TECHNICAL DATA

3CX2500D3
MEDIUM-MU POWER TRIODE

The EIMAC 3CX2500D3 is a medium-mu, forced-air cooled, rugged ceramic/metal power triode intended for use as a power oscillator in industrial heating applications.

GENERAL CHARACTERISTICS[1]

ELECTRICAL

Filament: Thoriated Tungsten

Voltage	7.5 ± 0.35 Volts
Current	31 Amperes
Amplification Factor (Average)	24

Direct Interelectrode Capacitance (Grounded Cathode)[2]

Cin	20.39 pF
Cout	0.89 pF
Cgp	9.03 pF

[1]Characteristics and operating values are based upon performance tests. These figures may change without notice as the result of additional data or product refinement. Varian Power Grid & X-Ray Tube Products should be consulted before using this information for final equipment design.

[2]Capacitance values are for a cold tube as measured in a special shielded fixture.

MECHANICAL

Base	3 Pin Special
Operating Position	Vertical, base down or up
Cooling	Forced Air
Recommended Air-System Socket	EIMAC SK-520

Maximum Operating Temperature:

Plate Seal	250°C
Base Seals	250°C

(Effective 3/91) 2205

Printed in U.S.A.

varian
power grid & x-ray tube products
1678 South Pioneer Road / Salt Lake City, Utah 84104 / U.S.A. / (801) 972-5000

RANGE VALUES FOR EQUIPMENT DESIGN

	Min.	Max.	
Heater: Current at 7.5 Volts	30	32	Amperes
Interelectrode Capacitance[1] (Grounded Cathode Connection)			
Input	17	23	pF
Output	--	1.0	pF
Feedback	8.0	10.0	pF

[1]In shielded fixture.

TYPICAL OPERATION: RF INDUSTRIAL OSCILLATOR

DC Plate Voltage	5000	6000	6500	Volts
DC Plate Current	1.214	1.214	1.078	Amperes
DC Grid Current	0.334	0.334	0.321	Ampere
Power Out Minus Drive	4435.5	5265.8	5564.4	Watts
Efficiency	73.1	78.1	79.4	Percent
Plate Dissipation	1636.2	1479.9	1439.9	Watts
Load Resistance	2419.99	2991.47	3350.70	Ohms
Peak Grid Voltage	384.55	492.27	535.45	Volts
Grid Resistance	611.68	903.87	1077.62	Ohms
Grid Dissipation	60.2	63.5	60.9	Watts
Drive Power	128.6	164.6	171.7	Watts
Bias Voltage	-204.55	-302.27	-345.45	Volts

MECHANICAL

RF INDUSTRIAL OSCILLATOR
Class C (Filtered DC Power Supply)

MAXIMUM RATINGS:

Frequency	110	MHz
DC Plate Voltage	7000	Volts
DC Plate Current	1.5	Amperes
Grid Dissipation	75	Watts
Plate Dissipation	2500	Watts

NOTE: "TYPICAL OPERATION" data are obtained by calculation from published characteristic curves. No allowance for circuit losses has been made.

APPLICATION

MECHANICAL

MOUNTING - The 3CX2500D3 must be operated with its axis vertical. The base of the tube may be down or up at the convenience of the circuit designer.

COOLING - Forced-air cooling is required to maintain the base seals at a temperature below 250°C and the plate seal at a temperature below 250°C. Cooling air must be supplied to the tube even when the filament alone is on during standby periods.

