



ELECTRONIC TUBE REFERENCE

3CW20000A1

Power - Triode (over 1000V 100W) electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION
CONSTRUCTION
TRIODE

Water-cooled ceramic-metal industrial power triode for high-power RF generation, amplification, or modulation. Its manufacturer ratings emphasize continuous transmitting duty with high plate dissipation and substantial power handling.

GENERAL CHARACTERISTICS

BASE DESIGNATION	—	BASE PINS	—
NOMINAL HEATER	7.5 V / 100 A	PARALLEL HEATER	— / —
HEATING	Direct	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION 1 Triode	
AMPLIFICATION FACTOR	6.2
MAXIMUM PLATE VOLTAGE	7000 V
MAXIMUM PLATE DISSIPATION	20000 W
MAXIMUM GRID DISSIPATION	100 W
MAXIMUM CATHODE CURRENT	5 A
<i>Single triode section; promoted values mapped from printed General Characteristics and Maximum Ratings headings.</i>	

The EIMAC 3CW20000A1 is a water-cooled low-mu power triode for audio/modulator and voltage-regulator service.

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1962 Eimac

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1962 EIMAC

Section 1 · Triode

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
The EIMAC 3CW20,000A1 is a ceramic/metal power triode intended	3 a	The EIMAC 3CW20,000A1 is a ceramic/metal power triode intended
Voltage	7.5 V	GeneralCharacteristics Voltage 7.5£037 V
Current, at 7.5volts	7.5 A	GeneralCharacteristics Current, at 7.5volts 100 A
Amplification Factor (average)	6.2	GeneralCharacteristics Amplification Factor (average) 6.2
0 51.0 pF	51 pF	GeneralCharacteristics O 51.0 pF
it i e e e 4.1 pF	4.1 pF	GeneralCharacteristics it i e e e 4.1 pF
0 28.5 pF	28.5 pF	GeneralCharacteristics O 28.5 pF
2. Capacitance values are for a cold tube as measured in a special shielded fixture in accordance with Electronic In-	2 a	GeneralCharacteristics 2. Capacitance values are for a cold tube as measured in a special shielded fixture in accordance with Electronic In-

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Envelope & Ceramic/Metal Seals	250 °C	Envelope & Ceramic/Metal Seals , 250°C
(Effective 9-1-74) © 1963, 1967, 1964 by Varian Printed in U.S.A	9 A	(Effective 9-1-74) © 1963, 1967, 1964 by Varian Printed in U.S.A.
DC PLATE VOLTAGE	7000 VOLTS	MaximumRatings DC PLATE VOLTAGE 7000 VOLTS Zero-Sig Plate Current 1.5 1.5 Adc

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
DC PLATE CURRENT	5 AMPERES	MaximumRatings DC PLATE CURRENT 5.0 AMPERES Max-Sig Plate Current ., ... 5.8 7.0 Adc
PLATE DISSIPATION	20000 WATTS	MaximumRatings PLATE DISSIPATION 20,000 WATTS Load Res. Plate-to-Plate 2460 1720 Q
GRID DISSIPATION	100 WATTS	MaximumRatings GRID DISSIPATION 100 WATTS Peak af Drive Voltage 2
(pertube)	1300 v	MaximumRatings (pertube) 1300 1300 v
2. Approximate value. Max-Sig Plate Output Power. . . . 24.4 29.1 kW	2 kW	MaximumRatings 2. Approximate value. Max-Sig Plate Output Power. . . 24.4 29.1 kW
20,000 ohms	20000 ohms	MaximumRatings 20,000 ohms.
Peak af Driving Voltage2	290 v	MaximumRatings Peak af Driving Voltage2..... 290 v
DC PLATE VOLTAGE	7000 VOLTS	MaximumRatings DC PLATE VOLTAGE 7000 VOLTS load Resistance 212 Q
DC PLATE CURRENT	1800 A	MaximumRatings DC PLATE CURRENT See Class A derat- Max. Sig. Plate Output Power2 1800 W
PLATE DISSIPATION	20000 WATTS	MaximumRatings PLATE DISSIPATION 20,000 WATTS 1. Adjust for specified dc plate current.
GRID DISSIPATION	100 WATTS	MaximumRatings GRID DISSIPATION 100 WATTS 2. Approximate value.
DC PLATEVOLTAGE	10000 VOLTS	MaximumRatings DC PLATEVOLTAGE 10,000 VOLTS
PLATE DISSIPATION	12000 WATTS	MaximumRatings PLATE DISSIPATION 12,000 WATTS
GRID DISSIPATION	100 WATTS	MaximumRatings GRID DISSIPATION 100 WATTS
Filament: Current at 7.5volts	7.5 A	NOTE: TYPICAL OPERATION data are obtained by measurement or calculation from published characteristic curves. Filament: Current at 7.5volts 94.0 104.0 A
Amplification Factor	4.8	NOTE: TYPICAL OPERATION data are obtained by measurement or calculation from published characteristic curves. Amplification Factor e e e 4.8 6.8

