TECHNICAL DATA

3CX1500D3
MEDIUM MU
POWER TRIODE

The **EIMAC 3CX1500D3** 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 ..... 6.3 Volts
- Current ..... 22 Amperes
- Maximum Frequency ..... 110 MHz

Amplification Factor (Estimated) 24

Direct Interelectrode Capacitance[2]
- Cin ..... 10 pF
- Cout ..... 0.8 pF
- Cgp ..... 10 pF

[1]Characteristics and operating values are based upon performance tests. These figures may change without notice as a result of additional data or product refinement. **Varian EIMAC** 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.

varian
eimac salt lake division
1678 South Pioneer Road / Salt Lake City, Utah 84104 / (801) 972-5000

Effective 3/15/89
Printed in USA

RADIO FREQUENCY POWER AMPLIFIER OR OSCILLATOR, Class C

TYPICAL OPERATION

Plate Voltage	6 kVdc
Plate Current	0.65 Adc
Grid Voltage	-500 Vdc
Grid Current[2]	0.11 Adc
Peak Positive Grid Voltage	775 Volts
Driving Power	85 Watts
Plate Input Power	3900 Watts
Plate Dissipation	1100 Watts
Plate Output Power[1]	2800 Watts
Approximate Load Impedance	4700 Ohms
Grid Resistor	4500 Ohms

[1]An output tank circuit efficiency of 88% is assumed. Power delivered to the load will vary with circuit losses.
[2]Approximate value.

ABSOLUTE MAXIMUM RATINGS

DC Plate Voltage	7 kV
DC Plate Current	800 mA
Grid Dissipation	75 Watts
Plate Dissipation	1500 Watts

MECHANICAL

Operating Position	Vertical, base up or down
Cooling	Forced Air
Socket	EIMAC SK-410
Chimney	EIMAC SK-446

Maximum Operating Temperature:

Plate Seal	250°C
Base Seals	250°C

APPLICATION

MECHANICAL

MOUNTING - The 3CX1500D3 must be operated with its axis vertical. The base of the tube may be down or up at the convenience of the circuit designer.

ELECTRICAL

FILAMENT OPERATION - The rated filament voltage for the 3CX1500D3 is 6.3 Volts. Filament voltage, as measured at the socket, must be maintained within the range of 5.99 to 6.61 Volts to obtain maximum tube life. Operation at reduced voltage decreases emission capability, but increases life expectancy.

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 the tube terminals, and wiring effects. To control the actual capacitance values within the tube, as the key component involved, the industry and 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 eliminate 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 if the tube is 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.

FAULT PROTECTION - It is good practice to protect the tube from internal damage caused by an internal arc which may occur at high anode voltage.

