# GL1154L Thyratron Specification

GL1154L tetrode thyratron with ceramic/metal envelope, featuring fast recovery time, low jitter, firing time and drift, as pulse switch be used in magnetron and klystron pulse modulators.


## Anode Characteristics

| | |
|---|---|
| Peak Forward Anode Voltage: | 35kV max [1] |
| Peak Reverse Anode Voltage: | 35kV max [2] |
| Peak Forward Anode Current: | 3kA |
| Average Anode Current: | 2A max |
| Anode Current Rate of Rise: | 10kA/μs [3] [4] |
| Pulse repetition rate: | 400 pps |

## Grid 2 Drive

| | |
|---|---|
| Unloaded drive pulse voltage: | 500V~2000V [5] |
| Driver circuit output impedance: | 50Ω~ 500Ω |
| Rate of rise of grid 2 pulse: | 10kV/μs min [3] |
| Driver pulse duration: | 0.5 μs min |
| Loaded grid 2 bias voltage: | 0 V~ 150 V |
| Grid 2 pulse delay: | 0.5μs ~ 3μs |
| Peak inverse grid 2 voltage: | 450V max |

## Grid 1 Pulse Drive

| | |
|---|---|
| Unload grid 1 drive pulse voltage: | 300V ~ 1000V [5] |
| Peak grid 1 drive current: | 1A~ 5A [6] |
| Grid 1 pulse duration: | 2us min |
| Rate of rise of grid 1 pulse: | 1kV/us min [3] |
| Peak inverse grid 1 voltage: | 450V max |

## Grid 1 DC Drive

| | |
|---|---|
| DC grid 1unloaded priming voltage: | 75V~ 150V |
| DC grid 1 priming current: | 75mA ~ 150 mA |

## Electrical

| | |
|---|---|
| Cathode heater voltage: | 6.3V~ 6.8V |
| Cathode Heater current (6.3V): | 20A~25A |
| Reservoir heater voltage: | 5.0V~ 6.0V [7] |
| Reservoir heater current (5.5V): | 6A~8A |
| Cathode heating time(Minimum): | 15 minutes |
| Anode to grid 2 capacitance: | 15pF~20pF |

## Mechanical

| | |
|---|---|
| Dimension and tube connections: | See Dimensional Data |

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| | |
|---|---|
| Net weight： | About 1.8kg |
| Mounting position： | Any [8] |
| Cooling way： | Forced-air or liquid immersion [9] |

## Characteristics

| | |
|---|---|
| Critical DC anode voltage for conduction： | 1.0 kV max |
| Anode delay time： | 150ns max [10] |
| Anode delay time drift： | 50ns max [11] |
| Time jitter： | < 5ns |

## Environmental

| | |
|---|---|
| Ambient temperature： | -50℃～+90℃ |
| Altitude： | 3km |

## Notes

[1] It is the maximum peak voltage under the condition of resonant charging.

[2] Peak inverse anode voltage (include peak) must not exceed 10KV within 125 μs after impulse current discharge finished, otherwise it will damage the grid and cause spark inside the tube and shorten the working life.

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

[4] Under single narrow pulse working condition, rate of rise of anode current can exceed 150kA/us, the final value largely depends on external circuit.

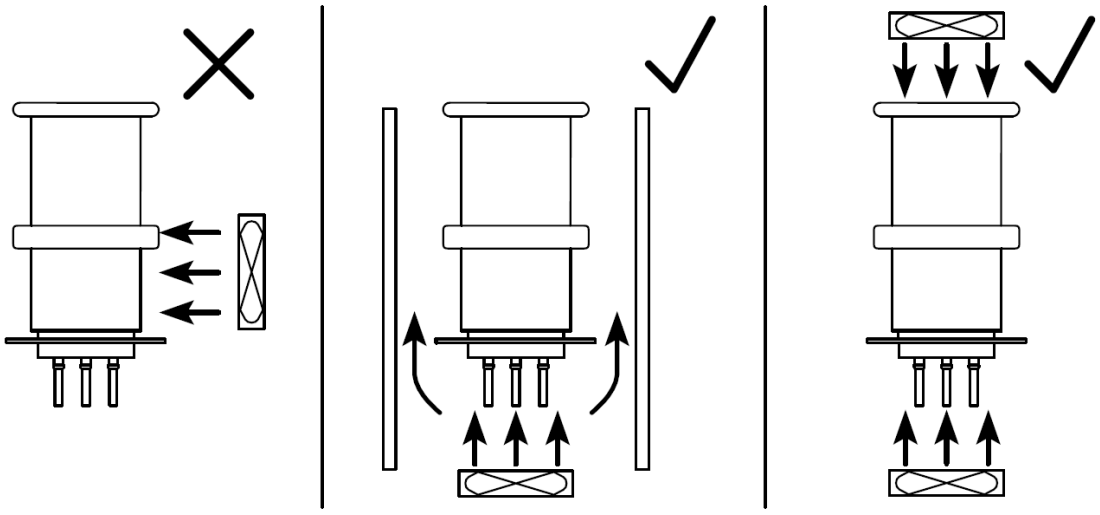
[5] Measured with respect to cathode. Pre-pulsing of grid 1 is recommended for modulator and high rate of rise of current applications. The last 0.25μs of the top of the grid 1 pulse must overlap the corresponding first 0.25μs of the top of the delayed grid 2 pulses.