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
N 25.0 32.0 pF	25 pF	NOTE: TYPICAL OPERATION data are obtained by measurement or calculation from published characteristic curves. N 25.0 32.0 pF
1. Capacitance values are for a cold tube as measured in a special shielded fixture in accordance with Electronic In	1 a	NOTE: TYPICAL OPERATION data are obtained by measurement or calculation from published characteristic curves. 1. Capacitance values are for a cold tube as measured in a special shielded fixture in accordance with Electronic In-
SK-1300 socket is available and recommended for normally be maintained for a short period of time	1300 a	SK-1300 socket is available and recommended for normally be maintained for a short period of time
water of 10°C. Inlet water temperature should	10 °C	water of 10°C. Inlet water temperature should
never exceed 55°C and outlet water temperature	55 °C	never exceed 55°C and outlet water temperature
should never exceed 70°C. Where a liquid cool- CLASS A DERATING TABLE	70 °C	should never exceed 70°C. Where a liquid cool- CLASS A DERATING TABLE
(watts) (gpm) Approx. psi 5000 2000	5000 watts	(watts) (gpm) Approx. psi 5000 2000
should be maintained above 50 KQ/cm3, and life of the tube by a substantial percentage. It is	50 a	should be maintained above 50 KQ/cm3, and life of the tube by a substantial percentage. It is
preferably above 250 KQ/cm3. A relative water good practice to determine the nominal filament	250 A	preferably above 250 KQ/cm3. A relative water good practice to determine the nominal filament
quired, with 30 to 50 cfm of air at 50°C maximum some point in filament voltage there will be a	30 °C	quired, with 30 to 50 cfm of air at 50°C maximum some point in filament voltage there will be a
tissue is dependent on frequency. Under 30 MHz,	30 MHz	tissue is dependent on frequency. Under 30 MHz,
quencies as low as the 13 and 27 MHz bands. plication Engineering Dept., Power Grid Tube	13 MHz	quencies as low as the 13 and 27 MHz bands. plication Engineering Dept., Power Grid Tube
A [2094]4l56	2094 A	A [2094]4l56 - - [10399[10556] - -
(A} 39vLI0A Q49	39 A	(A} 39vLI0A Q49
PLATE VOLTAGE (kV) CURVE #2542	2542 kV	PLATE VOLTAGE (kV) CURVE #2542

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
(A) 39VLI0A 31V1d	39 A	(A) 39VLI0A 31V1d
{v} LN34HND 31V1d	4 v	{v} LN34HND 31V1d



SOURCE OPERATING CONDITIONS

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1975 Eimac Tube Manual

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1975 EIMAC TUBE MANUAL

Section 1 · Triode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Amplification factor	6.2	—
Heater/filament voltage	7.5 V	—
Heater/filament current	100 A	—

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum plate voltage	10000 V	—
Maximum plate dissipation	20000 W	—
Maximum grid dissipation	100 W	—
Maximum cathode/plate current	5 A	—
Frequency for maximum ratings	110 MHz	—
Audio-service maximum plate voltage	7000 V	Audio
Voltage-regulator maximum plate voltage	10000 V	VoltageRegulator
Voltage-regulator plate dissipation	12000 W	VoltageRegulator

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Input/grid-filament capacitance	51–51 pF	—
Output/plate-filament capacitance	4.1–4.1 pF	—
Feedback/grid-plate capacitance	28.5–28.5 pF	—

CONSTRUCTION		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Cooling	Water and forced air	—


SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1976 Eimac Tube Manual

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TUBE TINKER

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