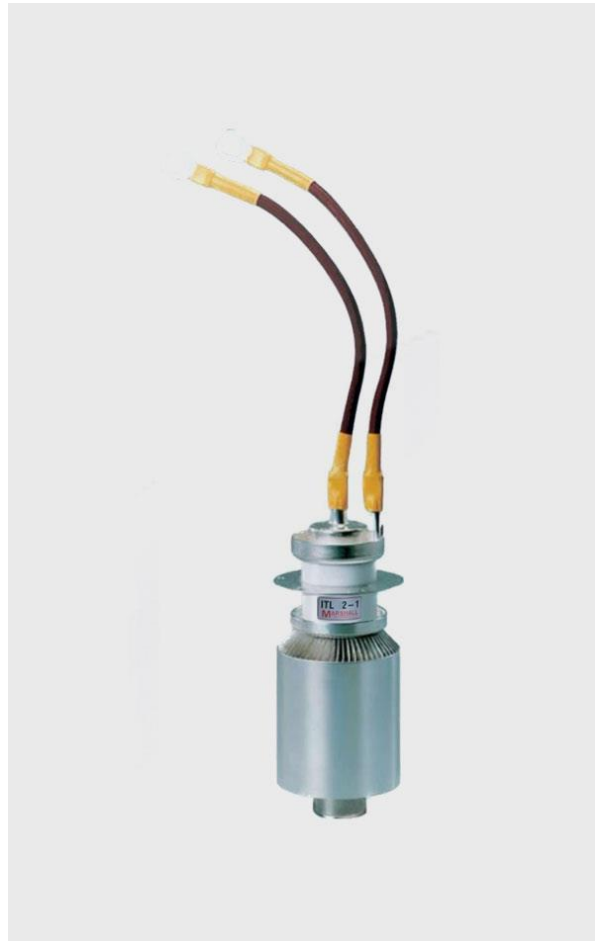# MARSHALL
COMPONENTS L.t.d.

ITL2-1 Air-cooled Triode

The **Marshall Components ITL2-1** 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 ITL2-1 is an air cooled triode.

- The anode voltage is 7.2kV.

- Output power is 5kW in CW mode.

- The max anode dissipation is 1.5kW

- The frequency up to 160MHz.

General Characteristics

Electrical

Filament	Thoriated-tungsten mesh
Filament voltage	6.3V
Filament Current	35A
Surge current (max)	125A
Amplification factor	21
Direct interelectrode capacitances:	
Grid to filament	17.0pF
Grid to anode	14.0pF
Filament to anode	0.5pF

Mechanical

Operating position	Vertical, Anode up or down
Maximum dimensions:	see outline drawing
Net weight	1.1 kg

Maximum ratings

Frequency	160MHz
Anode voltage	
up to 85MHz	7.2kV
from 85 to 160MHz	6kV
Control-grid voltage	-1.0kV
Anode current, CW	1.2A
Control-grid current:	
at full load CW	0.28A
at no load CW	0.4A
Peak cathode current, CW	7.5A
Anode dissipation	1.5kW
Grid dissipation:	
up to 85MHz	130W
from 85 to 160MHz	100W
Grid resistance (at blocked tube)	10kΩ

Cooling

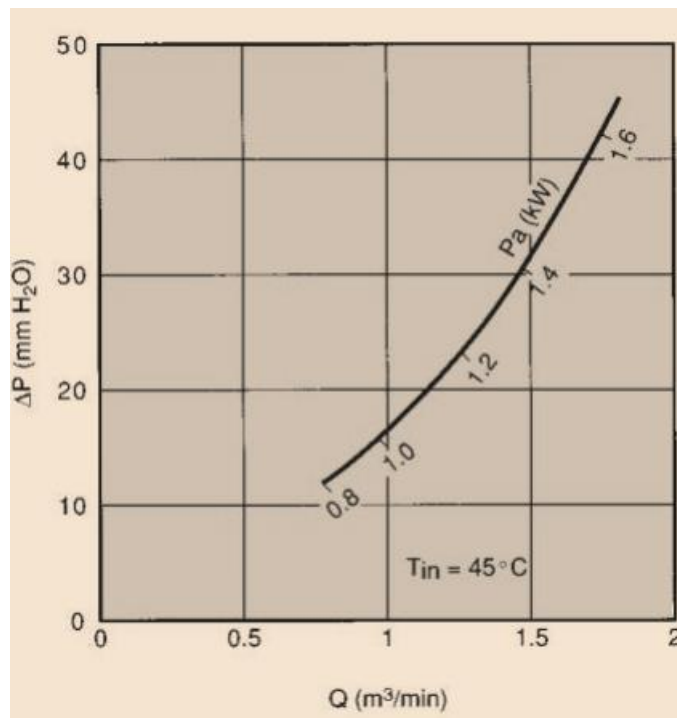|	
Anode cooling	forced air
Cooling	see cooling curves
Cooling air flow	1 m^3/min
Inlet air temperature	45°C max
Temperature at any point on tube envelope	220°Cmax

Typical operation

Class C RF oscillator for industrial applications

Examples	1	2	
Frequency	30	30	MHz
Anode voltage	5	5	kV
Grid bias	-470	-420	V
Grid voltage	790	760	V
Anode current	1.1	1.1	A
Grid current on load	0.24	0. 27	A
Anode input power	6.6	5.5	kW
Anode output power	5.0	4.1	kW
Anode dissipation	1.5	1.2	kW
Grid dissipation	65	77	W
Grid resistance	1900	1500	Ω
Feedback ratio	14.6	16.6	%
Oscillator efficiency	75	75	%

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

- $\triangle$p: pressure drop across the cooler fins Q: air flow rate

- T_{in}: inlet air temperature

CONSTANT CURRENT CHARACTERISTICS

OUTING DRAWING (mm)

Outine drawing (dimensions in mm)

- Ø 10.5
- 25 ±0.5
- Ø 32 ±0.3
- 8
- 8
- 29 ±1
- 23 ±1
- Ø 50 ±0.3
- 0.5
- Ø 70 ±0.5
- 33.5 ±1.5
- 90.5 ±5
- 80 ±0.5
- 22.5 ±1.5
- Ø 66 ±1

1 Filament
2 Filament-cathode
3 Grid
4 Anode

Top view (dimensions in mm)

- Ø 4.3 ±0.2
- Tk Ø 62 ±0.3