

TENTATIVE DATA

EITEL-McCULLOUGH, INC.
SAN BRUNO, CALIFORNIA

4-1000A
SUPERSEDES TYPE 4-750A
POWER TETRODE
•
MODULATOR
OSCILLATOR
AMPLIFIER

The Eimac 4-1000A is a power tetrode having a maximum plate dissipation of 1000 watts. Cooling of the 4-1000A is accomplished by radiation from the plate and by forced-air circulation around the glass envelope and through the compact low-inductance base structure. At maximum dissipation the plate operates at a red-orange color.

The 4-1000A permits a single-stage gain of more than 230 times up to approximately 30 Mc., or from 14 watts driving power to over 3 KW power output per tube. This output can be obtained at frequencies well into the VHF range. At 100 Mc. a pair of 4-1000A's will deliver a useful power output of more than 4000 watts.

GENERAL CHARACTERISTICS

ELECTRICAL

Filament: Thoriated tungsten

Voltage - - - - - 7.5 volts

Current - - - - - 21 amperes

Grid-Screen Amplification Factor (Average) - - - - - 7.2

Direct Interelectrode Capacitances (Average)

Grid-Plate (without shielding, base grounded) - - 0.24 μmfd

Input - - - - - 27.2 μmfd

Output - - - - - 7.6 μmfd

Transconductance ($i_b=300 \text{ ma.}$, $E_b=2500 \text{ v.}$, $E_{c2}=500 \text{ v.}$) - 10,000 μmhos

MECHANICAL

Base - - - - - 5-pin metal shell, (see dwg.)

Basing - - - - - RMA type 5BK

Cooling - - - - - Radiation and forced air¹

Mounting position - - - - - Vertical, base down or up

Maximum Overall Dimensions

Length - - - - - 9.25 inches

Diameter - - - - - 5 inches

Net Weight - - - - - 1.5 pounds

Shipping Weight (Average) - - - - - 12 pounds

RADIO FREQUENCY POWER AMPLIFIER AND OSCILLATOR

Class-C Telephony (Key-down conditions, per tube)

MAXIMUM RATINGS

D-C Plate Voltage -	-	-	-	-	-	6000	Max. Volts
D-C Screen Voltage -	-	-	-	-	-	1000	Max. Volts
D-C Grid Voltage -	-	-	-	-	-	500	Max. Volts
D-C Plate Current -	-	-	-	-	-	700	Max. ma
Plate Dissipation -	-	-	-	-	-	1000	Max. Watts
Screen Dissipation -	-	-	-	-	-	75	Max. Watts
Grid Dissipation -	-	-	-	-	-	25	Max. Watts

TYPICAL OPERATION (Frequencies below 40 Mc.)

D-C Plate Voltage -	-	-	-	-	3000	4000	5000	6000	Volts
D-C Screen Voltage -	-	-	-	-	500	500	500	500	Volts
D-C Grid Voltage -	-	-	-	-	150	150	200	200	Volts
D-C Plate Current -	-	-	-	-	693	700	665	681	ma
D-C Screen Current -	-	-	-	-	146	137	125	141	ma
D-C Grid Current -	-	-	-	-	38	39	37	41	ma
Screen Dissipation -	-	-	-	-	73	69	63	71	Watts
Grid Dissipation -	-	-	-	-	5.4	5.5	5.3	6.1	Watts
Peak R-F Grid Input Voltage (approx.) ²	-	-	-	-	292	292	342	348	Volts
Driving Power (approx.) ²	-	-	-	-	11.1	11.4	12.7	14.3	Watts
Plate Power Input -	-	-	-	-	2079	2800	3325	4086	Watts
Plate Dissipation -	-	-	-	-	667	700	715	746	Watts
Plate Power Output -	-	-	-	-	1412	2100	2610	3340	Watts

RADIO FREQUENCY POWER AMPLIFIER

FM Telephony or Class C Telephony

MAXIMUM RATINGS (Per tube at 110 Mc.)

D-C Plate Voltage -	-	-	-	-	-	5000	Max. Volts
D-C Screen Voltage -	-	-	-	-	-	1000	Max. Volts
D-C Grid Voltage -	-	-	-	-	-	500	Max. Volts
D-C Plate Current -	-	-	-	-	-	700	Max. ma
Plate Dissipation -	-	-	-	-	-	1000	Max. Watts
Screen Dissipation -	-	-	-	-	-	75	Max. Watts
Grid Dissipation -	-	-	-	-	-	25	Max. Watts

TYPICAL OPERATION (Two Tubes Push-Pull at 110 Mc.)

D-C Plate Voltage -	-	-	-	-	-	4000	5000	Volts
D-C Screen Voltage -	-	-	-	-	-	350	330	Volts
D-C Grid Voltage -	-	-	-	-	-	350	487	Volts
D-C Plate Current -	-	-	-	-	-	1.1	1.22	Amp
D-C Screen Current -	-	-	-	-	-	290	250	ma
D-C Grid Current -	-	-	-	-	-	70	65	ma
Screen Dissipation -	-	-	-	-	-	100	83	Watts
Driving Power (approx.) ²	-	-	-	-	-	200	250	Watts
Plate Power Input -	-	-	-	-	-	4400	6100	Watts
Plate Dissipation (per tube)	-	-	-	-	-	565	670	Watts
Useful Power Output -	-	-	-	-	-	3050	4400	Watts

¹ Adequate cooling must be provided for the seals and envelope of the 4-1000A. Forced air circulation in the amount of 70 cubic feet per minute through the base of the tube is required. This air should be applied simultaneously with filament power. The temperature at the top of

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the plate terminal and on the pins at the base of the tube should not exceed 150 degrees centigrade in continuous-service applications.

² Driving power increases for frequencies above approximately 30 Mc.

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