



NATIONAL

NL-CV6022

**HYDROGEN
THYRATRON**

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The NL-CV6022 is a unipotential cathode, three element hydrogen thyatron designed for network discharge service. It is suitable for producing pulse outputs of more than 2 megawatts at an average power level of more than 1.6 kilowatts in such service. The NL-CV6022 features high peak voltage and current ratings in a compact size, low time jitter, and a hydrogen reservoir to maintain the hydrogen pressure throughout the useful life of the tube.

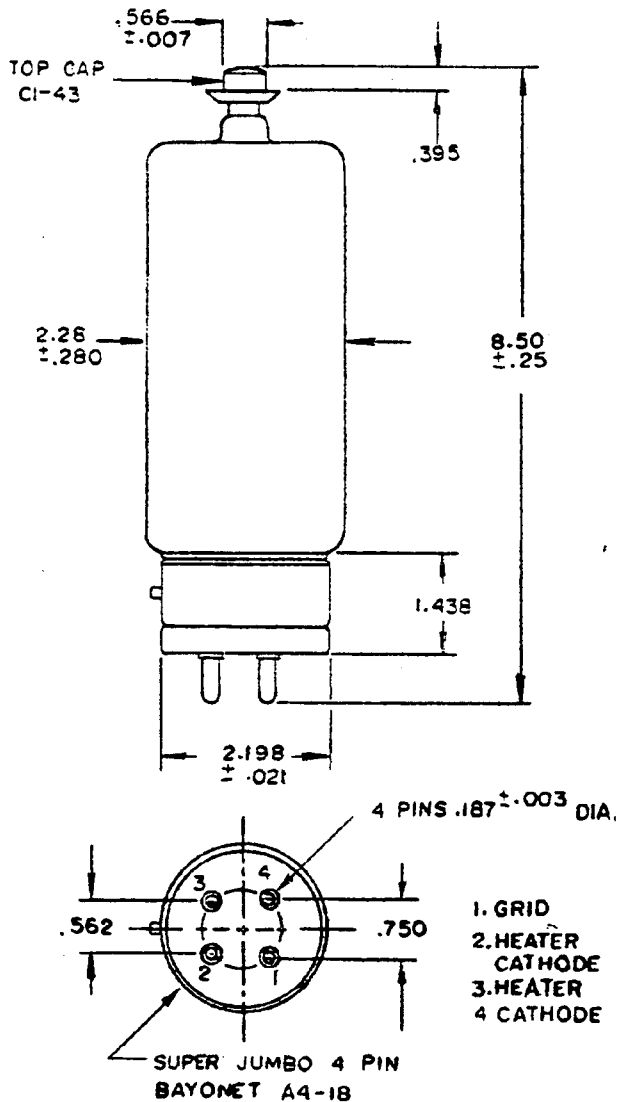
| | | | |
|---|---|--------------|---------------------|
| Electrical | | | |
| Heater Voltage | Nom. 6.3 | Min. 5.9 | Max. 6.7 Volts AC |
| Heater Current (At 6.3 volts) | 9.6 | 11.6 | Amperes |
| Minimum Heating Time | | 5 | Minutes |
| | | | |
| Mechanical | | | |
| Mounting Position | Any | | |
| Base | Super Jumbo 4-Pin with Bayonet A4-18 with Ceramic Insert | | |
| Anode Cap | C1-43, Medium, with Corona Shield Cooling (Note 1) | | |
| Net Weight | 12 Ounces | | |
| Dimensions | See Outline | | |
| | | | |
| Ratings | | | |
| Max. Peak Anode Voltage, Forward | 16.0 | | Kilovolts |
| Max. Peak Anode Voltage, Inverse (Note 2) | 16.0 | | Kilovolts |
| Min. Anode Supply Voltage | 4.5 | | Kilovolts DC |
| Max. Peak Anode Current | 325 | | Amperes |
| Max. Average Anode Current | 200 | | Milliamperes |
| Max. RMS Anode Current (Note 3) | 6.3 | | Amperes AC |
| Max. EPY x IB x PRR | 3.2x10 ⁹ | | |
| Max. Anode Current Rate of Rise | 1500 | | Amperes/Microsecond |
| Peak Trigger Voltage (Note 4) | | | |
| Max. Peak Inverse Trigger Voltage | 200 | | Volts |
| | Initial | End of Life | |
| | <u>Limit</u> | <u>Limit</u> | |
| Max. Anode Delay Time (Note 5) | 0.65 | 0.70 | Microsecond |
| Max. Anode Delay Time Drift | 0.10 | 0.10 | Microsecond |
| Max. Time Jitter (Note 6) | 0.005 | 0.01 | Microsecond |
| Ambient Temperature | -50° | to +90° | °C |
| Shock Rating | 13° Navy (Flyweight) Shock Machine | | |

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Two typical Operations as Pulse Modulator,
DC Resonant Charging

| | | |
|---|------|----------------|
| Peak Network Voltage | 16.0 | 12.0 Kilovolts |
| Pulse Repetition Rate | 1000 | 500 Pulses/Sec |
| Pulse Length | 1.0 | 1.5 Microsec. |
| Pulse Forming Network | | |
| Impedance | 47.6 | 25 Ohms |
| Trigger Voltage | 200 | 200 Volts |
| Peak Power Output (Resistive Load 92"Zn) | 1.31 | 1.40 Megawatt |
| Peak Anode Current | 175 | 250 Amperes |
| Average Anode Current (DC) | 0.18 | 0.19 Amperes |



NOTE 1: Cooling permitted. However, there shall be no air blast directly on the bulb.

NOTE 2: During the first 25 microseconds after conduction, the peak inverse anode voltage shall not exceed 5 KV.

NOTE 3: The root mean square anode current shall be computed as the square root of the product of peak current and the average current.

NOTE 4: The pulse produced by the driver circuit shall have the following characteristics when viewed at the NL-CV6022 socket with the tube disconnected:

- A. Amplitude..... 200-300 Volts
- B. Duration..... 2 Microseconds
(at 70% Points)
- C. Rate of Rise..... 200 Volts/Microsec.
(min.)
- D. Impedance..... 50-500 Ohms

The limits of anode time delay and anode time jitter are based on the minimum trigger. Using the highest permissible trigger voltage and lowest trigger source impedance materially reduces these values below the limits specified.

NOTE 5: The time of anode delay is measured between the 26 percent point on the rising portion of the unloaded grid voltage pulse and the point at which evidence of anode conduction first appears on the loaded grid pulse.

NOTE 6: Time jitter is measured at the 50 percent point on the anode current pulse.