

ITL3-1 Air-cooled Triode



The **Marshall Components ITL3-1** is a medium-power triode designed specifically for industrial applications.

- Uses a coaxial design and metal-ceramic technology.
- May operate in CW or pulse mode. For operation in pulse mode, the parameters depend on each equipment characteristics, contact us for specific information.
- The ITL3-1 is an air cooled triode.
- The anode voltage is 7.2kV.
- Output power is 6.7kW in CW mode.
- The max anode dissipation is 3.5kW
- The frequency up to 160MHz.

General Characteristics

Electrical

Filament	Thoriated-tungsten mesh
Filament voltage	6.3V
Filament Current	35A
Surge current (max)	125A
Cold resistance	22mΩ
Amplification factor	21
Direct interelectrode capacitances:	
Grid to filament	17.0pF
Grid to anode	14.0pF
Filament to anode	0.5pF
Transconductance(Ua:4kV,Ia:4A)(approx)	10mA/V

Mechanical

Operating position	Vertical, Anode up or down
Maximum operating temperature	220° C
Maximum dimensions:	see outline drawing
Net weight	2. 7 kg (5.94 lb)

Maximum ratings

Frequency	160MHz
Anode voltage	
up to 85MHz	7.2kV
from 85 to 160MHz	6kV
Control-grid voltage	-1.0kV
Anode current, CW	1.3A
Control-grid current:	
at full load CW	0.3A
at no load CW	0.4A
Peak cathode current, CW	7.5A
Anode dissipation	
Inlet air temperature, 25°C	3.5kW
Inlet air temperature, 45°C	3kW
Grid dissipation:	
up to 85MHz	130W
from 85 to 160MHz	100W
Grid resistance (at blocked tube)	10kΩ

Cooling

Anode cooling	forced air
Cooling	see cooling curves
Cooling air flow	1 m ³ /min
Inlet air temperature	45°C max
Temperature at any point on tube envelope	220°Cmax

