EITEL-McCULLOUGH, INC.
SAN CARLOS · CALIFORNIA

TENTATIVE DATA

3CX10,000A7

HIGH-MU POWER TRIODE

The Eimac 3CX10,000A7 is a ceramic and metal power triode intended to be used as a zero-bias Class-B amplifier in audio or radio-frequency applications. Operation with zero grid bias offers circuit simplicity by eliminating the bias supply. In addition, grounded-grid operation is attractive since a power gain as high as twenty times can be obtained with the 3CX10,000A7.

GENERAL CHARACTERISTICS

ELECTRICAL	
Filament: Thoriated-Tungsten	
Voltage	7.5 volts
Current	100 amperes
Amplification Factor	200
Interelectrode Capacitances:	
Grid-Filament	63 uuf
Grid-Plate	41 uuf
Plate-Filament	.05 uuf
Frequency for Maximum Ratings	110 Mc
MECHANICAL	
Base	Coaxial
Recommended Socket	Eimac SK-1300
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 inches
Diameter	7.0 inches
Net Weight	12 pounds

R-F LINEAR AMPLIFIER
GROUNDED-GRID, CLASS B

MAXIMUM RATINGS

D-C PLATE VOLTAGE	7000 MAX. VOLTS
D-C PLATE CURRENT	5.0 MAX. AMPS
PLATE DISSIPATION	12 MAX. KW
GRID DISSIPATION	500 MAX WATTS

TYPICAL OPERATION, Single-Tone Conditions

D-C Plate Voltage	7000	7000	volts
Zero-Sig D-C Plate Current*	0.60	0.60	amp
Max-Sig D-C Plate Current	3.72	5.00	amps
Max-Sig D-C Grid Current	0.71	1.00	amp
Driving Impedance	35	32	ohms
Resonant Load Impedance	1020	745	ohms
Max-Sig Driving Power	885	1540	watts
Peak Envelope Plate Output Power	17,700	24,200	watts
Power Gain	20.0	15.7	times

*Approximate Values

AUDIO-FREQUENCY AMPLIFIER
OR MODULATOR - CLASS B

MAXIMUM RATINGS (Per Tube)

D-C PLATE VOLTAGE	7000 MAX. VOLTS
D-C PLATE CURRENT	5.0 MAX. AMPS
PLATE DISSIPATION	12 MAX. KW
GRID DISSIPATION	500 MAX. WATTS

TYPICAL OPERATION, Two Tubes, Sinusoidal Wave

D-C Plate Voltage	7000	7000	volts
D-C Grid Voltage	0	0	volts
Zero-Sig D-C Plate Current*	1.20	1.20	amps
Max-Sig D-C Plate Current	7.50	10.0	amps
Max-Sig D-C Grid Current	1.50	2.06	amps
Driving Power	315	560	watts
Peak A-F Driving Voltage (Per Tube)	250	310	volts
Load Resistance, Plate-to-Plate	2000	1520	ohms
Max-Sig Plate Output Power	35,600	47,700	watts

R-F LINEAR AMPLIFIER
CARRIER CONDITIONS, GROUNDED-GRID

MAXIMUM RATINGS

D-C PLATE VOLTAGE	7000 MAX. VOLTS
D-C PLATE CURRENT	5.0 MAX. AMPS
PLATE DISSIPATION	12 MAX. KW
GRID DISSIPATION	500 MAX. WATTS

TYPICAL OPERATION

D-C Plate Voltage	7000	volts
D-C Grid Voltage	0	volts
Zero-Sig D-C Plate Current*	0.60	amp
D-C Plate Current	2.40	amps
D-C Grid Current	0.25	amp
Driving Impedance †	32	ohms
Peak Driving Voltage †	310	volts
Driving Power	330	watts
Plate Output Power	5650	watts

*Approximate Values
†Modulation Crest Conditions

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

	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	85	0.18	125	0.25
6000	145	0.38	210	0.55
8000	215	0.68	315	0.99
10,000	295	1.08	430	1.60
12,000	390	1.62	565	2.35

**Since the power dissipated by the filament is about 750 watts and since grid dissipation can, under some circumstances, represent another 500 watts, allowance has been made in preparing this tabulation for an additional 1250 watts dissipation.

