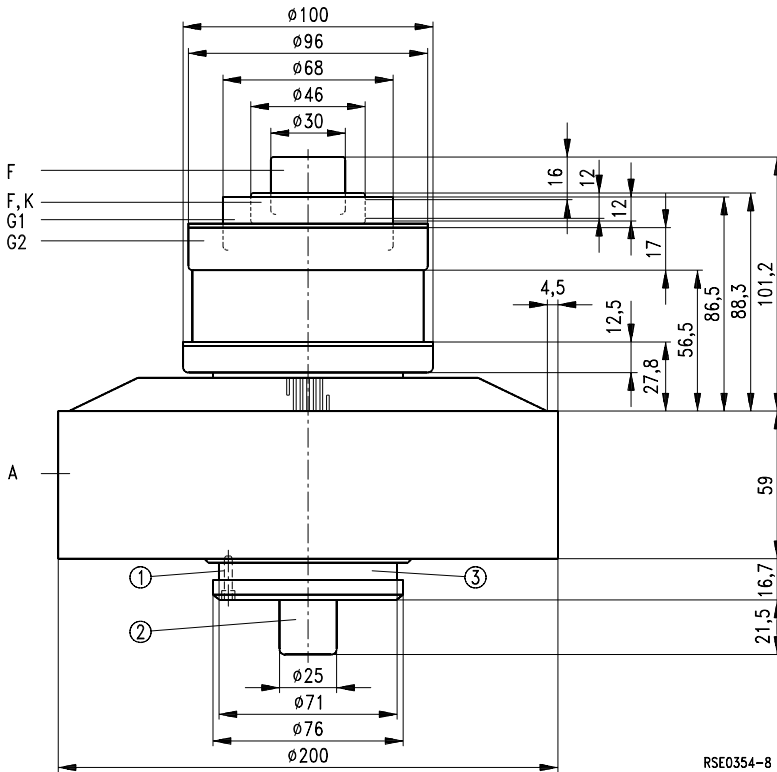


Ordering code Q51-X2068

Metal-ceramic tetrode with coaxial lead-throughs, especially suitable for FM transmitters in grounded control-grid screen-grid-circuits.



Dimensions in mm

- ① Taphole for tube fuse RöSich7
- ② Do not use as terminal
- ③ Fixture for tube extractor

Approx. weight 7 kg

The radiator and the terminals are of concentric design with the following diameters:

Radiator	$\phi 203,5$	Control grid terminal	$\phi 69,0$
Screen grid terminal	$\phi 97,0$	Heater, cathode terminal	$\phi 46,6$
		Heater terminal	$\phi 30,6$

**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 of screen grid at $U_A = 2\text{ kV}$ , $U_{G2} = 600\text{ to }1000\text{ V}$ , $I_A = 3\text{ A}$	$\mu_{g2g1}$	7,0	
Transconductance at $U_A = 2\text{ kV}$ , $U_{G2} = 800\text{ V}$ , $I_A = 2\text{ to }4\text{ A}$	$s$	80	mA/V

**Capacitances**

Cathode/control grid	$C_{kg1}$	≈ 82	pF
Cathode/screen grid	$C_{kg2}$	≈ 6	pF
Cathode/anode	$C_{ka}$	≈ 0,09	pF 1)
Control grid/screen grid	$C_{g1g2}$	≈ 128	pF
Control grid/anode	$C_{g1a}$	≈ 0,78	pF 1)
Screen grid/anode	$C_{g2a}$	≈ 21	pF

**Accessories**

**Ordering code**

Tube extractor	RöZub264	Q81-X2120
Cavities on request		

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

**RF amplifier,  
class B operation, grounded control-grid screen-grid circuit**

**Maximum ratings**

Frequency	$f$	110	MHz
Anode voltage (dc)	$U_A$	12	kV
Screen grid voltage (dc)	$U_{G2}$	1000	V
Control grid voltage (dc)	$U_{G1}$	- 250	V
Cathode current (dc)	$I_K$	6,0	A
Peak cathode current	$I_{KM}$	35	A
Anode dissipation	$P_A$	16	kW
Screen grid dissipation	$P_{G2}$	270	W
Control grid dissipation	$P_{G1}$	70	W

**Operating characteristics**

Frequency	$f$	$\leq 110$	$\leq 110$	MHz
Output power	$P_2$	22,0	11,3	$\text{kW}^1)^2)$
Power gain	$V_p$	17	18,5	dB
Anode voltage (dc)	$U_A$	9,0	9,0	kV
Screen grid voltage (dc)	$U_{G2}$	800	600	V
Control grid voltage (dc)	$U_{G1}$	- 180	- 165	V
Peak control grid voltage (ac)	$U_{g1 m}$	170	130	V
Anode current (dc)	$I_A$	3,4	1,7	A
Screen grid current (dc)	$I_{G2}$	170	70	mA
Anode input power	$P_{B A}$	30,6	15,3	kW
Drive power	$P_1$	440	160	W
Anode dissipation	$P_A$	8,2	4,1	kW
Efficiency	$\eta$	71	73	%
Anode load resistance	$R_A$	1400	3000	$\Omega$

1) Circuit losses are not included.  
2) Drive power is included.

**Tube mounting**

Axis vertical, anode up or down.

**Maximum tube surface temperature**

The temperature of the tube’s metal-ceramic seals must not exceed 220 °C at any point and the temperature of the internal cathode terminal must not exceed 250 °C. These requirements can be met without additional cooling of the terminals, if the cooling air is appropriately channeled and if the spacing of the contact springs allows sufficient air to pass.

**Forced-air cooling**

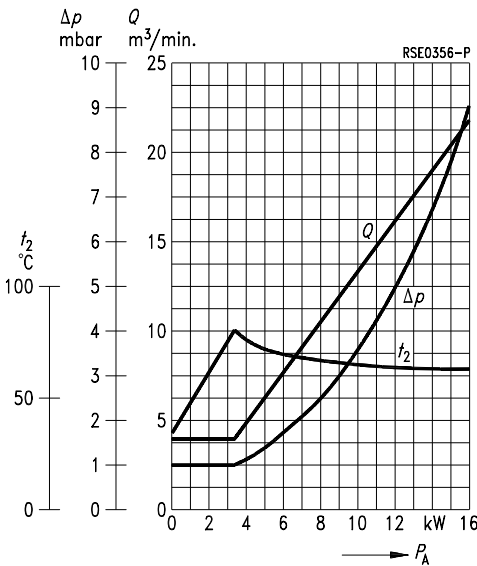
The minimum air flow rate required for maximum anode dissipation is given in the cooling air diagram, valid for 25 °C inlet temperature at a normal air pressure of 1 bar (sea level). The cooling air must be supplied from the side of the electrode terminals. For further information on forced-air cooling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

**Safety precautions**

The section “Safety precautions” 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.

During operation the air flow and temperature have to be monitored, since in case of malfunction the voltages applied to the tube must be automatically disconnected.

**Cooling air diagram**



The cooling air is supplied from the electrode terminal side.

Air pressure = 1 bar

$t_1 = 25\text{ °C}$

$U_{G1} = f(U_A)$   
 $U_{G2} = 800 \text{ V}$

Parameter =  $I_A$  \_\_\_\_\_  
 Parameter =  $I_{G2}$  - - - - -  
 Parameter =  $I_{G1}$  - - - - -

RSE0355-G

