

HARD TUBE PULSE MODULATOR TYPE WL-7413

The WL-7413 is a large three-electrode, immersion cooled tube designed to deliver 9 megawatts peak pulse power as a hard-tube modulator. The anode is capable of dissipating 14 kilowatts, exclusive of filament heating power, when oil cooled or 50 kilowatts when water cooled. The cathode is a multiple-strand, thoriated-tungsten filament which may be operated either single phase or 3 phase.

ELECTRICAL:

Cathode	Multiple-Strand, Thoriated-Tungsten Filament
Filament:	
Voltage:	
Single Phase Connection	12 Volts
3 Phase Connection (to neutral)	12 Volts
Current:	
Single Phase Connection	309 Amperes
3 Phase Connection (per phase)	103 Amperes
Minimum Filament Heating Time	15 Seconds
Amplification Factor	21
Direct Interelectrode Capacitances: (approx.)	
Grid to Plate	42 $\mu\mu\text{f}$
Grid to Filament	95 $\mu\mu\text{f}$
Plate to Filament	6 $\mu\mu\text{f}$

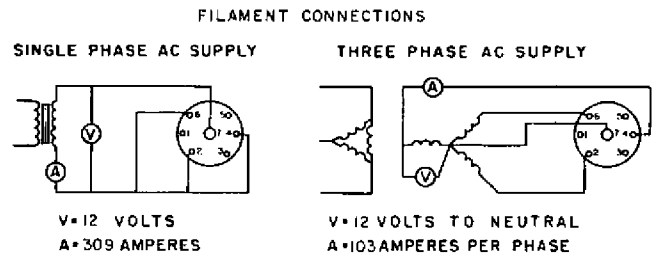
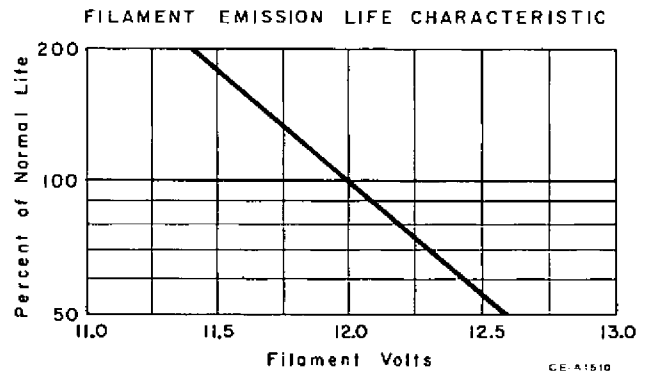
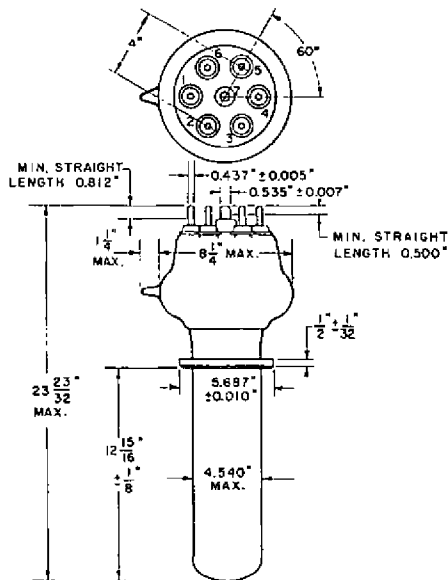
MECHANICAL:

Mounting Position	Vertical, Anode Down
Net Weight (approx.)	25 Pounds
Shipping Weight (approx.)	90 Pounds
Coaling:	
Type	Oil Water
Maximum Fluid Temperature	80 45 °C
Maximum Bulb & Seal Temperature	180 180 °C
Minimum Water Flow	30 G.P.M.

MAXIMUM RATINGS

Absolute Maximum Values		
DC Plate Voltage	60 max.	Kilovolts
DC Grid Voltage	-3500 max.	Volts
Peak Positive Grid Voltage	2500 max.	Volts
Peak Pulse Plate Current	150 max.	Amperes
Peak Pulse Grid Current	50 max.	Amperes
Plate Dissipation:		
Oil Cooled	14 max.	Kilowatts
Water Cooled	50 max.	Kilowatts
Grid Dissipation	1.0 max.	Kilowatts
Pulse Length	1000 max.	$\mu\text{seconds}$
Duty Factor	0.01 max.	
Peak Pulse Cathode Current	200 max.	Amperes