APPLICATION

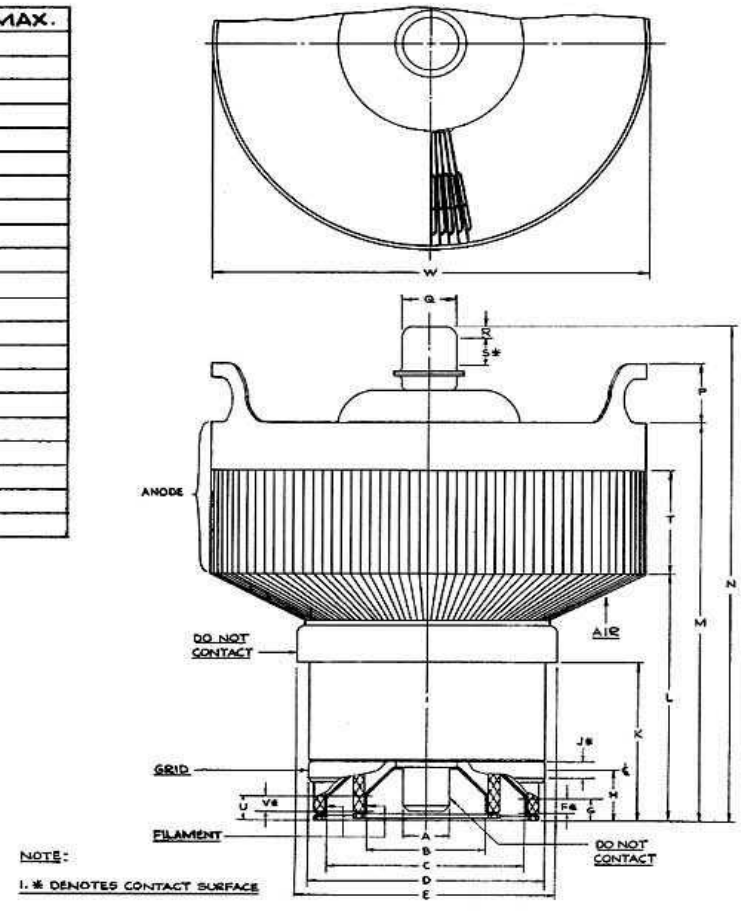
Input Circuit -- When the 3CX10,000A7 is operated as a grounded-grid r-f amplifier, the use of a resonant tank in the cathode circuit is recommended in order to obtain greatest linearity and power output. For best results with a single-ended amplifier it is suggested that the cathode tank circuit operate at a "Q" of five or more.

Cooling - The maximum temperature rating for the external surfaces of the 3CX10,000A7 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.

Filament Operation - The rated filament voltage for the 3CX10,000A7 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.