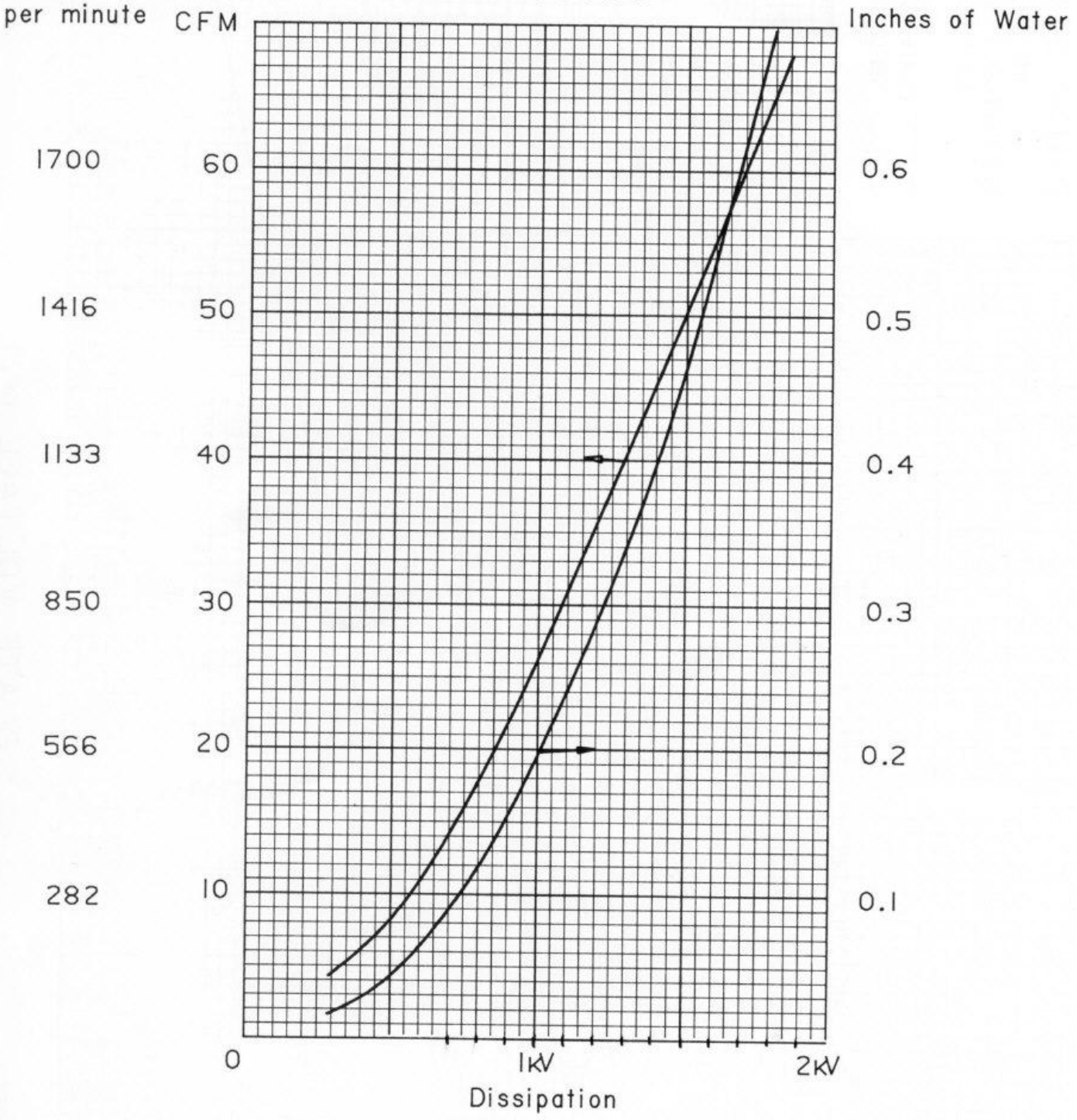
RF RADIATION - Exposure to strong rf fields should be avoided, even at relatively low frequencies. The dangers of rf radiation are more severe at UHF and microwave frequencies and can cause serious bodily and eye injuries. CARDIAC PACEMAKERS MAY BE AFFECTED.

HOT SURFACES - When the tube is used in air and air cooled, external surfaces of the tube may reach temperatures up to 200 degrees C and higher. In addition to the anode, the cathode insulator and cathode/heater surfaces may remain hot for an extended time after the tube is shut off. To prevent serious burns, take care to avoid any bodily contact with these surfaces both during, and for a reasonable cool down period after, tube operation.

