GL1536A Specification

GL1536A is a high power two-gap metal-ceramic structure thyratron filled with deuterium, which has the characteristics of high peak anode current, high switching power and high repeat frequency. It can be used as ultra high power pulse switch in radar, high-energy laser, high-energy accelerator etc.

Anode Parameters

Peak forward anode voltage：	50kV max
Peak inverse anode voltage：	See note 1
Peak anode current	10000A max
Average anode current	10A max
Rate of rise of anode current：	10kA/μs (See note 2, 3)
Operating frequency:	50Hz～5kHz (See note 4)
Pulse power：	250MW

Grid 2 Drive

Unloaded grid 2 drive pulse voltage：	1000V～2000V
Grid 2 pulse duration：	1μs min
Rate of rise of grid 2 pulse：	10kV/μs min
Peak inverse grid 2 voltage：	450V max
Loaded grid 2 bias voltage：	-50V～－200V
Peak pulse trigger current:	5A～40A
Grid 2 pulse delay：	0.5μs ～3μs

Grid 1 Pulse Drive

Unload grid 1 drive pulse voltage：	600V～2000 V
Grid 1 pulse duration：	2μs min
Rate of rise of grid 1 pulse：	1kV/μs
Peak inverse grid 1 voltage：	450V max
Drive current：	5.0A～40A

Grid 1 DC Drive

DC grid 1 unloaded priming voltage：	75V～150 V
DC grid 1 priming current：	0.5A～2.0A

Electrical Parameters

Cathode heater voltage：	6.3V±5%Vac
Cathode heater current：	80A～100A
Reservoir heater voltage：	6.3V±5%Vac
Reservoir heater current：	6.5A～8.5A
Minimum heater time：	10min (min)
Capacity between anode and gradient grid：	45 pF
Capacity between anode and grid 2：	45 pF

Mechanical Parameters

Mounting position：	Any (See note 5)
Weight:	About 10.8 kg
Dimension：	See outline
Cooling way：	Forced-air (See note 6)

Typical Characteristics

Critical conduction anode voltage:	2000V max
Anode delay time：	350ns max
Anode delay time drift：	25 ns max
Time jitter：	10 ns max

Notes

1. Peak inverse anode voltage (include peak) must not exceed 10KV within 25 μs after impulse current discharge finished, otherwise it will damage the grid and cause spark inside the tube and shorten the working life.

2. This rate of rise refers to that part of the leading edge of the pulse between 26% and 70% of the pulse amplitude.

3. Under single narrow pulse working condition, rate of rise of the current can exceed 100kA/μs, finally value greatly depend on the external circuit.

4. Maximum operating frequency depends on the external charge and discharge circuit, generally operating frequency exceed 50Hz. Command charge circuit is recommended to ensure the thyratron is under favorable working voltage.

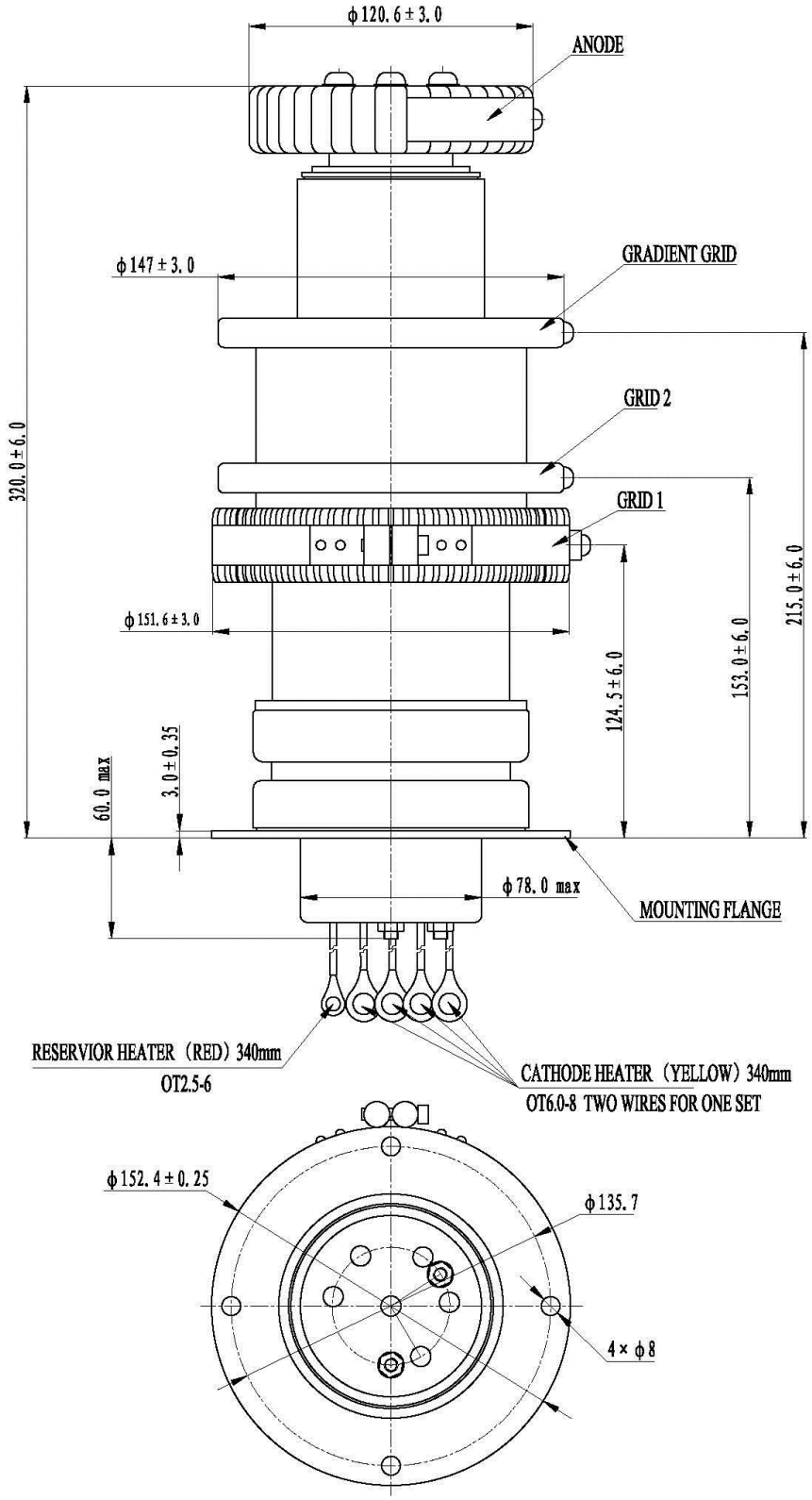
5. The tube must be mounted by means of its cathode mounting flange. The preferred installation direction is axial vertical installation with anode upward, axial horizontal installation is also allowed, but had better not use axial vertical installation method with anode adown.