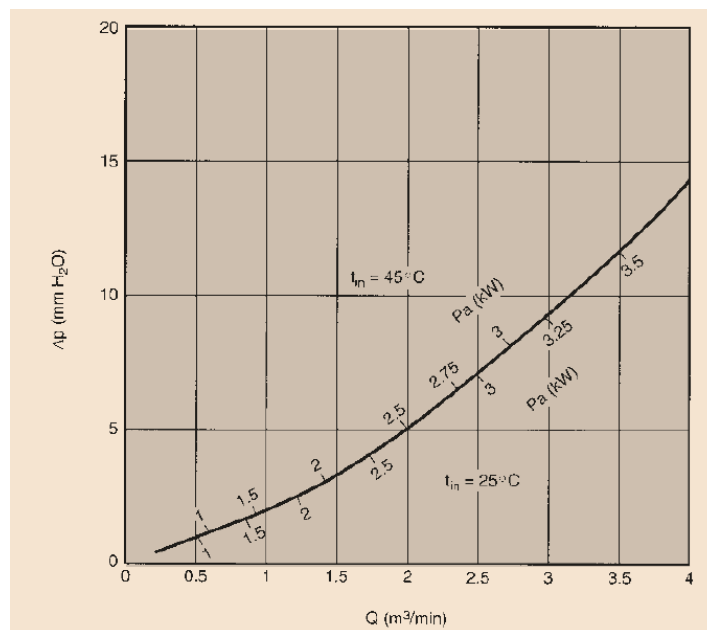
Typical operation

Class C RF oscillator for industrial applications

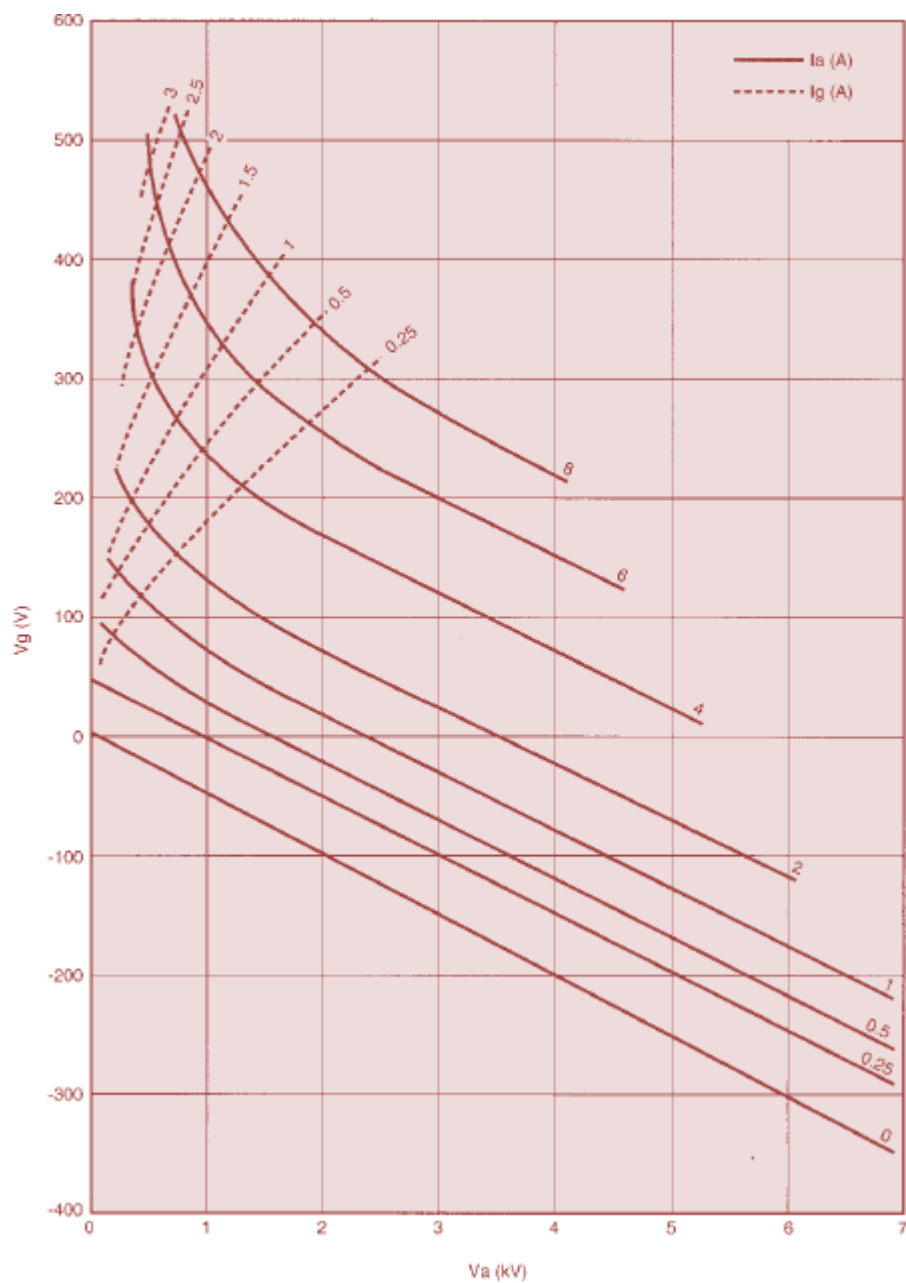
Examples	1	2	
Frequency	<30	<30	MHz
Anode voltage	6.8	5.5	kV
Grid bias	-520	-460	V
Grid voltage	860	825	V
Anode current	1.3	1.3	A
Grid current on load	0.24	0.3	A
Anode input power	8.8	7.2	kW
Anode output power	6.7	5.3	kW
Anode dissipation	1.9	1.7	kW
Grid dissipation	75	95	W
Grid resistance	2150	1500	Ω
Feedback ratio	14	16.5	%
Oscillator efficiency	75	74	%

Cooling curves

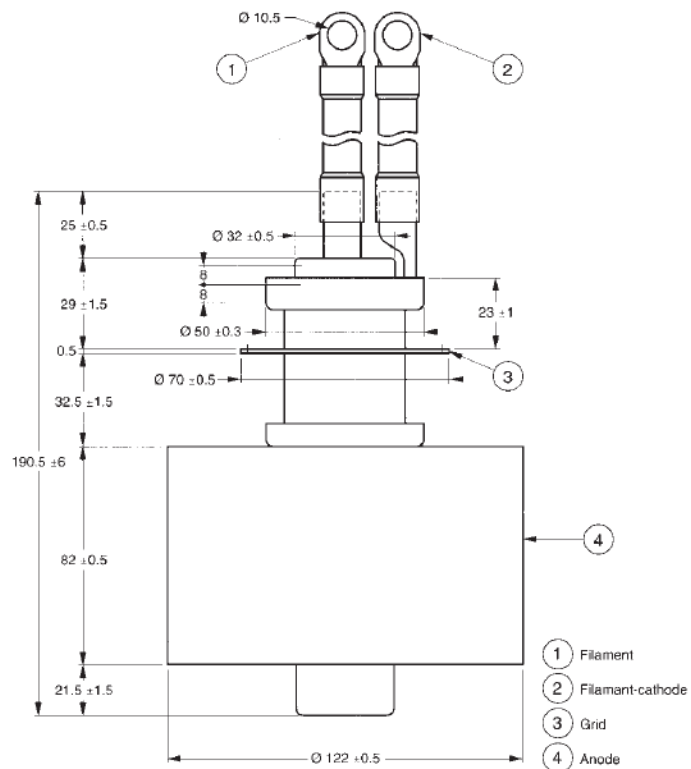
- The required flow rates and pressures drop may be read off the cooling curve.
- This is valid for both air-flow directions. The maximum values given for the inlet-air temperature, the cooler temperature the metal-ceramic solder points must be respected.
- Pa: anode dissipation
- Δp : pressure drop across the cooler fins Q: air flow rate
- T_{in} : inlet air temperature



CONSTANT CURRENT CHARACTERISTICS



OUTING DRAWING (mm)



Top view (dimensions in mm)