[6] The higher grid 1 is pulsed, the larger must the grid 2 negative bias be, to prevent the tube firing on the grid 1 pulse.

[7] The reservoir heater must be decoupled with a suitable capacitor to avoid damage by spike voltages. Maximum reservoir voltage is one prerequisite for maximum thyratron life. The reservoir voltage should be stabilised to±0.1 V.

[8] The tube must be fitted using its cathode mounting flange.

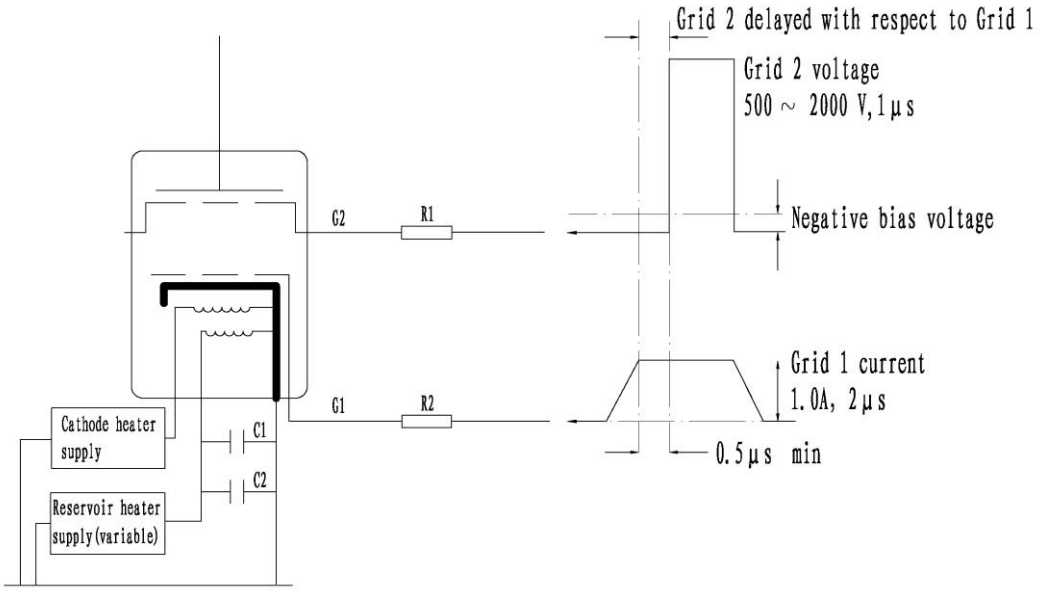
[9] If the tube is cooled by forced-air, an air flow of at least 2.83 m3/min is required. Please refer to the following installation diagram:



[10] The time interval between the instant at which the rising unloaded grid 2 pulse reaches 25% of its pulse amplitude and the instant when anode conduction takes place.

[11] Anode firing delay time drift, the drift in delay time over a period from 10 seconds to 10 minutes after reaching full voltage, its anode firing delays time of change.