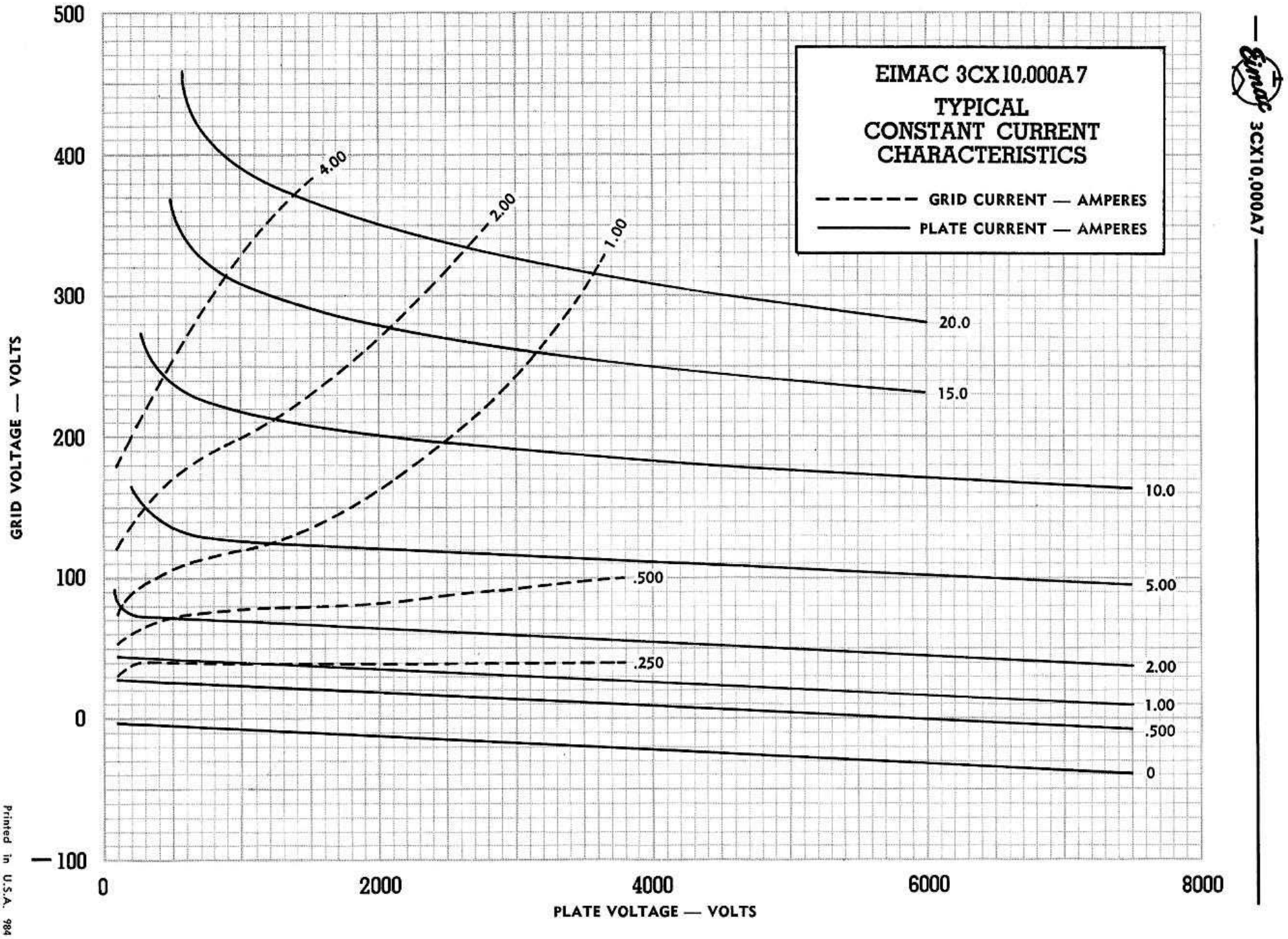
Special Applications - If it is desired to operate this tube under conditions widely different from those given here, write to Power Grid Tube Marketing, Eitel-McCullough, Inc., 301 Industrial Way, San Carlos, California, for information and recommendations.

DIM	NOM.	MIN.	MAX.
A	.740		
B	1.916		
C	3.153		
D	3.803		
E	4.185		
F	1/4		
G	.384		
H	.864		
J	1/4		
K	2.706		
L	4 3/16		
M	6 31/64		
N	8 1/2		
P	1		
Q	.875		
R	3/16		
S	1/2		
T	1 13/16		
U	.394		
V	1/4		
W	6.995		



NOTE:

1. * DENOTES CONTACT SURFACE



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