ELECTRICAL

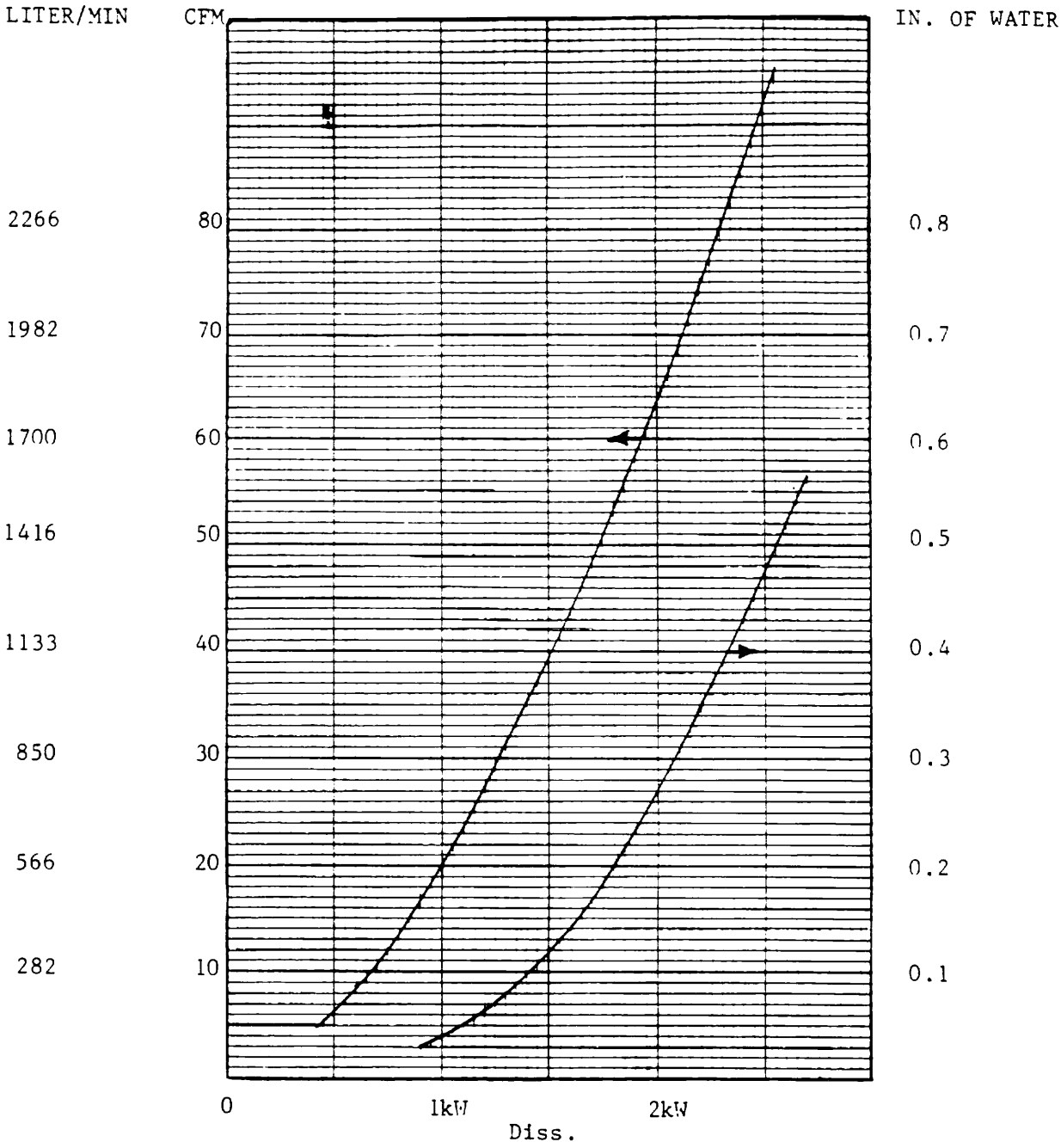
FILAMENT OPERATION - The rated filament voltage for the 3CX2500D3 is 7.5 Volts. Filament voltage, as measured at the socket, must be maintained within the range of 7.15 to 7.85 Volts to obtain maximum tube life. Operation at reduced voltage decreases emission capability, but increases life expectancy.

CAUTION - HIGH VOLTAGE - *Operating voltage for this tube can be deadly, so the equipment must be designed properly and operating precautions must be followed. Design equipment so that no one can come in contact with high voltages. All equipment must include safety enclosures for high voltage circuits and terminals, with interlock switches to open the primary circuits of the power supply and to discharge high voltage capacitors whenever access doors are opened. Interlock switches must not be bypassed or "cheated" to allow operation with access doors open. Always remember that* ***HIGH VOLTAGE CAN KILL.***

