



GL1154L Thyatron Specification

GL1154L tetrode thyatron 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

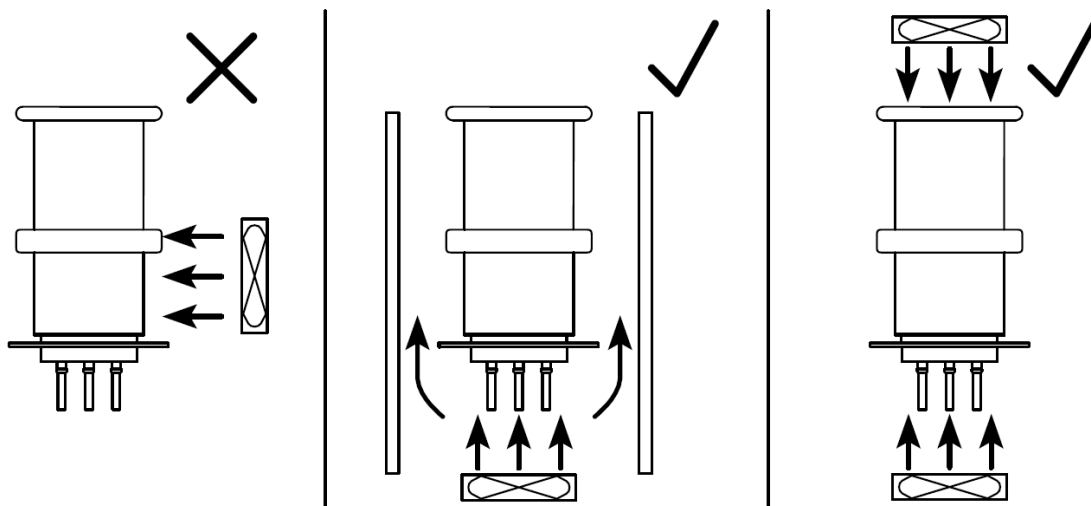
Critical DC anode voltage for conduction:	1.0 kV max
Anode delay time:	250ns max ^[10]
Anode delay time drift:	50ns max ^[11]
Time jitter:	5ns max

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 μ s 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 0.25 μ s of the top of the grid 1 pulse must overlap the corresponding first 0.25 μ s 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 thyatron 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:

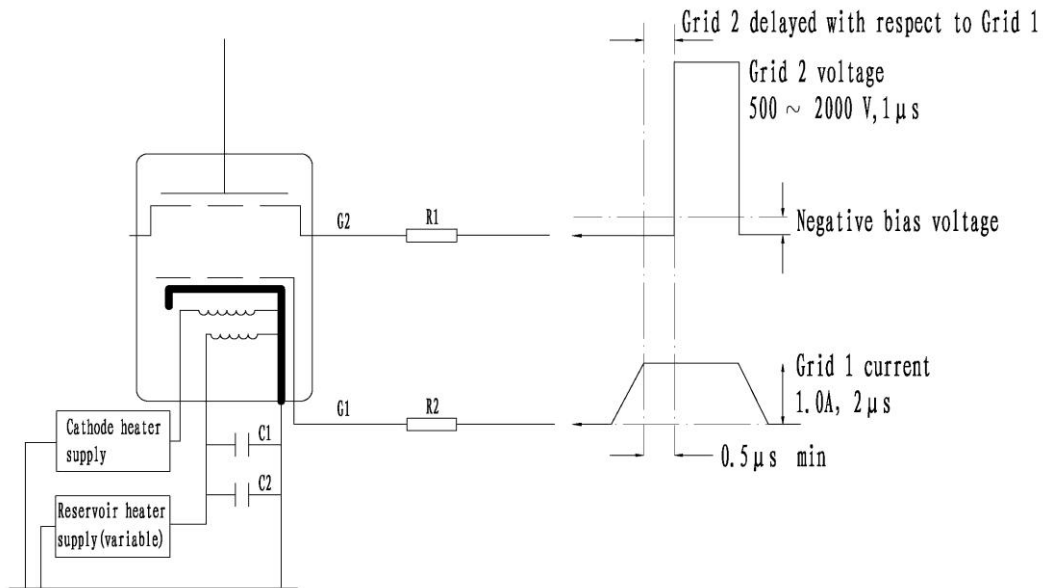




[10] The time interval between the instant at which the rising unloaded grid 2 pulse reaches 25% of its pulse amplitude and the instant when anode conduction takes place.

