

engineering TUBE DATA

F-6401
PULSE
TRIODE



Components Division

DESCRIPTION

The F-6401 is a three-electrode tube designed for pulse operation as an oscillator or amplifier in the UHF region. The anode is capable of dissipating 1 kilowatt of plate power, exclusive of filament excitation power, during Continuous Commercial Service. Water cooling is used for the anode and forced-air cooling is required for the bulb and seals. The cathode is a thoriated-tungsten filament. Maximum ratings apply up to 600 megacycles.

ELECTRICAL

Filament Voltage	4.25 volts
Filament Current	400 amperes
Filament Starting Current	1000 amperes
Filament Cold Resistance	0.0018 ohms
Amplification Factor	
$I_b = 10$ amps; $E_c = -100$ volts	12
Peak Cathode Current	145 amperes
Direct Inter-electrode Capacitance	
Grid-Plate	25 μmf
Grid-Filament	36 μmf
Plate-Filament	2.1 μmf

MECHANICAL

Mounting Position	Vertical, Anode End Up or Down
Water Flow Required Anode (Note 1)	1 min. gpm
Outlet Water Temperature	70 max. °C
Air Flow Required (Note 2)	10 min. cfm
Net Weight, approximate	3-1/2 pounds
Maximum Glass Temperature	180°C

- Note 1: A special water connection is required as specified on the outline drawing. Water cooling must be maintained for a period of 2 minutes after shutdown of filament power.
- Note 2: Air flow on the cathode and grid terminals and on the bulb must be sufficient to limit the maximum temperature to 180°C.



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RATINGS

Grounded Grid Circuit
Plate Pulsed Oscillator and Amplifier

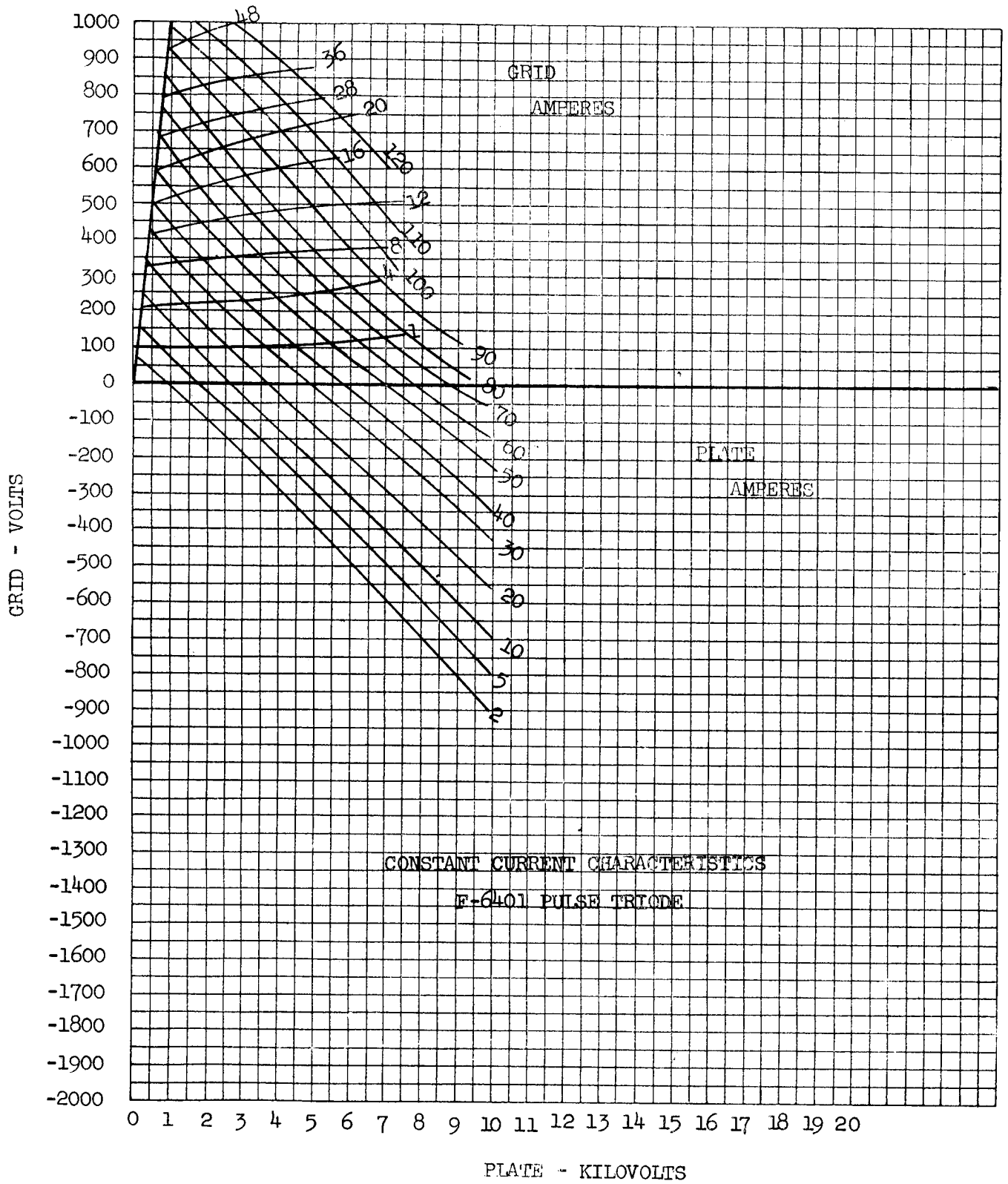
Maximum Ratings, Absolute Values

D-C Plate Voltage	17 max. kv
D-C Grid Voltage	-2 max. kv
D-C Plate Current (peak)	75 max. amperes
D-C Grid Current (peak)	5 max. amperes
Pulse Length	15 max. μ sec.
Duty Factor	.002 max.
Plate Input	1.6 max. kw
Plate Dissipation	1.0 max. kw

The above are limiting values beyond which the serviceability of the tube will be impaired if exceeded. Each maximum rating must be considered in relation to every other to insure that under no conditions any maximum rating will be exceeded.

Typical Operation

D-C Plate Voltage	12 kv
D-C Grid Voltage	-.5 kv
D-C Plate Current (average)	.090 amperes
D-C Grid Current (average)	.005 amperes
Pulse Length	15 μ sec.
Duty Factor	.0015
Power Out (during Pulse)	250 kw
Power Gain	4



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NOTE #1: Grid ring must be capable of entering to a distance of 1/4" into a flat gage having a diameter of $3.764^{+.0000}_{-.0005}$ but will not enter more than 1/16" into a flat gage having a diameter of $3.744^{+.0005}_{-.0000}$

SEE NOTE #2

Plate Connection Post

Inlet
Outlet

$5/8 \pm 1/64$ $3/4 \pm 1/64$

$.437 \pm .007$ dia.

$.812$ min. flat

$.3125 \pm .005$ dia.

(2) Water Connections

$1-1/2 \pm 1/8$

$3.012 \pm .010$ dia.

$5-11/32 \pm 1/8$

SEE NOTE #1

Grid Contact Surface

$.050$ max. rad.

$3/8 \pm 1/16$

$1.454 \pm .020$

$2.375 \pm .005$ dia.

$1/4 \pm 1/64$

$2-5/16$ dia. max.

Filament Contact Surface

$1.621 \pm .005$ dia.

$1-3/8 \pm 1/64$ dia.

$4-9/64 \pm 1/16$

Filament Contact Surface

$1-7/16 \pm 1/16$

OUTLINE
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NOTE #2: If tube is operated anode down, reverse designations from those shown to apply to the inlet and outlet.

