



ELECTRONIC TUBE REFERENCE

3CW20000H3

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

CONSOLIDATED TECHNICAL DATA

1 SECTION

CONSTRUCTION

TRIODE

Water-cooled ceramic-metal medium-mu power triode for industrial radio-frequency heating 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	12000 V
MAXIMUM PLATE DISSIPATION	20000 W
MAXIMUM GRID DISSIPATION	250 W
MAXIMUM CATHODE CURRENT	4 A
Single triode section; promoted values mapped from printed General Characteristics and Maximum Ratings headings.	

The EIMAC 3CW20000H3 is a water-cooled ceramic/metal industrial medium-mu power triode for rf heating 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 3CW20,000H3 is a water-cooled, ceramic-metal power	3 a	The Eimac 3CW20,000H3 is a water-cooled, ceramic-metal power
reserve emission is available from its 750 watt filament. The grid struc	750 watt	reserve emission is available from its 750 watt filament. The grid struc-
ture is rated at 250 watts, making this tube an excellent choice for	250 watts	ture is rated at 250 watts, making this tube an excellent choice for
Voltage	7.5 volts	GeneralCharacteristics Voltage - - - - 7.5 volts
Current	94 amps	GeneralCharacteristics Current - - - - 94 104 amps
Amplification Factor	20	GeneralCharacteristics Amplification Factor- - - - 20

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Ceramic-to-Metal Seals	250 °C	Ceramic-to-Metal Seals - - - e e . e e e e e e e 250°C
Net Weight	4 pounds	Net Weight - - - - - + - - - - < 4 < . . 12 pounds
(Effective 2-1-65) © 1965, 1968 by Varian Printed in U.S.A	2 A	(Effective 2-1-65) © 1965, 1968 by Varian Printed in U.S.A.
Class-C (Filtered DC Power Supply) DC Plate Voltage	7000 volts	RF INDUSTRIAL OSCILLATOR TYPICAL OPERATION* Class-C (Filtered DC Power Supply) DC Plate Voltage - - 7000 10,000 volts
OC Plate Current	4 amps	RF INDUSTRIAL OSCILLATOR TYPICAL OPERATION* OC Plate Current - - - 4.0 4.0 amps

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
DC PLATE VOLTAGE	12000 VOLTS	MaximumRatings DC PLATE VOLTAGE - - - - - 12,000 VOLTS DC Grid Current - .275 .315 amps
DC PLATE CURRENT	4 AMPS	MaximumRatings DC PLATE CURRENT - - - - - 4.0 AMPS Peak Positive Grid Voltage 340 340 volts
Driving Power	260 watts	MaximumRatings Driving Power - - 260 340 watts
DC GRID VOLTAGE	1000 VOLTS	MaximumRatings DC GRID VOLTAGE - - - - - 1000 VOLTS
Plate Input Power	28 kw	MaximumRatings Plate Input Power - - - 28 40 kw
DC GRID CURRENT	0.6 AMP	MaximumRatings DC GRID CURRENT - - - - 0.6 AMP Plate Dissipation - - - 9 12 kW
PLATE INPUT POWER	40 KW	MaximumRatings PLATE INPUT POWER - - - - - 40 KW Plate Output Power - 19 28 kW
(NOMINAL)	20 KW	MaximumRatings (NOMINAL) - - - - - 20 KW *Loaded Conditions
000H3 is 7.5 volts. Filament voltage, as measured, either base up or down	0 volts	000H3 is 7.5 volts. Filament voltage, as measured, either base up or down.
from 7.5 volts by more than plus or minus five The anode of the 3CW20,000H3 is cooled by	7.5 volts	from 7.5 volts by more than plus or minus five The anode of the 3CW20,000H3 is cooled by
The grid current rating is 0.6 ampere dc. This levels. The table is based upon a water temperature	0.6 ampere	The grid current rating is 0.6 ampere dc. This levels. The table is based upon a water temperature
value should not be exceeded for more than very temperature rise of 20°C	20 °C	value should not be exceeded for more than very temperature rise of 20°C.
operate with more than 0.2 to 0.4 amp grid Dissipation Flow Drop	0.2 amp	operate with more than 0.2 to 0.4 amp grid Dissipation Flow Drop
a dc current meter. The maximum grid dissipation 15 3 3.0	15 a	a dc current meter. The maximum grid dissipation 15 3 3.0
tion rating is 250 watts	250 watts	tion rating is 250 watts.
volts and maximum plate current of 4.0 amps Since power dissipated by the filament representation	4 volts	volts and maximum plate current of 4.0 amps Since power dissipated by the filament representation

