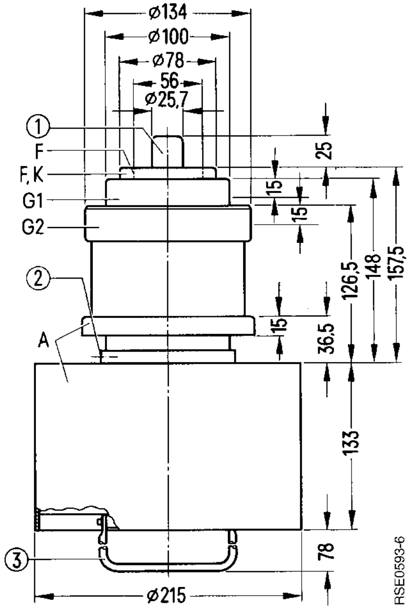
Coaxial metal-ceramic tetrode, forced-air-cooled,
for professional broadcast and communications transmitters up to 55 kW @ 30 MHz.



Dimensions in mm

① Do not use as terminal
② Taphole M5 for tube fuse RöSich1
③ Handle, swingable

Approx. weight 16 kg

Heating

Heater voltage	U_F	10	V
Heater current	I_F	≈ 200	A
Heating: direct			
Cathode: thoriated tungsten			

Characteristics

Emission current @ $U_A = U_{G2} = U_{G1} = 500$ V	I_{em}	80	A
Amplification factor of screen grid @ $U_A = 3$ kV, $U_{G2} = 800$ to 1200 V, $I_A = 2,5$ A	μ_{g2g1}	6,6	
Transconductance @ $U_A = 3$ kV, $U_{G2} = 1200$ V, $I_A = 2,5$ A	s	65	mA/V

Capacitances

Cathode/control grid	c_{kg1}	≈ 125	pF
Cathode/screen grid	c_{kg2}	≈ 10	pF
Cathode/anode	c_{ka}	≈ 0,2	pF [1])
Control grid/screen grid	c_{g1g2}	≈ 155	pF
Control grid/anode	c_{g1a}	≈ 1,6	pF [1])
Screen grid/anode	c_{g2a}	≈ 40	pF

1) Measured by means of a 40 cm × 40 cm screening plate in the screen grid terminal plane.

Anode and screen grid modulation, class C operation, grounded cathode circuit

Maximum ratings

Frequency	f	30	MHz
Anode voltage (dc)	U_A	10,5	kV
Screen grid voltage (dc)	U_{G2}	900	V
Control grid voltage (dc)	U_{G1}	– 500	V
Cathode current (dc)	I_K	15	A
Peak cathode current	$I_{K M}$	80	A
Anode dissipation (CL)	P_A	30	kW
Anode dissipation (CV)	P_A	45	kW
Screen grid dissipation	P_{G2}	600	W
Control grid dissipation	P_{G1}	300	W

Operating characteristics

Frequency	f	≤ 30	MHz
Carrier power	P_{trg}	55	kW 1)
Anode voltage (dc)	U_A	10	kV
Screen grid voltage (dc)	U_{G2}	800	V
Control grid bias (dc), fixed	$U_{G1\ fix}$	– 340	V
Control grid resistance	R_{G1}	300	Ω
Peak control grid voltage (ac)	$U_{g1\ m}$	610	V
Anode current (dc)	I_A	6,9	A
Screen grid current (dc)	I_{G2}	0,5	A
Control grid current (dc)	I_{G1}	0,36	A
Anode input power	$P_{B\ A}$	69	kW
Drive power	P_1	200	W 1)
Anode dissipation	P_A	14	kW 2)
Screen grid dissipation	P_{G2}	400	W
Control grid dissipation	P_{G1}	40	W
Efficiency	η	80	%
Anode load resistance	R_A	780	Ω
Modulation factor	m	100	%
Peak screen grid voltage (ac)	$U_{g2\ m}$	600	V 3)
Modulation power	P_{mod}	35	kW
Control grid current (dc)	I_{G1}	0,51	A 4)
Drive power	P_1	280	W 1) 4)
Anode dissipation @ modulation	$P_{A\ mod}$	23	kW 5)
Screen grid dissipation @ modulation	$P_{G2\ mod}$	400	W 5)