**Electrodes connection schematic diagram**




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

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

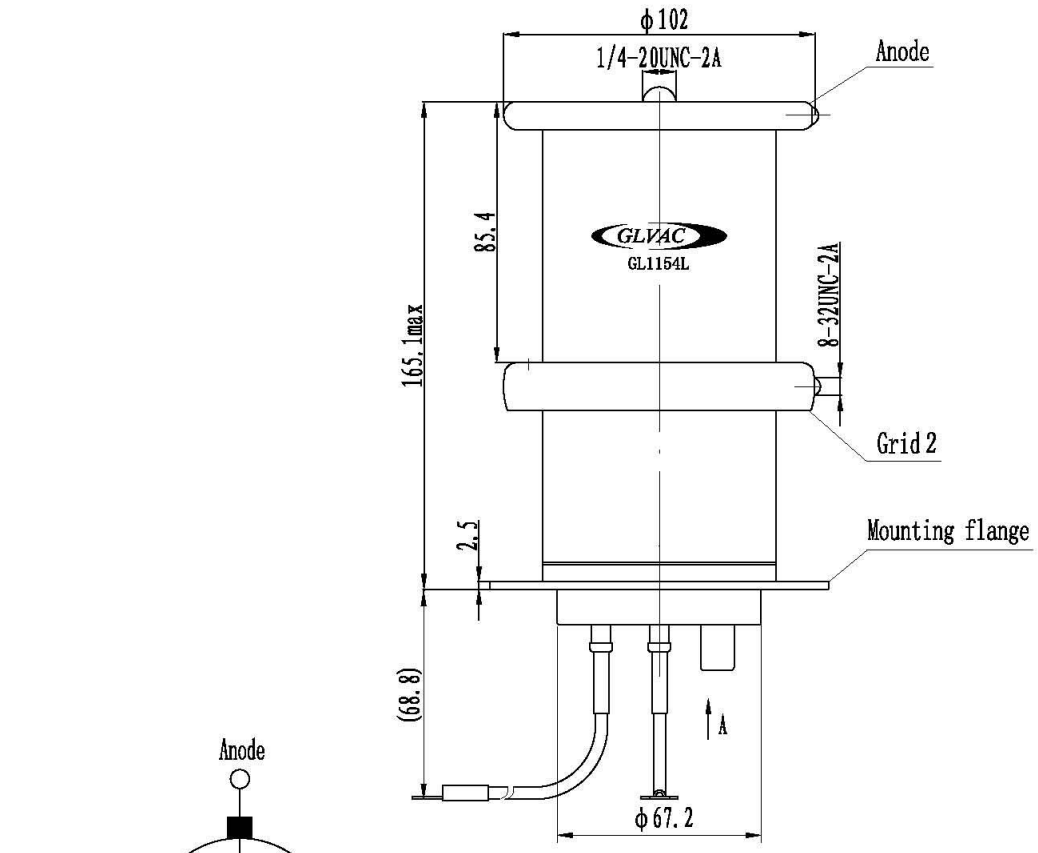
·C1, C2, Reservoir protection capacitors, rated voltage≥500V ;

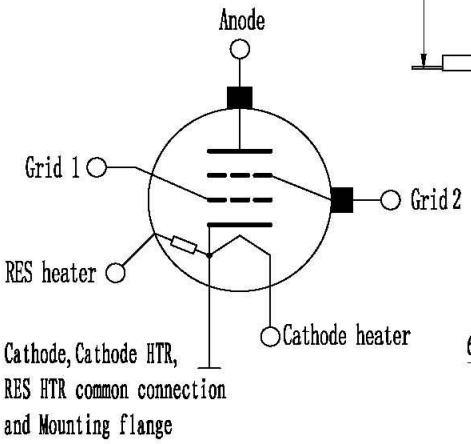
C1 = 1000 pF low inductance capacitance

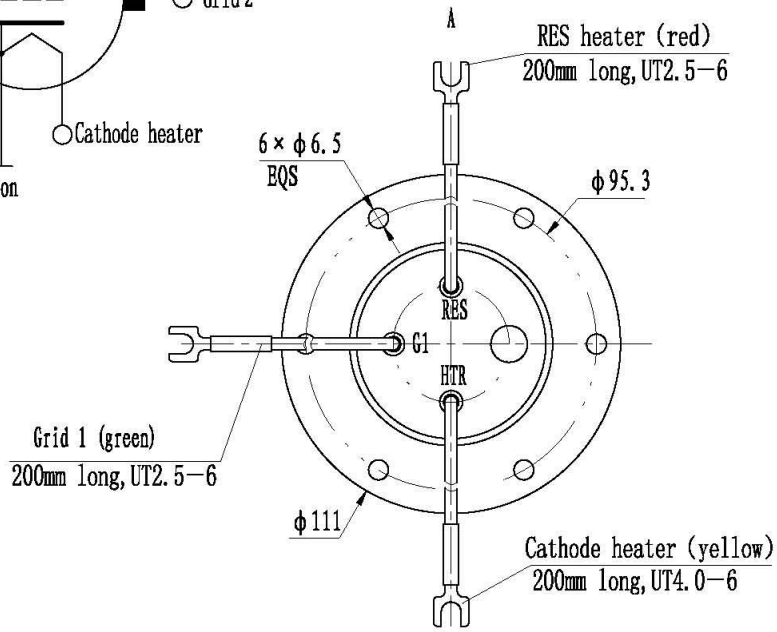
C2 = 1μF capacitance

·Components R1, R2, C1 and C2 should be mounted as close to the tube as possible.

# Dimensional Data




NOTES:
All dimensions in mm unit;