



ELECTRONIC TUBE REFERENCE

3CW20000A3

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

CONSOLIDATED TECHNICAL DATA

1 SECTION

CONSTRUCTION

TRIODE

Water-cooled ceramic-metal medium-mu power triode for industrial RF, grounded-grid, and linear-amplifier service.

GENERAL CHARACTERISTICS

BASE DESIGNATION	—	BASE PINS	—
NOMINAL HEATER	7.5 V / 99 A	PARALLEL HEATER	— / —
HEATING	Direct	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION1 Triode	
AMPLIFICATION FACTOR	20
MAXIMUM PLATE VOLTAGE	7000 V
MAXIMUM PLATE DISSIPATION	20000 W
MAXIMUM GRID DISSIPATION	250 W
MAXIMUM CATHODE CURRENT	5 A
<i>Single triode section; promoted values mapped from printed General Characteristics and Maximum Ratings headings.</i>	

The EIMAC 3CW20000A3 is a water-cooled medium-mu ceramic/metal power triode for industrial rf, grounded-grid, and linear-amplifier 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 3CW20,000A3 is a ceramic/metal power triode in	3 a	The EIMAC 3CW20,000A3 is a ceramic/metal power triode in-
The anode dissipation rating is 20,000 watts with water cooling	20000 watts	The anode dissipation rating is 20,000 watts with water cooling.
Voltage	7.5 V	GeneralCharacteristics Voltage o ii i innn.n 7.5:04 V
Curent, at 7.5V	7.5 A	GeneralCharacteristics Curtent, at 7.5V 100 A
Amplification Factor (Average)	20	GeneralCharacteristics Amplification Factor (Average) 20
OT 53 pF	53 pF	GeneralCharacteristics OT 53 pF
Cout v . v vv ittt i e e 1.35 pF	1.35 v	GeneralCharacteristics Cout v . v vv ittt i e e 1.35 pF
CgP ettt e e 34 pF	34 pF	GeneralCharacteristics CgP ettt e e 34 pF

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
2. Capacitance values are for a cold tube as measured in a special shielded	2 a	MaximumRatings 2. Capacitance values are for a cold tube as measured in a special shielded
Recommended Air System Socket	1300 v	Recommended Air System Socket . . .o v vt i it it it i i e ~ EIMAC SK-1300
Envelope and Ceramic/Metal Seals	250 °C	Envelope and Ceramic/Metal Seals ttt vnionnnnnnsas 250°C
(Effective 8-1-75) © 1963, 1966, 1975 by Varian Printed in U.S.A	8 A	(Effective 8-1-75) © 1963, 1966, 1975 by Varian Printed in U.S.A.

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
DC PLATE VOLTAGE	3500 VOLTS	MaximumRatings DC PLATE VOLTAGE 3500 VOLTS DC Grid Current 660 5560 mAdc
DC PLATECURRENT	3 AMPERES	MaximumRatings DC PLATECURRENT 3.0 AMPERES Driving Power 530 515 W
GRID DISSIPATION 250 WATTS Plate Output Power	250 WATTS	MaximumRatings GRID DISSIPATION 250 WATTS Plate Output Power 9.7 12.4 kW
DC PLATECURRENT	5 AMPERES	MaximumRatings DC PLATECURRENT 5.0 AMPERES Max-Sig DC Grid Current 300 250 mAdc
PLATE DISSIPATION	20 v	MaximumRatings PLATE DISSIPATION 20 KILOWATTS Peak RF Grid Voltage 540 585 v
GRID DISSIPATION	250 WATTS	MaximumRatings GRID DISSIPATION 250 WATTS Driving Power 1900 2050 W
Plate Output Power	18 kw	MaximumRatings Plate Output Power 18 20 kw
DC PLATE VOLTAGE	7000 VOLTS	MaximumRatings DC PLATE VOLTAGE 7000 VOLTS DE plate Surrent ..ot e
DC PLATE CURRENT	40 AMPERES	MaximumRatings DC PLATE CURRENT 4,0 AMPERES p ur ent .. 24 28 KW
GRID DISSIPATION	250 WATTS	MaximumRatings GRID DISSIPATION 250 WATTS Plate Output Power 18.9 22.4 kW
DC PLATE VOLTAGE	7000 VOLTS	MaximumRatings DC PLATE VOLTAGE 7000 VOLTS D pto Surrent e a s A
DC PLATE CURRENT	4 AMPERES	MaximumRatings DC PLATE CURRENT 4.0 AMPERES o ari . urrent L.l W c
GRID DISSIPATION	250 WATTS	MaximumRatings GRID DISSIPATION 250 WATTS Plate Output Power 20.56 24.5 kW
Filament Current at 7.5 Volts	7.5 Volts	NOTE: TYPICAL OPERATION data are obtained by calculation from published characteristic curves or actual mea- Filament Current at 7.5 Volts vttt ittt i i it iennneeeeees.. 940 104.0 A
58.0 pF	58 pF	NOTE: TYPICAL OPERATION data are obtained by calculation from published characteristic curves or actual mea- 58.0 pF