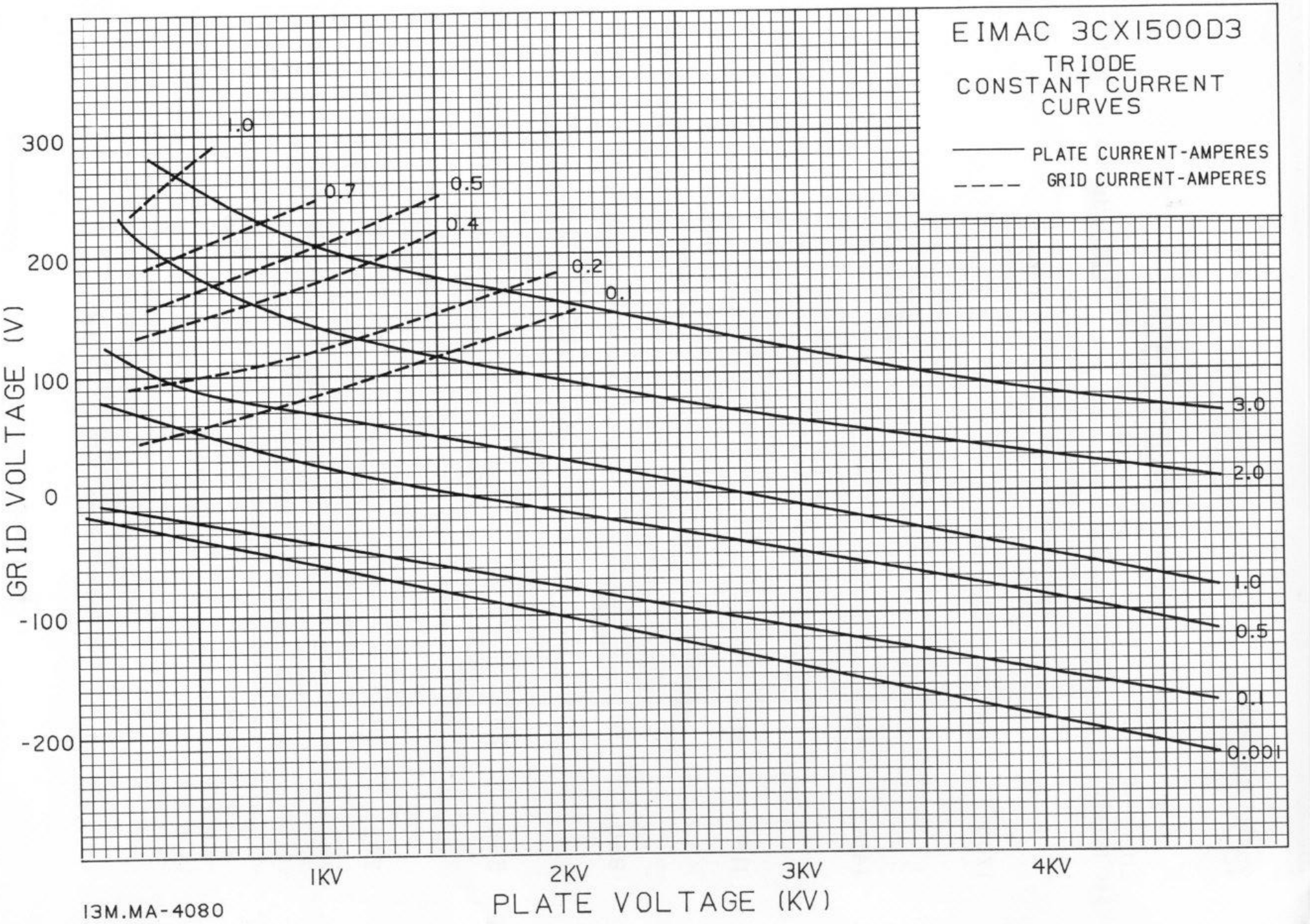
CAUTION - HIGH VOLTAGE - *Normal operating voltages used with the 3CX1500D3 can be hazardous. The equipment must be designed properly and operating precautions followed. Design equipment so that no one can come in contact with high voltages. All equipment must include safety enclosures for high voltage 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.***

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 EIMAC, 1678 South Pioneer Road, Salt Lake City, UT 84104, for information and recommendations.

AIR-COOLING DATA
3CX1500D3



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 cubic meter/min. = 2.832×10^{-2} X CFM


EIMAC 3CX1500D3
TRIODE
CONSTANT CURRENT
CURVES
PLATE CURRENT-AMPERES
GRID CURRENT-AMPERES
300
200
100
0
-100
-200
GRID VOLTAGE (V)
1.0
0.7
0.5
0.4
0.2
0.1
3.0
2.0
1.0
0.5
0.1
0.001
1KV
2KV
3KV
4KV
PLATE VOLTAGE (KV)
13M.MA-4080

NOTES:

1. REF DIMENSIONS ARE FOR INFO ONLY & ARE NOT REQUIRED FOR INSPECTION PURPOSES.
2. METRIC EQUIVALENTS TO THE NEAREST .01mm, ARE GIVEN FOR GENERAL INFO ONLY & ARE BASED ON 1 INCH=25.4mm

DIMENSIONAL DATA						
	INCHES			MILLIMETERS		
DIM	MIN.	MAX.	REF	MIN	MAX	REF
A			5.000			127
B			2.750			69.85
C			2.500			63.5
D	.140	.156		3.56	3.96	
F			2.500			63.5
G		.625			15.87	
H			1.037			26.34
K			30°			30°
L	.185	.191		4.7	4.85	
M			1.250			31.75
N			3.420			86.87