1) Circuit losses are not included.
2) Even during modulation the indicated maximum ratings must not be exceeded. It has to be observed that the plate dissipation will increase to about 1,5 times the power dissipation stated for the carrier value during 100 % modulation.
3) Modulation of screen grid via separate transformer winding.
4) Maximum values @ U_A = 0 V.
5) Average values @ m = 100 %.

RF linear amplifier,
SSB modulation, grounded cathode circuit, $I_{G1} = 0$

Maximum ratings

Frequency	f	30	MHz
Anode voltage (dc)	U_A	12	kV
Screen grid voltage (dc)	U_{G2}	1400	V
Control grid voltage (dc)	U_{G1}	– 350	V
Cathode current (dc)	I_K	15	A
Peak cathode current	$I_{K M}$	80	A
Anode dissipation (CL)	P_A	30	kW
Anode dissipation (CV)	P_A	45	kW
Screen grid dissipation	P_{G2}	600	W
Control grid dissipation	P_{G1}	300	W

Operating characteristics

		I	II [1]	III [1]	
Output power	P_2	0	33	16,5	kW [2]
Anode voltage (dc)	U_A	10	10	10	kV
Screen grid voltage (dc)	U_{G2}	1200	1200	1200	V
Control grid voltage (dc)	U_{G1}	– 185	– 185	– 185	V
Peak control grid voltage (ac)	$U_{g1\ m}$	0	160	160	V
Anode current (dc)	I_A	2,0	5,2	3,3	A
Screen grid current (dc)	I_{G2}	0	250	80	mA
Anode input power	$P_{B\ A}$	20	52	33	kW
Anode dissipation	P_A	20	19	16,5	kW
Screen grid dissipation	P_{G2}	0	300	96	W
Efficiency	η	–	63	50	%
Third order intermodulation product	d_3	–	–	≥ 36	dB [3]
Fifth order intermodulation product	d_5	–	–	≥ 44	dB [3]

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

1) Carrier suppressed.
2) Circuit losses are not included.
3) Level of non-linear cross talk resulting from third and fifth order intermodulation products as measured by the 2-tone method @ f = 30 MHz.

Tube mounting

Axis vertical, anode down. The forced-air-cooled version RS 1082 CL can also be mounted anode-up in the cavity. For this reason the tube is provided with a swingable handle at the anode base.

For connection of the tube use the terminals listed under “Accessories”. The complete header sockets for broadcast and communications transmitters in the medium and short-wave range can be selected corresponding to the required circuit. For grounded cathode operation in communications transmitters the two-part short-wave header sockets (RöKat82c in conjunction with RöGit82d) can be used, if a stable base as support for the screen-grid connector flange is provided in the transmitter. The individual connectors are intended for modulator applications.

Maximum tube surface temperature

The temperature of the metal-ceramic seals of the tube must not exceed 220 °C at any point. The header sockets for transmitter applications are provided with an air inlet port through which the cooling air is evenly distributed over the connectors. The air flow rate required to keep below the specified maximum temperature is 0,6 m^3/min at a pressure drop of approx. 1,5 mbar. If separate connectors are used, an evenly distributed air flow across these parts must be provided especially at higher frequencies.

