INDUSTRIAL
RF HEATING

RS 3005 CL

Forced-air cooled triode

6 kW

- Output power:
  6 kW in CW mode
- Anode voltage: 7.2 kV
- Anode dissipation: 2.5 kW max.
- Frequency up to 160 MHz

THALES

RS 3005 CL

The RS 3005 CL is a RF power triode designed specifically for industrial applications. This tube uses a coaxial design and metal-ceramic technology. This triode is designed to operate in CW mode. For operation in pulse mode, the parameters depend on each equipment characteristics, contact us for specific information. The RS 3005 CL is a forced-air cooled triode.

This product is designed, developed and manufactured at an ISO 9001 production site registered.

Electrical characteristics

Filament	thoriated tungsten		
Filament voltage (+ 5 %, - 10 %) (1)	6.3	V	
Filament current	33	A	
Surge current	99	A	max.
Capacitance:			
• grid-anode	14	pF	
• grid-cathode	17	pF	
• cathode-anode (2)	0.4	pF	
Amplification factor	20		approx.
Transconductance (Va: 2 kV, Ia: 0.5 A)	10	mA/V	approx.

Mechanical Characteristics

Operating position	vertical, anode up or down		
Weight	3	kg	approx.
Dimensions	see outline drawing		

Maximum ratings

Frequency	160	MHz
Anode voltage:		
• up to 85 MHz	7.2	kV
• from 85 to 160 MHz	6	kV
Control-grid voltage	- 1 000	V
Control-grid current:		
• at full load, CW	350	mA
• at no load, CW	450	mA
Peak cathode current, CW	7.5	A
Anode dissipation:		
• inlet air temperature = 25°	2.5	kW
Grid dissipation:		
• up to 85 MHz	150	W
• from 85 to 160 MHz	110	W
Grid resistance (at blocked tube)	20	kΩ

(1) Measured with a 30 cm diameter shielding plate in the grid terminal plane.

Cooling

Anode cooling	forced air		
Cooling water flow and pressure gradient	see cooling curves		
Inlet air temperature	25	°C	typ.
Temperature at any point on tube envelope	220	°C	max.

Typical operation (2)

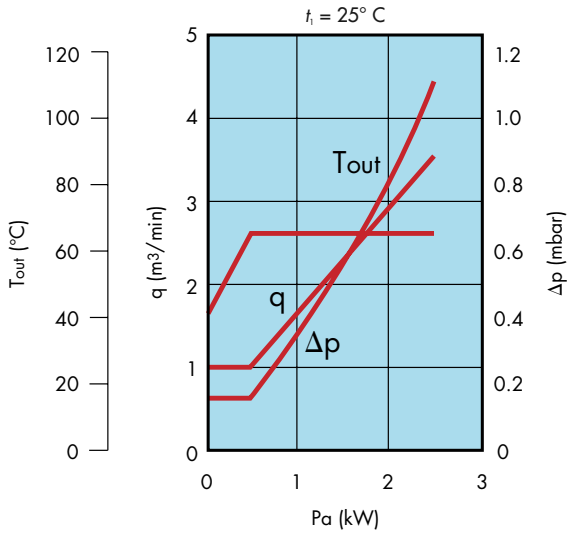
	Class C RF oscillator for industrial applications		
Examples	**1**	**2**	
Frequency	≤ 85	≤ 85	MHz
Anode voltage	6.3	6.3	kV
Control grid bias	- 550	- 650	V
RF Control grid voltage	940	1 010	V
Anode current	1.29	1.03	A
Control grid current, on load	285	255	mA
Anode input power	8.1	6.5	kW
Anode output power (3)	6	5	kW
Anode dissipation	1.85	1.25	kW
Control grid dissipation	95	80	W
Grid resistance	1.95	2.6	kΩ
Feedback ratio	16.9	18	%
Oscillator efficiency	74	77	%

(2) Operation with higher frequencies on request.
(3) Without taking circuit losses into account.

Nota: Data sheets are for information only. For design purpose, please ask for our latest specification.

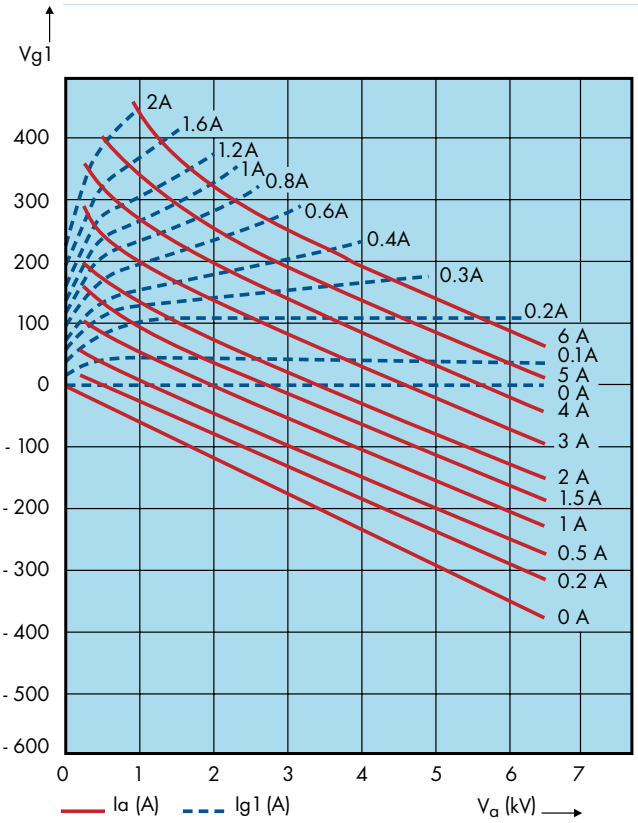
Cooling air curves (air flow from electrode terminal side)

Pa : anode dissipation
Δp : pressure drop
q : air flow rate
T_{out} : air outlet temperature

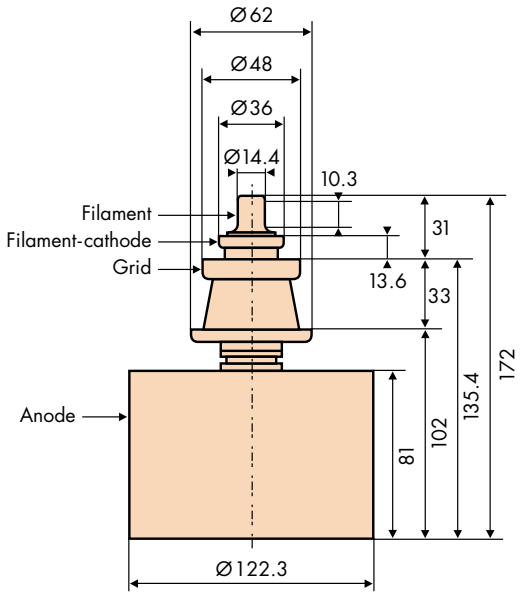


RS 3005 CL

Constant current characteristics



Outline drawing (mm)



This document cannot be considered to be a contractual specification. The information given herein may be modified without notice due to product improvement or further development. Consult Thales Electron Devices before making use of this information for equipment design.

For further information, please contact:

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