



ELECTRON TUBE DEPARTMENT ■ COMPONENTS DIVISION
INTERNATIONAL TELEPHONE AND TELEGRAPH CORPORATION, CLIFTON, NEW JERSEY

**D-1027A
POWER
TRIODE**

PRELIMINARY SPECIFICATION

DESCRIPTION

The D-1027A is a general purpose metal and ceramic triode for use as an amplifier, oscillator or Class B modulator under CW or pulsed conditions. The anode is capable of dissipating 60 kilowatts during Continuous Commercial Service. Cooling is accomplished by circulating water on the anode and forced air on the ceramic and coaxial seals. The cathode is thoriated tungsten of mesh construction and may be operated on d-c or single phase a-c.

ELECTRICAL

Filament Voltage	11	volts
Filament Current	210	amperes
Filament Starting Current	800	amperes
Filament Heating Time, minimum	15	seconds
Amplification Factor		
$E_c = -50$ volts; $I_b = 3$ amperes	17	
Direct Inter-Electrode Capacitance		
Grid-Plate	65	μmf
Grid-Filament	90	μmf
Plate-Filament	5.5	μmf

MECHANICAL

Mounting Position	Vertical		
Type of Cooling	Water and Forced Air		
Water Flow on Anode			
Plate Dissipation	20	40	60 kilowatts
Minimum Water Flow	8	20	30 gpm
Water Jacket Pressure Drop	2	8	15 psi
Max. Outgoing Water Temperature			70° C
Max. Water Pressure			80 psi
Ceramic and Seal Temperature, max. (Note 1 & 2)			250° C
Weight, approx.			23 lbs.

Note 1: Auxiliary air flow of up to 150 cfm may be required to limit the ceramic and seal temperature to less than the 250° C maximum.

Note 2: A temperature sensitive lacquer manufactured by the Tempil Corporation, 132 West 22nd St., New York 11, N.Y. is convenient for this measurement.

Radio-Frequency Power Amplifier and Oscillator - Class C Telegraphy
(Key down conditions per tube without amplitude modulation *)

Maximum Ratings, Absolute Values

D-C Plate Voltage	14,000	volts
D-C Grid Voltage	-3,000	volts
D-C Plate Current	12	amperes
D-C Grid Current	1.6	amperes
Plate Input	120	kilowatts
Plate Dissipation	60	kilowatts

<u>Typical Operation</u>	<u>Cathode Drive</u>	<u>Grid Drive</u>		
D-C Plate Voltage	10,000	10,000	12,500	volts
D-C Grid Voltage	-1,100	-1,100	-1,300	volts
Peak R-F Grid Voltage	1,475	1,475	1,650	volts
Peak R-F Plate Voltage	8,000	8,000	10,000	volts
D-C Plate Current	7.4	7.4	7.9	amperes
D-C Grid Current	1.0	1.0	.85	amperes
R-F Load Resistance	690	580	700	ohms
Driving Power, approx.	11,600	1,475	1,400	watts
Power Output, approx.	65	55	72	kilowatts

* Modulation essentially negative may be used if the positive peak of the envelope does not exceed 115 per cent of the carrier conditions.

RATINGS VERSUS FREQUENCY

Maximum ratings apply up to 50 megacycles. The tube may be operated at higher frequencies provided the maximum values of plate voltage and power input are reduced according to the tabulation below (other maximum ratings are the same as above). Special attention should be given to adequate ventilation of the ceramics and seals at these frequencies.