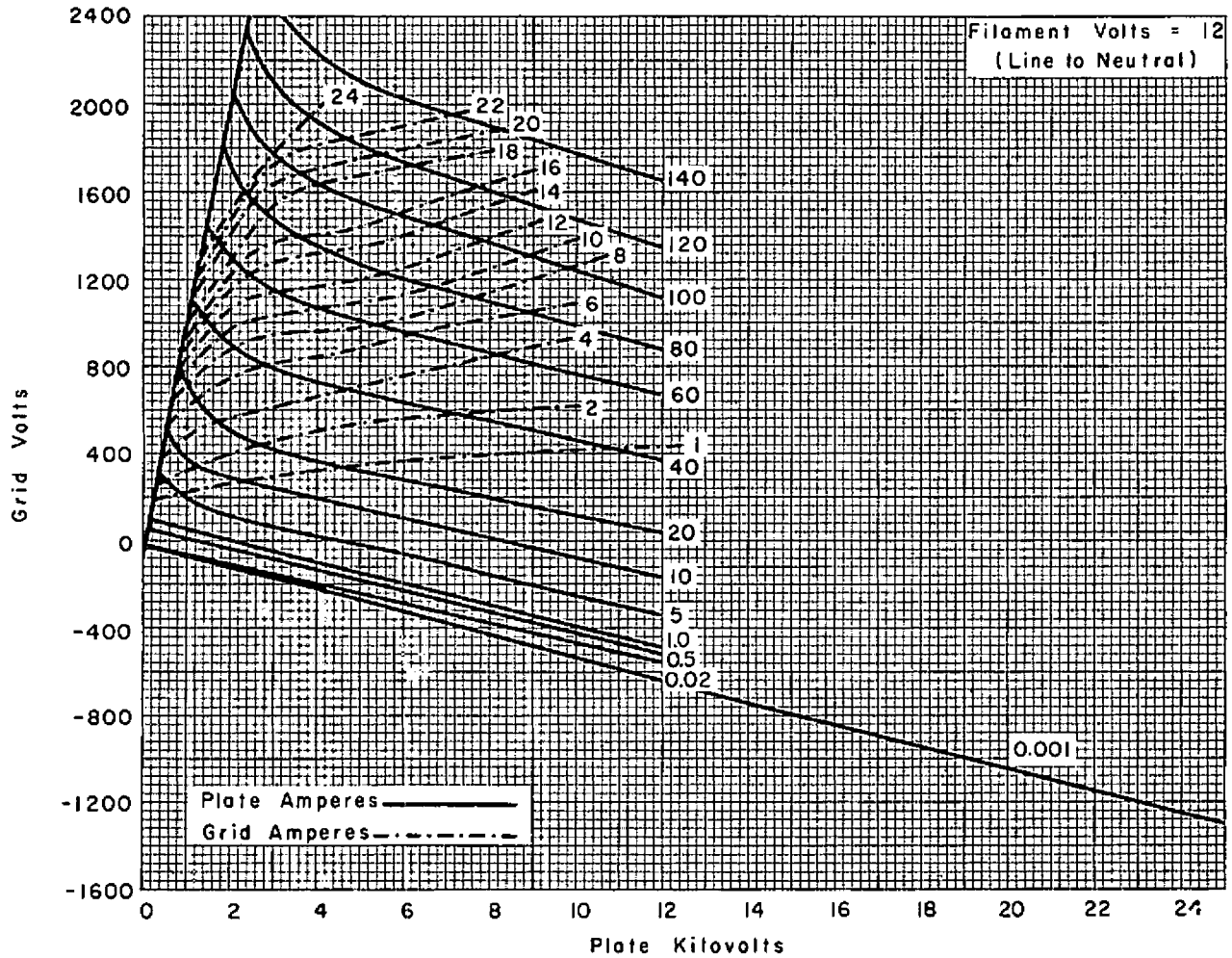
X-Ray Warning: The Maximum Ratings of the WL-7413 permit operation at voltages in excess of 16 KV. Therefore equipment design considerations should include the possible generation of soft x-rays.



FILAMENT TERMINALS 2, 4, 6 & 7 PAINTED BLACK
GRID TERMINALS 1, 3, 5 PAINTED RED

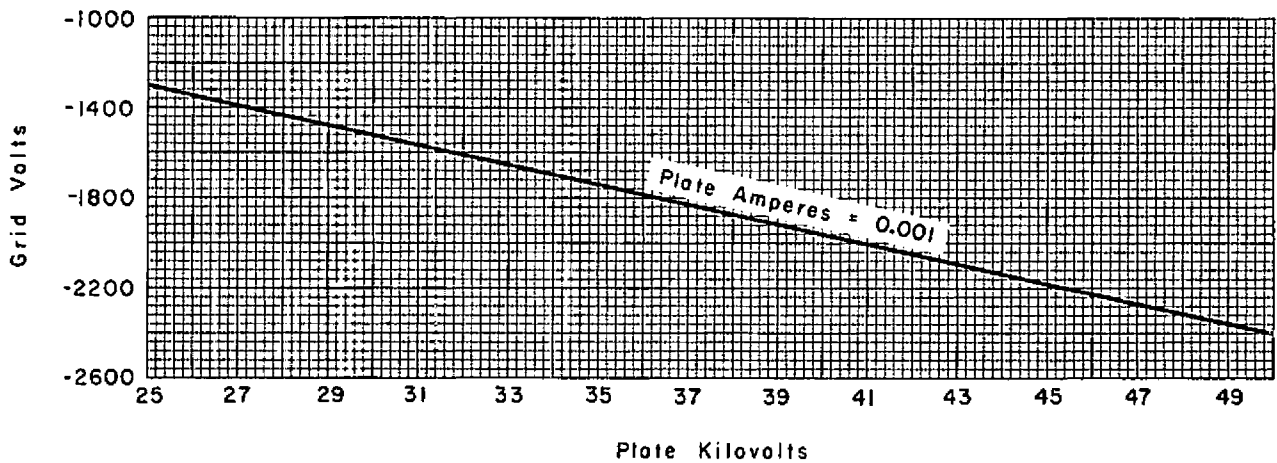
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AVERAGE CONSTANT CURRENT CHARACTERISTICS



CE-A1517

HIGH VOLTAGE CUT-OFF CHARACTERISTIC



CE-A1518