Forced-air cooling

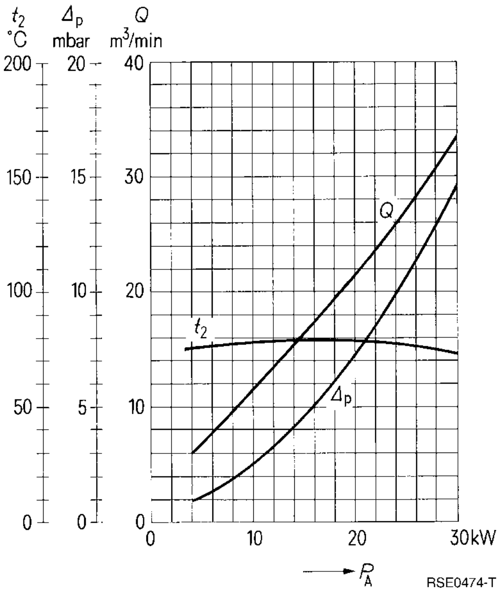
The minimum air flow rate required for the maximum anode dissipation is given in the cooling air diagram, valid for an air inlet temperature of 25 °C and a normal air pressure of 1 bar (sea level). The cooling air is supplied from the electrode terminal side.

Safety precautions

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.

For protection against thermal anode overload the tube RöSich1/RöSich4 is recommended. In conjunction with pull switch RöKt11 it disconnects the voltages at the tube in case of overload.

Cooling air diagram (RS 1082 CL)



The cooling air is supplied from the electrode terminal side.

