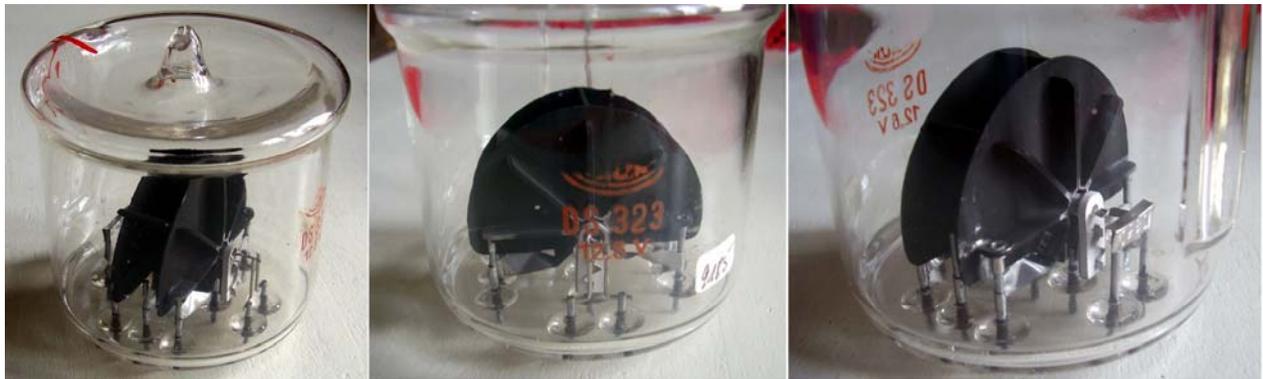# DS323 - UHF Pulse Transmitting Triode

The development of a power triode capable of pulse operation in the 50 cm region started at Lorenz in 1937. In 1938 a patent was filed for the generation of RF pulses using power tubes with oxide-coated cathodes. The DS323 was the first power triode using this emitter type, capable of pulsed operation in the UHF region. In 1938 a couple of this tube was proposed in the push-pull stage of a transmitter operating at 18 kV anode voltage and capable of generating 50 kW pulses around 500 MHz. The solution proposed by Telefunken with its **LS180** was preferred to the Lorenz one. The DS232 had to wait until 1941, when Lorenz started developing the Hohentwiel FuG200 airborne radar, based upon a pair of these triodes. The DS323 was replaced by the improved variant **RD12Tf**.

As in other UHF tubes electrodes were small and closely spaced. The tantalum-coated finned anode radiators acted as a getter.

- **Unipotential oxide-coated cathode**
- **12,6 V at 0,6 A heater**
- **75 W anode dissipation**
- **500 MHz operation**
- **50 kW output pulse power for two tubes in push-pull**

Emilio Ciardiello for ase-museoedelpro

LORENZ

DS 323 — Kurzwellentriode
Vorläufige Angaben

1. Heizdaten

Heizspannung 12,6 Volt (6,3 V)
Heizstrom 0,6 Amp. (1,2 A)
Oxydkathode, indirekt geheizt.

2. Kapazitäten

C_{GK} ca. 6,5 pF

C_{GA} ca. 3,8 pF

C_{AK} ca. 1,2 pF

3. Maximale Betriebsdaten

Anodenspannung 700 Volt
Anodenverlustleistung 75 Watt
Kathodenstrom 250 mA

4. Kennwerte

Steilheit ca. 12 mA/V bei 100 mA

$U_a = 400$ Volt, $J_a = \dfrac{100 \text{ mA}}{150 \text{ mA}}$

Durchgriff ca. 2 % bei

$U_a = \dfrac{400 \text{ Volt}}{600 \text{ Volt}}$, $J_a = 100$ mA

5. Hochfrequenzleistung

Als Schwingungserzeuger in Eigenerregung und Gegentakt:

a) Dezimeterwellen (f. 2 Röhren)

λ_{cm}	N_a Watt	U_a (V)	J_a (mA)
62	80	550	400
55	60	500	400
50	40	480	380

Grenzwellenlänge $\lambda < 48$ cm

b) Langwellen (f. 1 Röhre)

$\lambda > 1,5$ m

$U_a = 700$ V; $J_a = 200$ mA

$J_g = $ ca. 50 mA, $N_a \approx 75$ Watt

$U_{g\sim} \approx 110$ V; $U_g = -50$ V