, $I_A$ = 2 bis 4 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 | $I_{K\,M}$ | 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 [1]) |
| 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 | $P_{B\,A}$ | 67 | 49 | kW |
| Drive power | $P_1$ | 180 | 140 | W [1]) |
| 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 | Ω |

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 $m^3$/min.

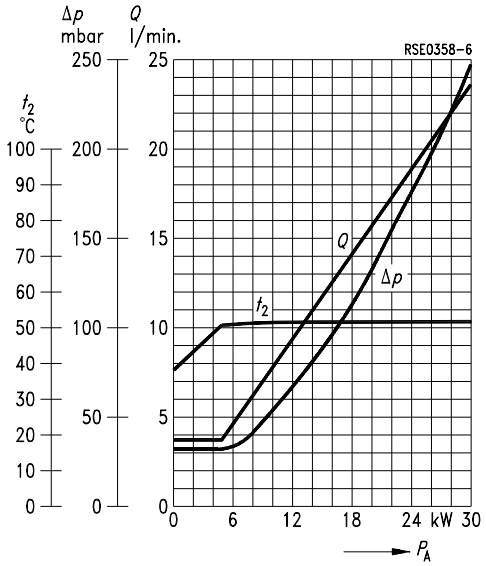
**Water cooling**

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**




$t_1$ = 35 °C

$U_{G1} = f(U_A)$ Parameter = $I_A$ ——————
$U_{G2}$ = 800 V Parameter = $I_{G2}$ —·—·—·—·—·—·—
Parameter = $I_{G1}$ — — — — — — —