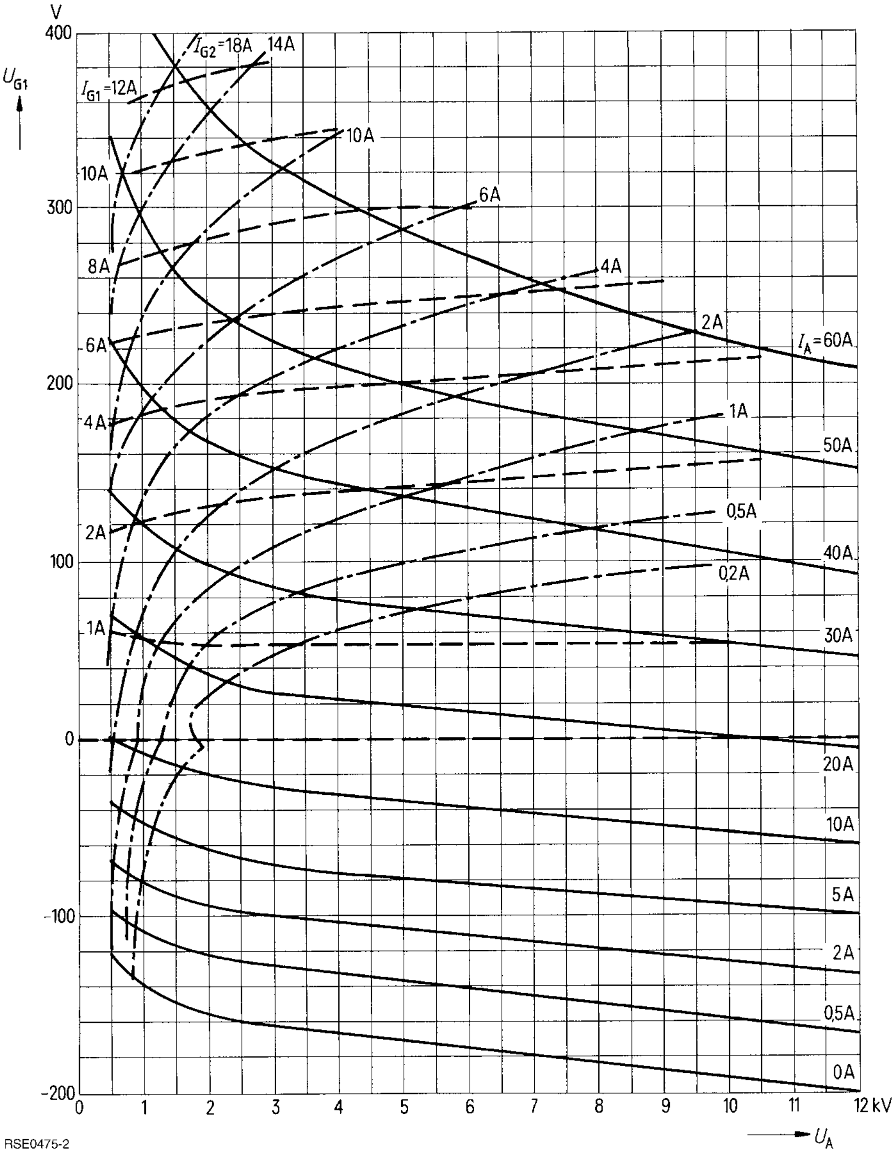
Air pressure = 1 bar

t_1 = 25 °C

$U_{G1} = f\,(U_A)$ Parameter = I_A ————————

U_{G2} = 800 V Parameter = I_{G2} —◦—◦—◦—◦—◦—

Parameter = I_{G1} — — — — — — —



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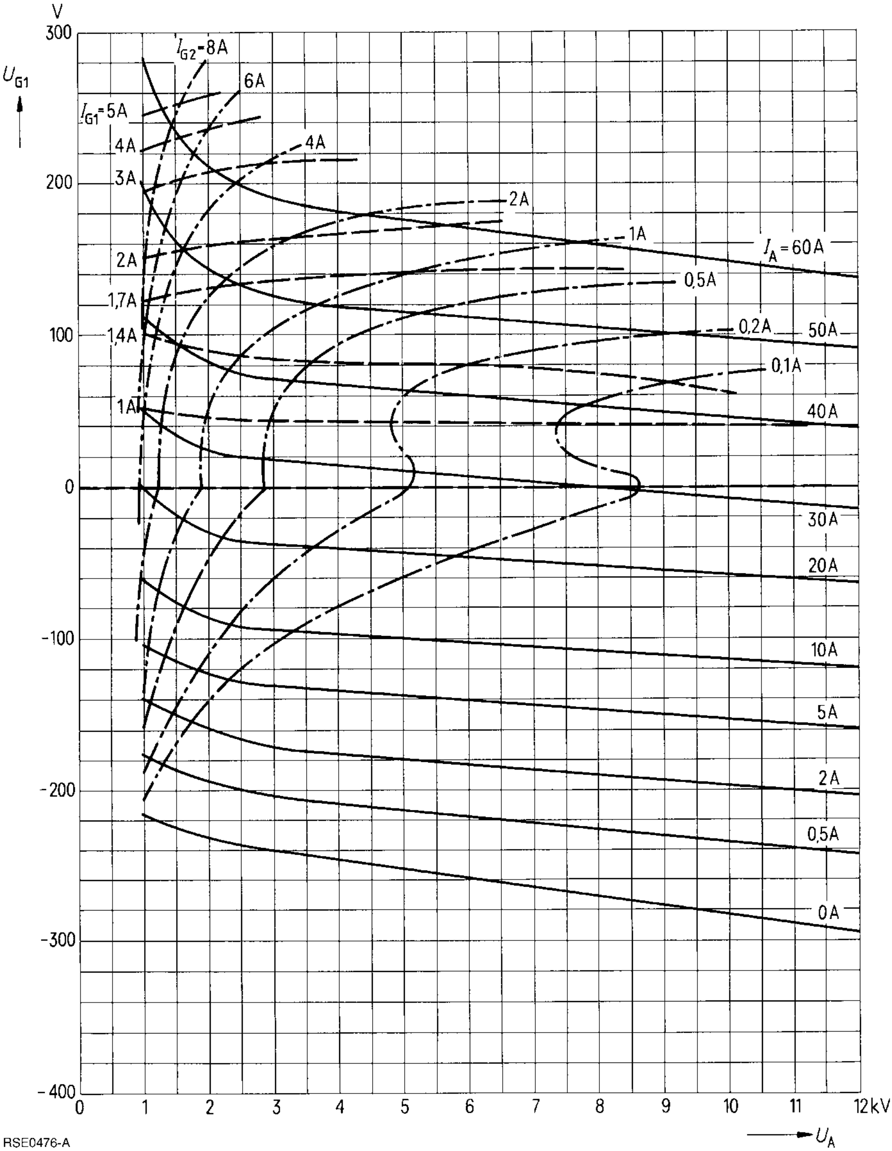
$U_{G1} = f(U_A)$ Parameter = I_A ————————

