EIMAC
Division of Varian
SAN CARLOS
CALIFORNIA

8159
3CX10,000A3
MEDIUM-MU POWER TRIODE

The EIMAC 3CX10,000A3 is a ceramic and metal power triode intended primarily for use as a power oscillator in industrial-heating applications. It is also recommended for use as a grounded-grid FM amplifier, as a conventional plate-modulated amplifier, or as a linear amplifier.

GENERAL CHARACTERISTICS

ELECTRICAL

	Min.	Nom.	Max.	
Filament: Thoriated-Tungsten				
Voltage		7.5		V
Current	94		104	A
Amplification Factor		20		
Interelectrode Capacitances, Grounded Cathode:				
Input	48		58	pF
Output	1.2		1.5	pF
Feedback	30		38	pF
Frequency for Maximum Ratings				140 MHz

MECHANICAL

Base	Coaxial
Recommended Socket	EIMAC SK-1300
Recommended Chimney	EIMAC SK-1306
Operating Position	Vertical, base up or down
Cooling	Forced air
Maximum Operating Temperatures:	
Anode Core	250°C
Ceramic-to-Metal Seals	250°C
Maximum Dimensions:	
Height	8.5 in
Diameter	7.0 in
Net Weight	12 lb

R-F INDUSTRIAL OSCILLATOR
CLASS-C

MAXIMUM RATINGS

D-C PLATE VOLTAGE	7000	VOLTS
D-C PLATE CURRENT	4.0	AMPS
PLATE DISSIPATION	10	KW
GRID DISSIPATION	250	WATTS

TYPICAL OPERATION, Optimum Load

D-C Plate Voltage	6000	7000	volts
D-C Grid Voltage	-575	-670	volts
D-C Plate Current	4.0	4.0	amps
D-C Grid Current	610	670	mA
Plate Input Power	24	28	kW
Plate Output Power	18.9	22.4	kW

R-F POWER AMPLIFIER
GROUNDED-GRID, CLASS-C

MAXIMUM RATINGS

D-C PLATE VOLTAGE	7000	VOLTS
D-C PLATE CURRENT	4.0	AMPS
PLATE DISSIPATION	10	KW
GRID DISSIPATION	250	WATTS

TYPICAL OPERATION

D-C Plate Voltage	6000	7000	volts
D-C Grid Voltage	-535	-625	volts
D-C Plate Current	4.0	4.0	amps
D-C Grid Current	545	530	mA
Driving Power	3700	4100	watts
Plate Output Power	20.5	24.5	kW

(Effective 5-1-68)

Printed in U.S.A.

R-F POWER AMPLIFIER
PLATE-MODULATED, CLASS-C

MAXIMUM RATINGS

D-C PLATE VOLTAGE	5500	VOLTS
D-C PLATE CURRENT	3.0	AMPS
PLATE DISSIPATION	6.5	KW
GRID DISSIPATION	250	WATTS

TYPICAL OPERATION

D-C Plate Voltage	4000	5000	volts
D-C Grid Voltage	-480	-600	volts
D-C Plate Current	3.0	3.0	amps
D-C Grid Current	660	550	mA
Driving Power	530	515	watts
Plate Output Power	9.7	12.4	kW

R-F LINEAR AMPLIFIER
GROUNDED-GRID, CLASS-AB_2

MAXIMUM RATINGS

D-C PLATE VOLTAGE	7000	VOLTS
D-C PLATE CURRENT	5.0	AMPS
PLATE DISSIPATION	12	KW
GRID DISSIPATION	250	WATTS

TYPICAL OPERATION

D-C Plate Voltage	6000	7000	volts
Zero-Sig Grid Voltage*	-270	-325	volts
Max-Sig D-C Plate Current	4.0	4.0	amps
Max-Sig D-C Grid Current	300	250	mA
Driving Power	1900	2050	watts
Plate Output Power	18	20	kW

*Adjust to give 500 milliamperes zero-signal d-c plate current.

Note: "TYPICAL OPERATION" data are obtained by calculation from published characteristics curves and confirmed by direct tests. No allowance for circuit losses, either input or output, has been made.