Frequency	50	110	megacycles
Percentage of Maximum Rated Plate Voltage and Plate Input	100	70	per cent

PULSE SERVICE OPERATIONS

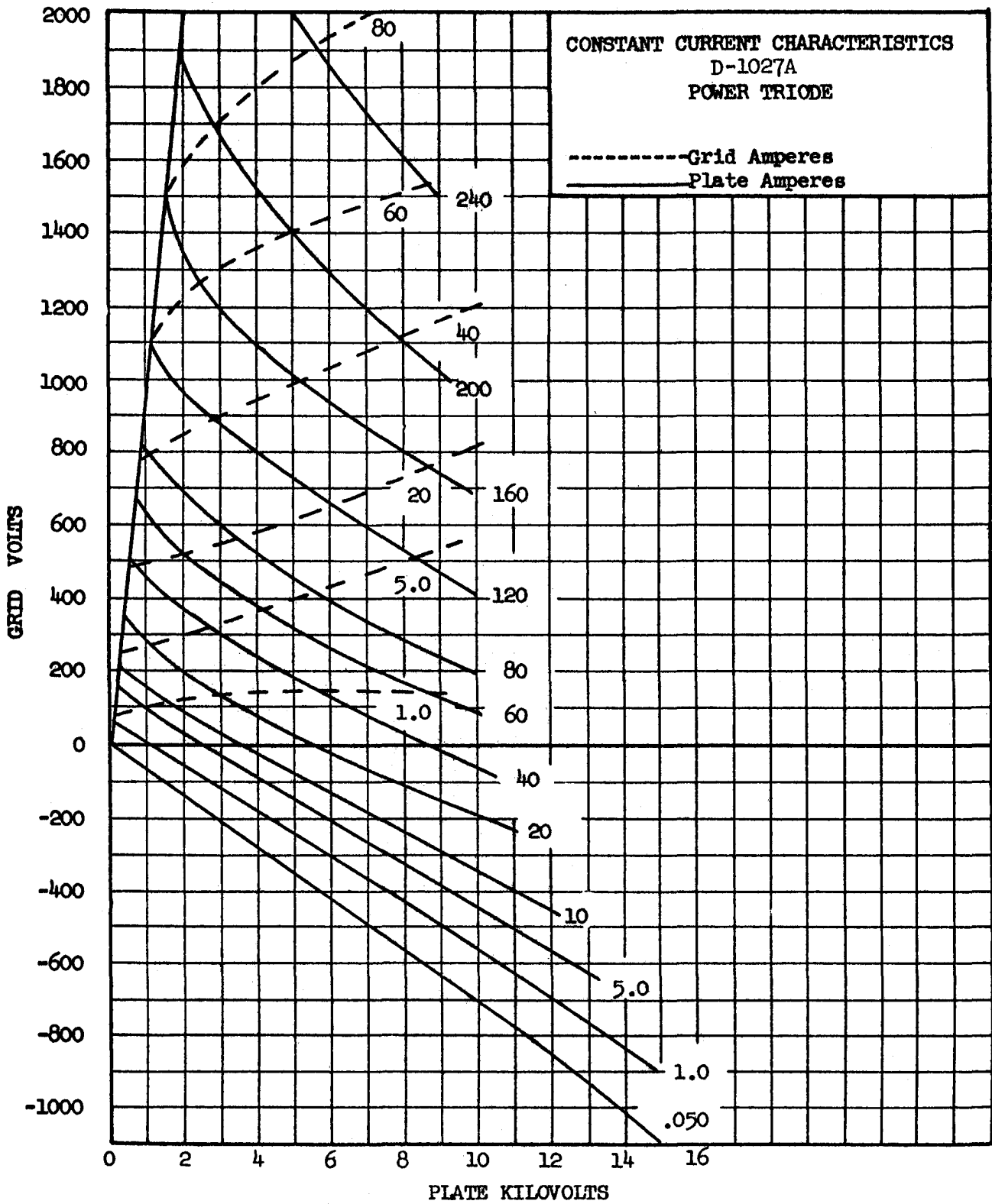
In pulse r-f amplifier service, it is possible to operate the tube under conditions not permissible in CW operation. Because of the wide variety of operating conditions, it is advisable that tube operation recommendations be obtained from our Engineering Department for specific conditions.