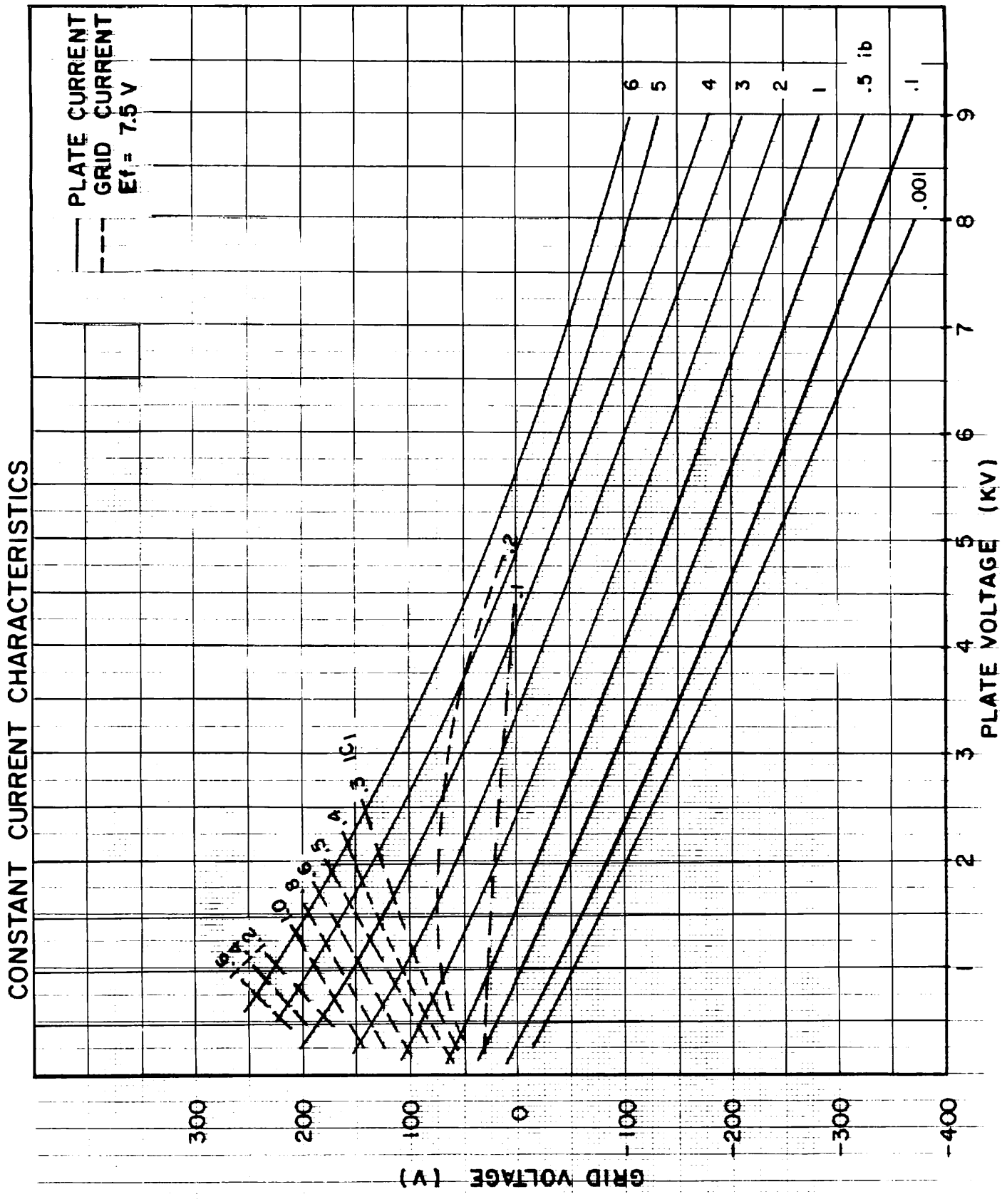
INTERELECTRODE CAPACITANCE - The actual internal interelectrode capacitance of a tube is influenced by many variables in most applications, such as stray capacitance to the chassis, capacitance added by the socket used, stray capacitance between tube terminals, and wiring effects. To control the actual capacitance values within the tube, as the key component involved, the industry and the military services use a standard test procedure as described in Electronic Industries Association Standard RS-191. This requires the use of specially constructed test fixtures which effectively shield all external tube leads from each other and eliminates any capacitance reading to "ground." The test is performed on a cold tube. Other factors being equal, controlling internal tube capacitance in this way normally assures good interchangeability of tubes over a period of time, even when the tube may be made by different manufacturers. The capacitance values shown in the manufacturer's technical data, or test specifications, normally are taken in accordance with Standard RS-191. The equipment designer is therefore cautioned to make allowance for the actual capacitance values which will exist in any normal application. Measurements should be taken with the socket and mounting which represent approximate final layout if capacitance values are highly significant in the design.