APPLICATION

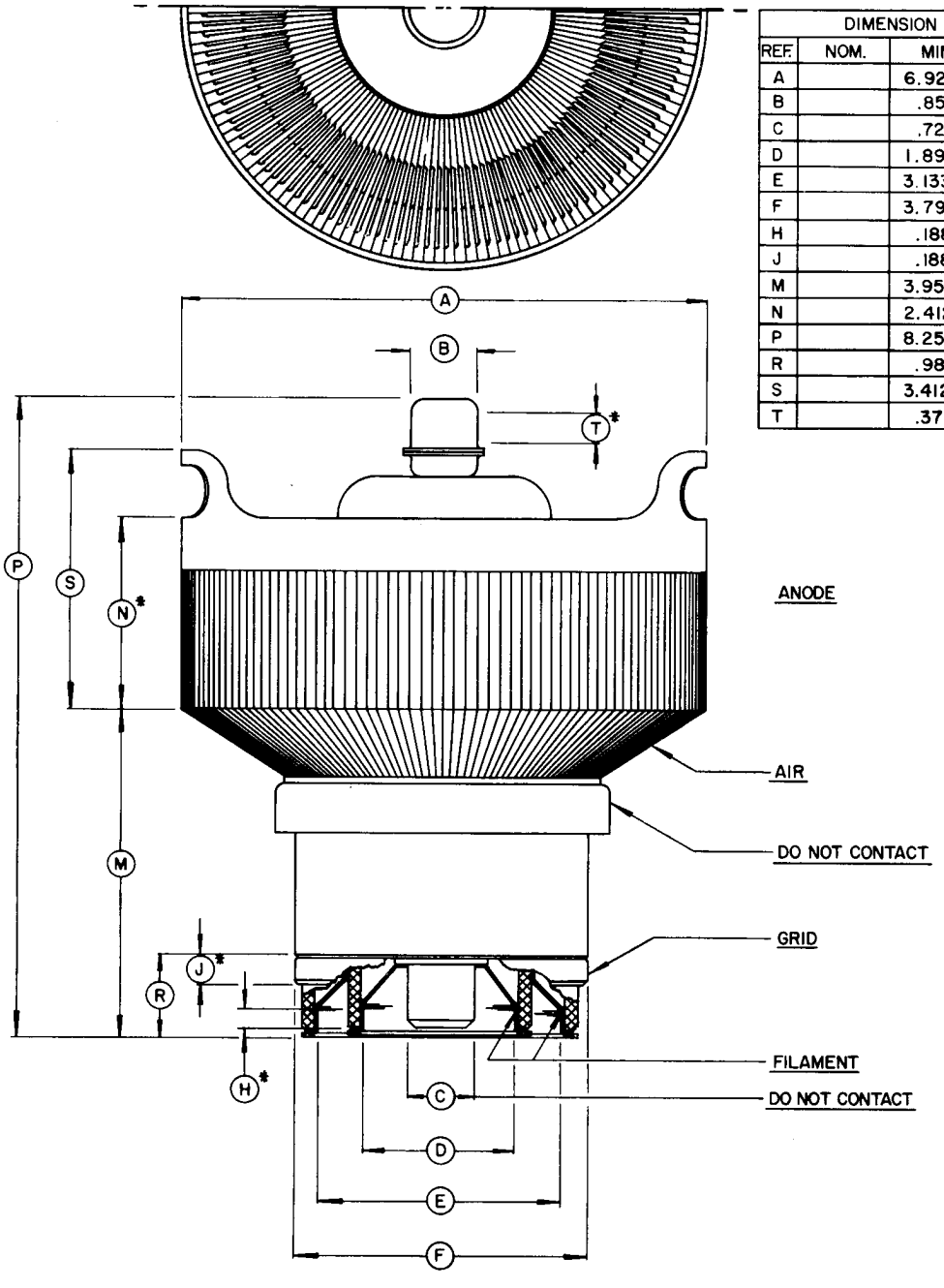
Cooling - The maximum temperature rating for the external surfaces of the 3CX10,000A3 is 250°C. Sufficient forced-air cooling must be provided to keep the temperature of the anode core and the temperature of the ceramic-metal seals below 250°C. Tube life is usually prolonged if these areas are maintained at temperatures below this maximum rating. Minimum air-flow requirements to maintain anode-core and seal temperatures below 225°C with an inlet-air temperature of 50°C are tabulated. The use of these air-flow rates through the recommended socket/chimney and tube combination in the base-to-anode direction provides effective cooling of the tube.

	Sea Level		10,000 Feet	
Plate** Dissipation (Watts)	Air Flow (CFM)	Pressure Drop (Inches of Water)	Air Flow (CFM)	Pressure Drop (Inches of Water)
4000	110	.25	160	.36
6000	180	.53	260	.78
8000	270	.95	390	1.4
10,000	373	1.55	545	2.25
12,000	448	2.00	650	2.9

**Since the power dissipated by the filament is about 750 watts and since grid dissipation can, under some circumstances, represent another 250 watts, allowance has been made in preparing this tabulation for an additional 1000 watts dissipation.

Filament Operation - The rated filament voltage for the 3CX10,000A3 is 7.5 volts. Filament voltage, as measured at the socket, should be maintained at this value to obtain maximum tube life. In no case should it be allowed to deviate from the rated value by more than five percent.