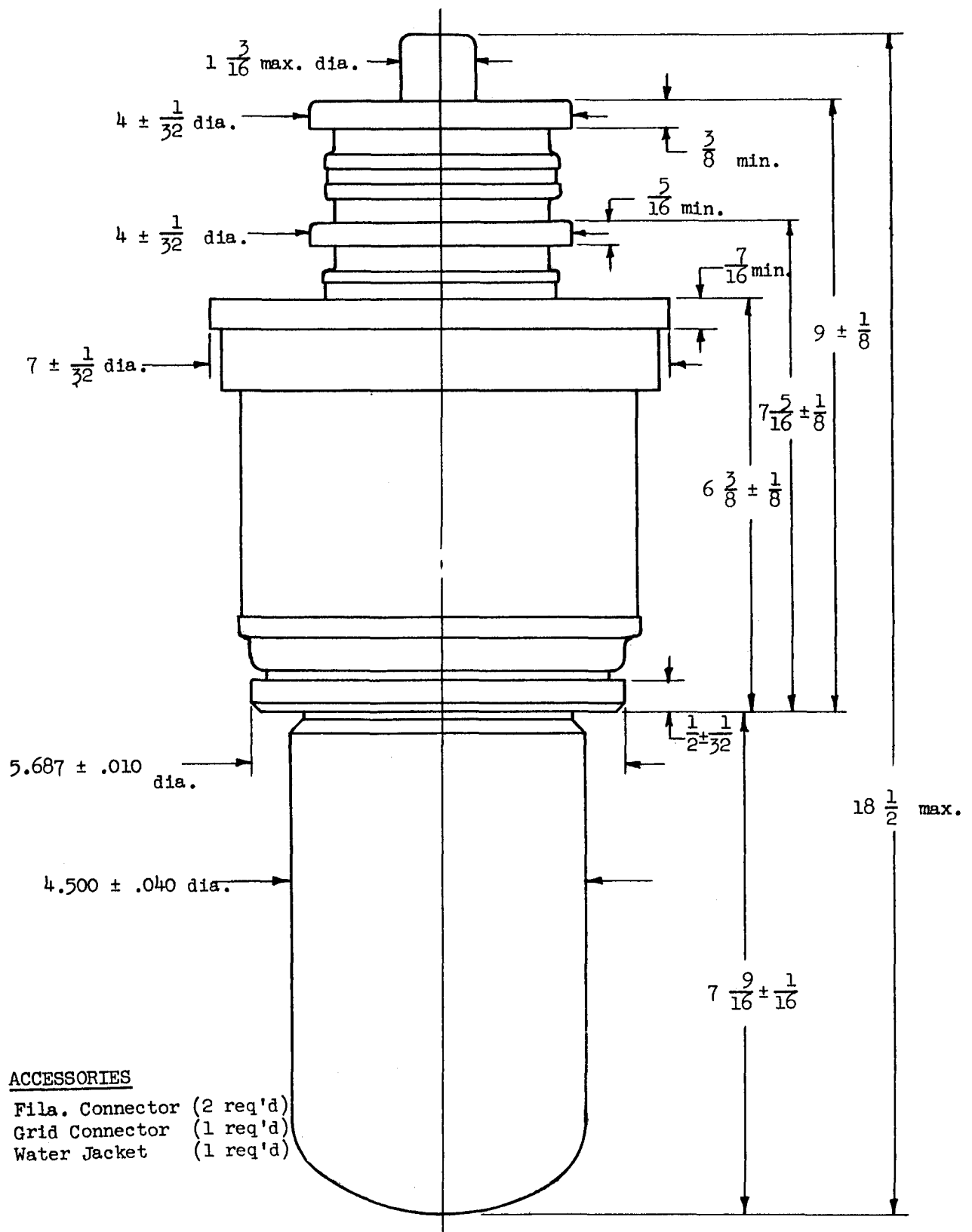
Additional information for specific applications can be obtained from the:

Electron Tube Applications Section
ITT Components Division
P.O. Box 412
Clifton, New Jersey



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OUTLINE
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