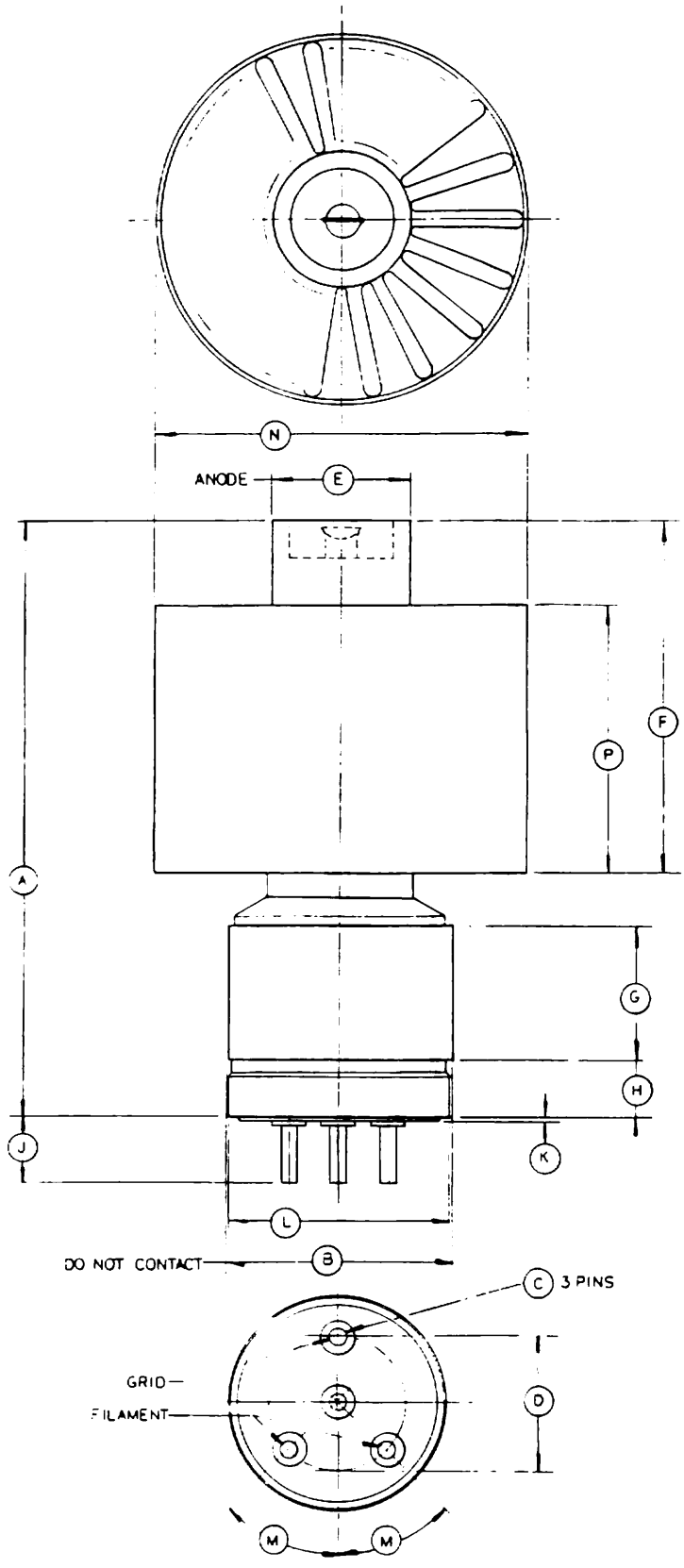
SPECIAL APPLICATIONS - If it is desired to operate this tube under conditions different from those given here, write to the Power Grid Tube Marketing Department, Varian Power Grid & X-Ray Tube Products, 1678 South Pioneer Road, Salt Lake City, UT 84104, for information and recommendations.

AIR COOLING DATA



- CFM and pressure required to keep anode temperature at 225°C
- Standard conditions 25°C at 29.92 In. Hg
- 1 PAS = .00407 X In. of Water
- 1 CU meter/min. = 2.832 X 10^{-2} X CFM


CONSTANT CURRENT CHARACTERISTICS
PLATE CURRENT
GRID CURRENT
Ef = 7.5 V
6
5
4
3
2
1
.5 ib
.1
.001
.2
.1
.3
.2
.1
PLATE VOLTAGE (KV)
1
2
3
4
5
6
7
8
9
GRID VOLTAGE (V)
300
200
100
0
-100
-200
-300
-400



DIMENSIONAL DATA						
	INCHES			MILLIMETERS		
DIM.	MIN.	MAX.	REF.	MIN.	MAX.	REF.
A	6.719	7.219		170.66	183.36	
B	2.370	2.380		60.2	60.45	
C	.184	.192		4.67	4.88	
D	1.485	1.515		37.72	38.48	
E	1.490	1.510		37.85	38.35	
F	4.220	4.280		107.19	108.72	
G	1.490	1.515		37.85	38.48	
H	.645	.667		16.38	16.94	
J	.675	.750		17.14	19.05	
K	.012	.052		.3	1.32	
L	2.340	2.365		59.43	60.07	
M			45°			
N			4.125			104.78
P			3.000			76.02

NOTES:
1. Ref. Dimensions are for info only & are not required for inspection purposes.

TENTATIVE

EIMAC division of varian
Salt Lake City, Utah

ELECTRON TUBE

3CX2500D3