Hydrogen Thyratron
L-3101

The L-3101 is a ceramic insulated hydrogen thyratron tetrode capable of switching sub-microsecond peak power levels to 175 MW at average power levels to 35kW. The thyratron is designed for pulsed gas laser applications with high rate of current rise. A large volume titanium hydride reservoir is incorporated to maintain gas pressure for high shot counts. A hollow anode allows for bidirectional current flow.

Ratings				
Description	**MAX**	**Units**		
Maximum Peak Anode Voltage, Forward, epy (1)	35	Kilovolts		
Maximum Peak Anode Current, ib (2)	10,000	Amperes		
Maximum Average Anode Current, Ib	2.0	Amperes DC		
Maximum RMS Anode Current, Ip (3)	45	Amperes RMS		
Maximum Pb (epy x ib x prr)	50 x 10^9	Volts Amperes PPS		
Maximum Rate of Anode Current Rise, dib/dt (2)	150,000	Amperes/µSec		
Maximum Anode Delay Time, tad (4)	0.5	Microsecond		
Maximum Time Jitter, tj (4)	5	Nanoseconds		
Description	**NOM**	**MIN**	**MAX**	**UNITS**
Peak Grid Voltage, egy		500.0	1500.0	Volts
Control Grid (Grid 2) Voltage Pulse Duration, tp	2.0	1.0	---	Microsecond
Control Grid (Grid 2) Voltage Rise Time, tr	---	0.07	0.35	Microsecond
Control Grid (Grid 2) Source Impedance, Zg	---	25.0	400.0	Ohms
Negative Grid 2 Bias, Ecc	---	0.0	-200.0	Volts DC
Auxiliary Grid (Grid 1) DC Priming Current (5)	---	50.0	100.0	mA DC
Auxiliary Grid (Grid 1) DC Unloaded Priming Voltage	---	75.0	250.0	Volts DC
Heater Voltage, Ef	6.3	5.8	6.8	Volts
Heater Current (at 6.3V), If	19.0	---	22.0	Amperes
Reservoir Voltage, Eres	6.3	5.8	6.8	Volts
Reservoir Current, Ires (at 6.3V)	2.5		3.0	Amperes
Warm-up, tk	---	5.0	---	Minutes

Note 1: The peak inverse anode voltage should not exceed 20 kV.
Note 2: For sub-microsecond applications a peak current rating of 10,000A and an anode current rate of rise of 150,000 A/µs is achievable. For pulse widths in excess of 2 µs, the peak current should be limited to 2,000A. The anode design allows for reverse current having a peak value up to 40% of the forward peak current.
Note 3: The root mean square anode current shall be computed as the square root of the product of peak current and average current,
Note 4: These values are reduced by using the highest permissible control grid voltage and lowest source impedance.
The anode delay time is measured between the 25 percent point on the rising portion of the unloaded control grid voltage pulse and the point at which anode conduction first evidence itself on the loaded control grid pulse. Time jitter is measured at the 50% point of the rising edge of the anode current pulse.
Note 5: The open circuit DC voltage to the auxiliary grid should be 75- 250 VDC. The DC supply should be current limited to 50-100 mADC for a short circuit load. If DC priming is not available, consult Stellant Engineering for permissible alternatives.

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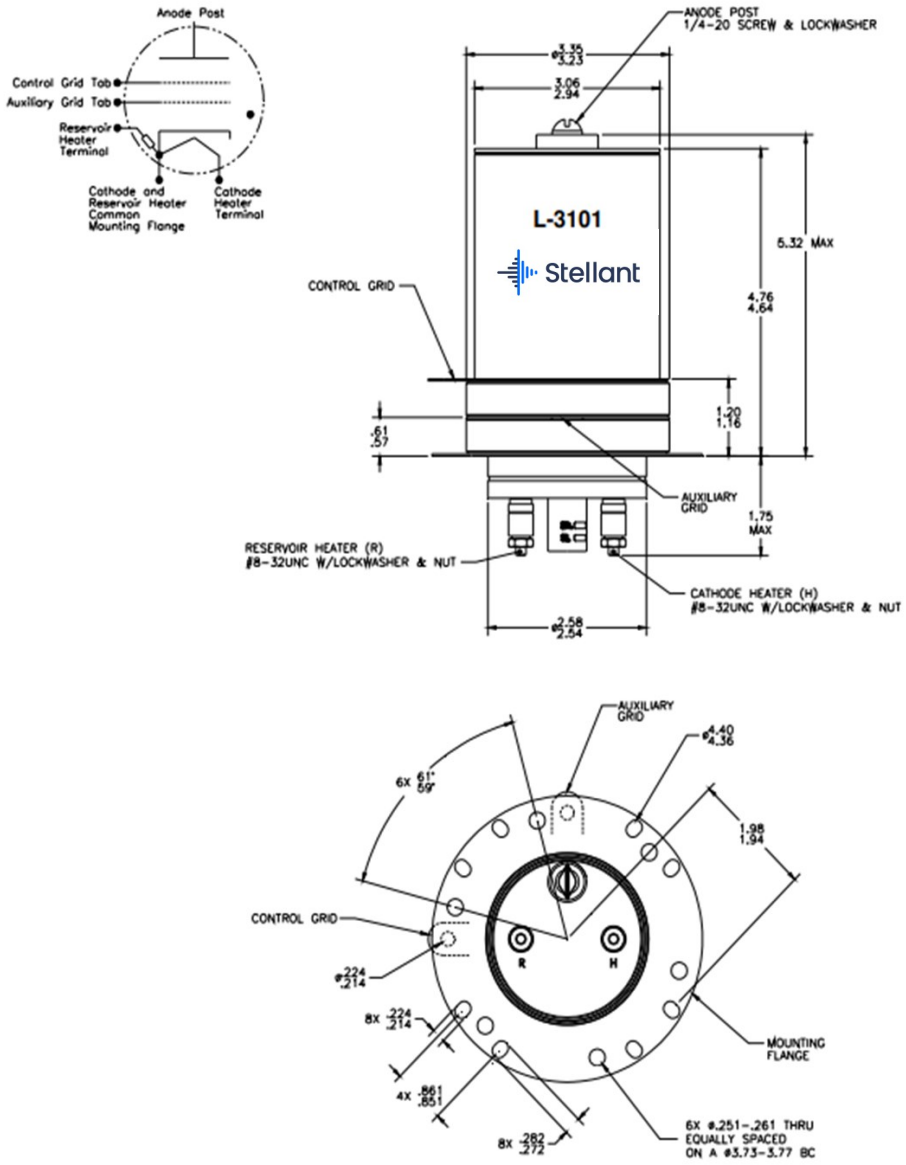

Stellant Systems is a premier manufacturer of critical spectrum and RF power amplification products to the space, defense, medical, science and industrial markets for both domestic and international customers. Stellant has 5 domestic manufacturing facilities and approximately 1,100 employees.

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