U_{G2} = 1200 V Parameter = I_{G2} —·—·—·—·—

Parameter = I_{G1} — — — — — — —



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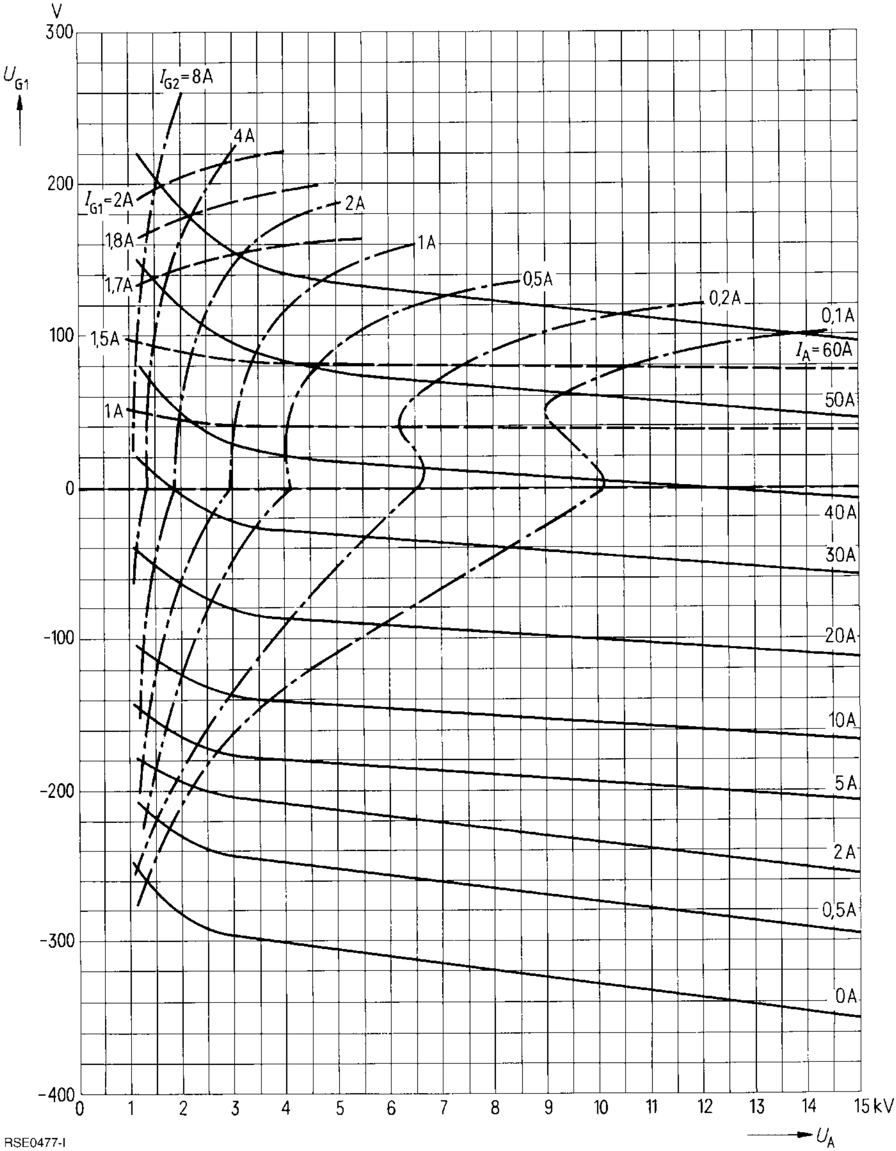
$U_{G1} = f(U_A)$ Parameter = I_A ———
U_{G2} = 1500 V Parameter = I_{G2} —·—·—
Parameter = I_{G1} — — —



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