6. Air flow is no less than 7.1m^3/min. The temperature of the envelope must not exceed the value specified below:

Ceramic, anode and grids……150℃

Cathode mounting flange and base……120℃

Outline Drawing



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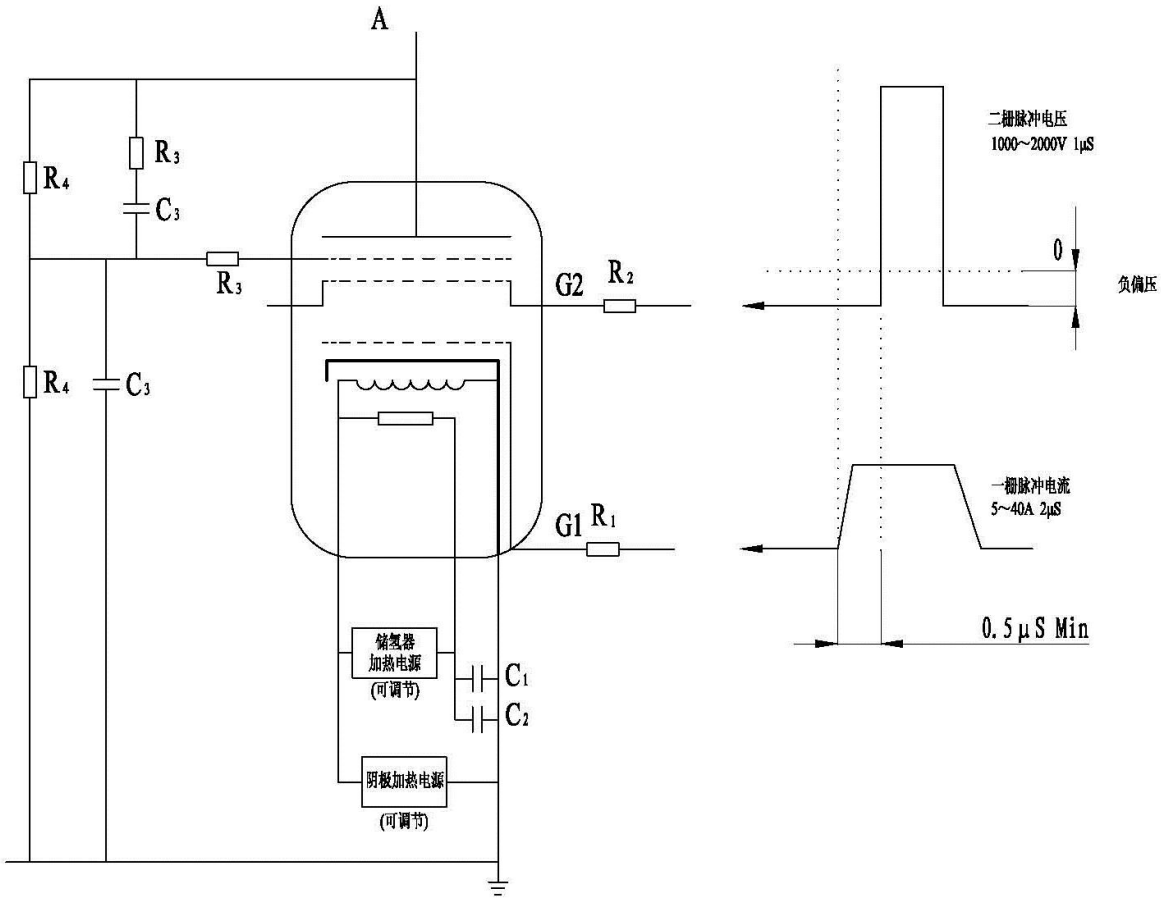
Schematic Diagram



R1 Grid 1 series resistor. 12W vitreous enameled wire wound is recommended, its impedance matches with the trigger's circuit impedance.

R2 Grid 2 series resistor. 12W vitreous enameled wire wound is recommended, its impedance matches with the trigger's circuit impedance.

R3 470Ω 2.5W vitreous enameled wire wound resistor.

R4 5MΩ～20MΩhigh voltage resistance, withstand voltage level is the same with peak forward anode voltage of the thyratron.

C1, Reservoir protection capacitors, 1000pF low inductance with a voltage rating≥500V.

C2, Reservoir protection capacitors, 1μF with a voltage rating≥500V.

C3 500pF, withstand voltage level is the same with peak forward anode voltage of the thyratron. When charging time of the energy storage element is greater than 5ms, C3 can be omitted.