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
L 1.2 1.5 pF	1.2 pF	NOTE: TYPICAL OPERATION data are obtained by calculation from published characteristic curves or actual mea- L 1.2 1.5 pF
38.0 pF	38 pF	NOTE: TYPICAL OPERATION data are obtained by calculation from published characteristic curves or actual mea- 38.0 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 calculation from published characteristic curves or actual mea- 1. Capacitance values are for a cold tube as measured in a special shielded fixture in accordance with Electronic In-
the water of 10°C. Inlet water temperature should FILAMENT OPERATION	10 °C	the water of 10°C. Inlet water temperature should FILAMENT OPERATION - Filament voltage
never exceed 55°C and outlet water temperature should be measured at the terminals with a 1 per	55 °C	never exceed 55°C and outlet water temperature should be measured at the terminals with a 1 per-
should never exceed 70°C. Where a liquid cool- cent rms responding meter. The peak emission at	70 °C	should never exceed 70°C. Where a liquid cool- cent rms responding meter. The peak emission at
3CW20,000A3 by a substantial percentage. It is	3 a	3CW20,000A3 by a substantial percentage. It is
ferably above 250 K /cm3. A relative water re- culated through the anode water jacket whenever	250 A	ferably above 250 K /cm3. A relative water re- culated through the anode water jacket whenever
quired, with 30 to 50 cfm of air at 50°C maximum If the coolant lines are obstructed the coolant	30 °C	quired, with 30 to 50 cfm of air at 50°C maximum If the coolant lines are obstructed the coolant
precautions must be followed. Design all equip- sue is dependent on frequency. Under 30 MHz,	30 MHz	precautions must be followed. Design all equip- sue is dependent on frequency. Under 30 MHz,
doors are opened. Interlock switches must not be quencies as low as the 13 and 27 MHz bands	13 MHz	doors are opened. Interlock switches must not be quencies as low as the 13 and 27 MHz bands.
ohms to 25 ohms, should be used in series with	25 ohms	ohms to 25 ohms, should be used in series with
supply stored energy exceeds 750 watt 750 watt seconds,	750 watt	supply stored energy exceeds 750 watt seconds,

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
A {4094 14.156	4094 A	A {4094 14.156 - j[1040 1056 - -



SOURCE OPERATING CONDITIONS

SOURCE PDF

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	20	—
Heater/filament voltage	7.5 V	—
Heater/filament current	99 A	—

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum plate voltage	7000 V	—
Maximum plate dissipation	20000 W	—
Maximum grid dissipation	250 W	—
Maximum cathode/plate current	5 A	—
Frequency for maximum ratings	110 MHz	—
Grounded-grid linear maximum plate voltage	7000 V	ClassAB
Industrial/RF maximum plate voltage	7000 V	ClassC

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Input/grid-filament capacitance	48–58 pF	—
Output/plate-filament capacitance	1.2–1.5 pF	—

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Feedback/grid-plate capacitance	30–38 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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CONSTRUCTION		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
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