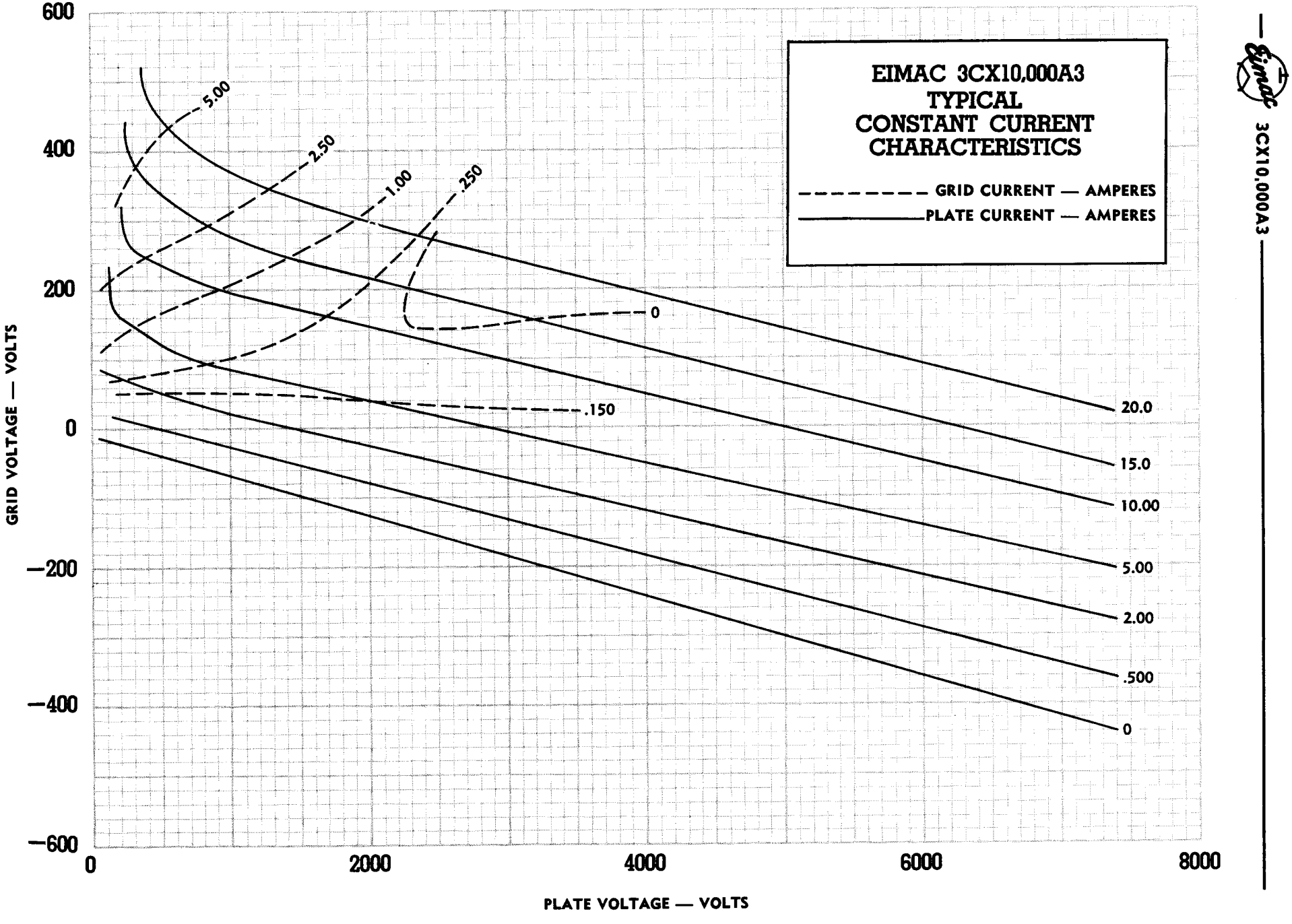
Special Applications - If it is desired to operate this tube under conditions widely different from those given here, write to Power Grid Tube Marketing, EIMAC Division of Varian, 301 Industrial Way, San Carlos, California 94070, for information and recommendations.



DIMENSION DATA			
REF.	NOM.	MIN.	MAX.
A		6.928	7.050
B		.855	.895
C		.720	.760
D		1.896	1.936
E		3.133	3.173
F		3.792	3.832
H		.188	
J		.188	
M		3.950	4.300
N		2.412	2.788
P		8.250	8.750
R		.986	1.050
S		3.412	3.788
T		.375	

*CONTACT SURFACE
ALL DIMENSIONS IN INCHES

▶ Indicates change from sheet dated 7-1-61


EIMAC 3CX10,000A3
TYPICAL
CONSTANT CURRENT
CHARACTERISTICS
GRID CURRENT — AMPERES
PLATE CURRENT — AMPERES
5.00
2.50
1.00
.250
0
.150
20.0
15.0
10.00
5.00
2.00
.500
0
600
400
200
0
−200
−400
−600
0
2000
4000
6000
8000
GRID VOLTAGE — VOLTS
PLATE VOLTAGE — VOLTS