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：	250ns max [10]
Anode delay time drift：	50ns max [11]
Time jitter：	5ns max

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.

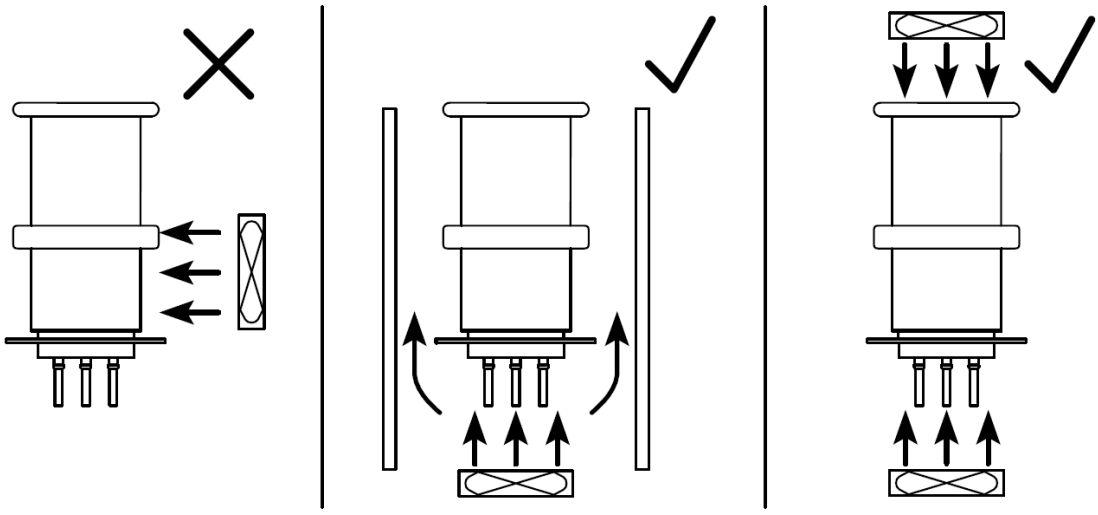
[5] Measured with respect to cathode. Pre-pulsing of grid 1 is recommended for modulator and high rate of rise of current applications. The last 0.25μs of the top of the grid 1 pulse must overlap the corresponding first 0.25μs of the top of the delayed grid 2 pulses.

[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.

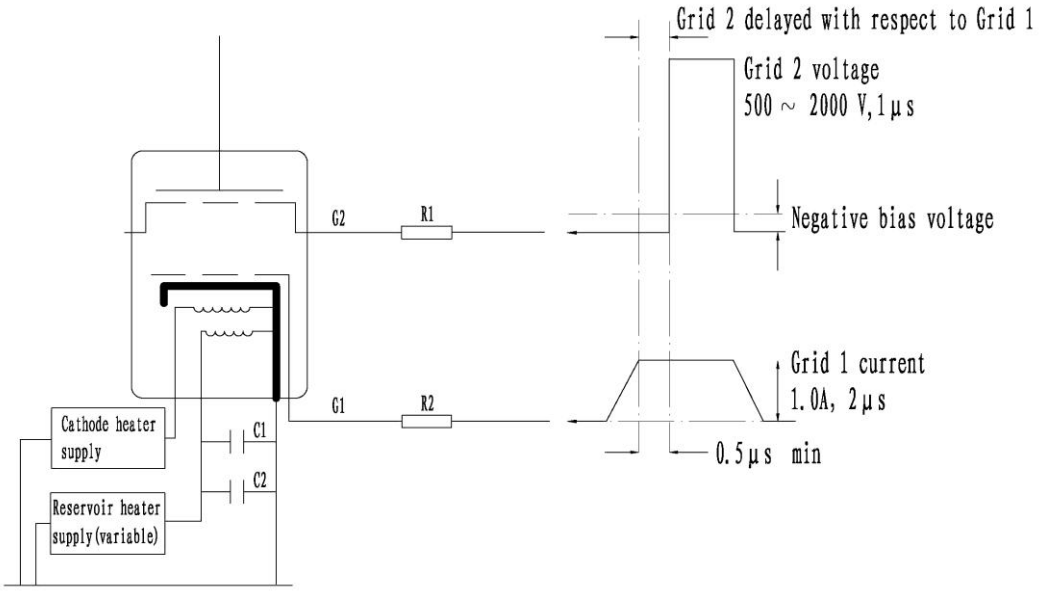
[9] If the tube is cooled by forced-air, an air flow of at least 2.83 m3/min is required. Please refer to the following installation diagram:



[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.