[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 $\geq 500\text{V}$;

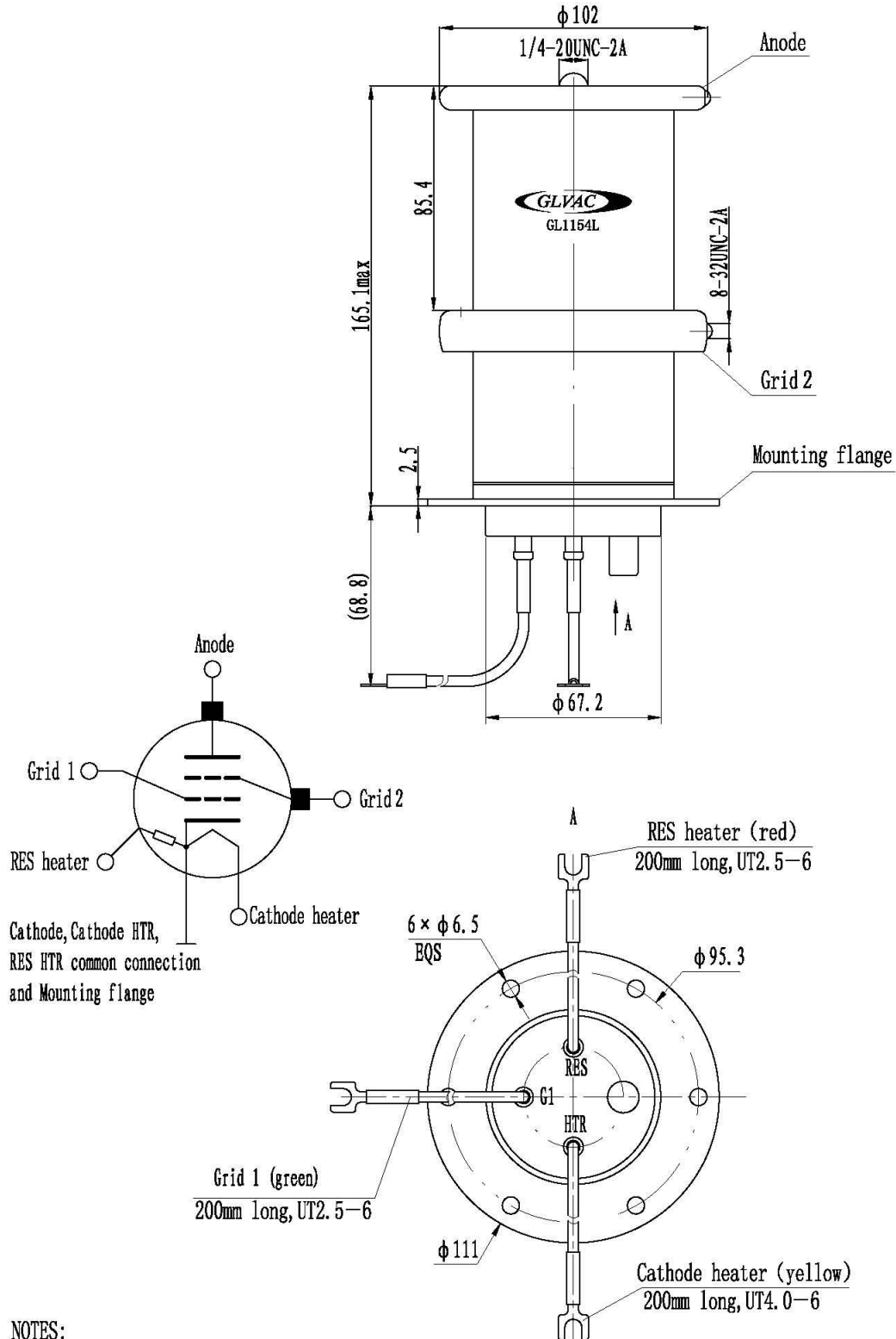
C1 = 1000 pF low inductance capacitance

C2 = 1 μF 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;