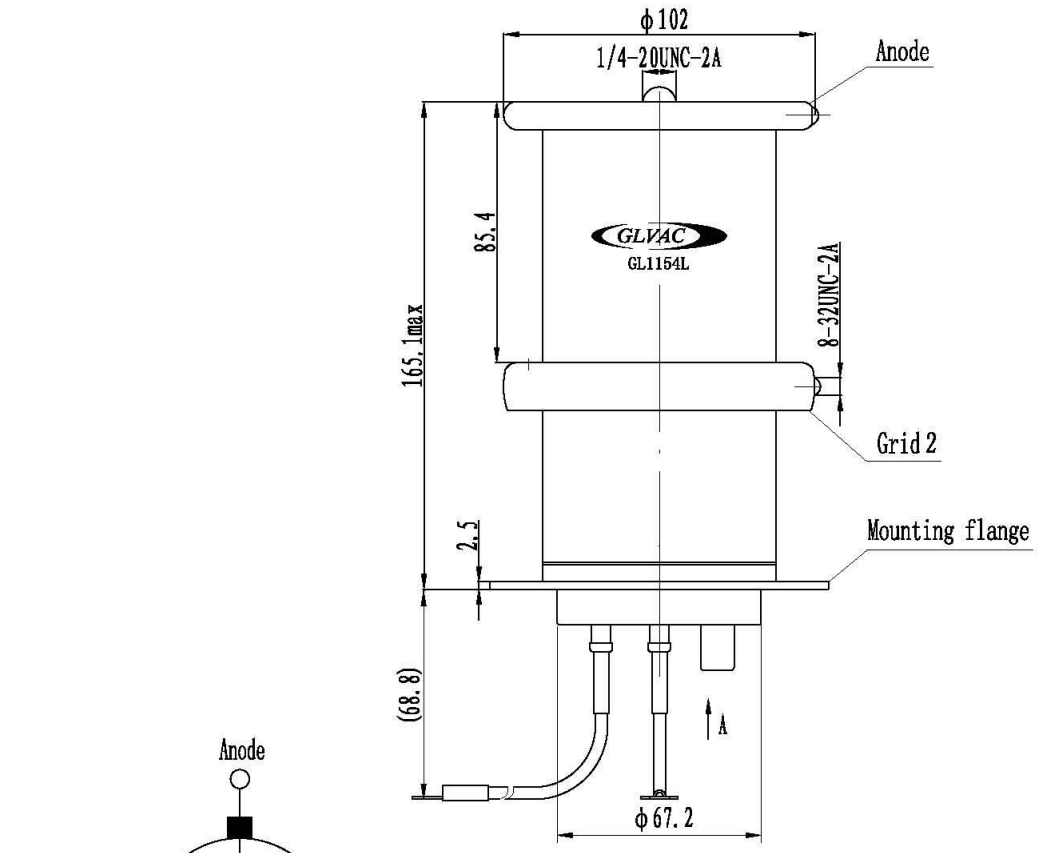
·C1, C2, Reservoir protection capacitors, rated voltage≥500V ;

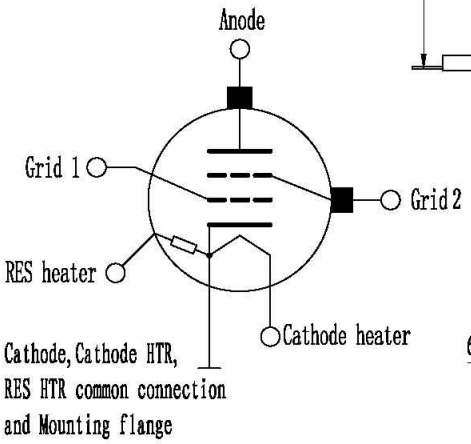
C1 = 1000 pF low inductance capacitance

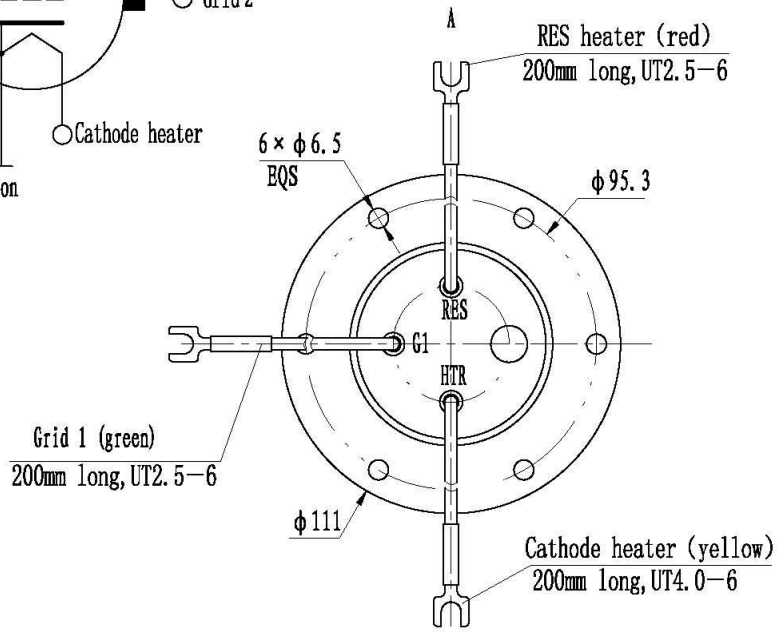
C2 = 1μF capacitance

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

Dimensional Data







NOTES:
All dimensions in mm unit;