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
should not be applied simultaneously as rated sends 750 watts and grid dissipation can reach	750 watts	should not be applied simultaneously as rated sends 750 watts and grid dissipation can reach
plate dissipation may be exceeded. The 40 kilo- 250 watts, 1000 watts has been added to anode	40 watts	plate dissipation may be exceeded. The 40 kilo- 250 watts, 1000 watts has been added to anode
Plate over-current protection should be pro-outlet-water temperature will be below 70°C to	70 °C	Plate over-current protection should be pro-outlet-water temperature will be below 70°C to
tors should be used. These precautions are es-metal seal temperatures below the 250°C maxi	250 °C	tors should be used. These precautions are es-metal seal temperatures below the 250°C maxi
The 3CW20,000H3 is usable to 140 Mc. At here, write to Power Grid Tube Div., Eimac Di	3 Mc	The 3CW20,000H3 is usable to 140 Mc. At here, write to Power Grid Tube Div., Eimac Di
7000 volts in Class C service. los, Calif. for information and recommendations	7000 volts	7000 volts in Class C service. los, Calif. for information and recommendations.
A dO® . 4.250!	4.25 A	A dO® . 4.250!
FITTING NUTS. v -850	-850 v	FITTING NUTS. v -850
[SEENOTE 3) w 29° 3/°	3 w	[SEENOTE 3) w 29° 3/°
WATER F17TINGS AÆE TO AE	7 A	WATER F17TINGS AÆE TO AE



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	12000 V	—
Maximum plate dissipation	20000 W	—
Maximum grid dissipation	250 W	—
Maximum cathode/plate current	4 A	—
Frequency for maximum ratings	90 MHz	—
Plate input power maximum	40000 W	IndustrialRF
Typical plate output power	28000 W	ClassC

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Input/grid-filament capacitance	48–58 pF	—
Output/plate-filament capacitance	1.2–1.5 pF	—
Feedback/grid-plate capacitance	30–38 pF	—

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



SOURCE DATA APPENDIX

1976 Eimac Tube Manual

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1976 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	12000 V	—
Maximum plate dissipation	20000 W	—
Maximum grid dissipation	250 W	—
Maximum cathode/plate current	4 A	—
Frequency for maximum ratings	90 MHz	—
Plate input power maximum	40000 W	IndustrialRF
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CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Input/grid-filament capacitance	48–58 pF	—
Output/plate-filament capacitance	1.2–1.5 pF	—
Feedback/grid-plate capacitance	30–38 pF	—

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

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

199X Svetlana

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

199X SVETLANA

Section 1 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
(Frequencies to	30 MHz	Typical Operation (under load)
DC plate voltage 7,000	10000 V	Typical Operation (under load)
DC plate current 4.0	4 A	Typical Operation (under load)
DC grid voltage -670	-800 V	Typical Operation (under load)
DC grid current 275	315 mA	Typical Operation (under load)
Peak RF grid voltage 340	340 V	Typical Operation (under load)
Driving power 260	350 W	Typical Operation (under load)
Grid dissipation 78	46 W	Typical Operation (under load)
Plate input power 28,000	40000 W	Typical Operation (under load)
Plate dissipation 9,000	12000 W	Typical Operation (under load)
Plate output power 19,000	28000 W	Typical Operation (under load)
Approximate load impedance 720	1270 Ohms	Typical Operation (under load)
Voltage 7.5 ±	0.37 V	triode designed for use in oscillator, amplifier, or modulator service. The
Current @	7.5 V	triode designed for use in oscillator, amplifier, or modulator service. The
Amplification factor (average)	20 V	triode designed for use in oscillator, amplifier, or modulator service. The
Input	53 pF	triode designed for use in oscillator, amplifier, or modulator service. The
Output	1.3 pF	triode designed for use in oscillator, amplifier, or modulator service. The
Feedback	34 pF	triode designed for use in oscillator, amplifier, or modulator service. The

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum frequency for full ratings (CW)	90 MHz	triode designed for use in oscillator, amplifier, or modulator service. The
Plate dissipation	20000 W	Maximum Ratings
Grid dissipation	250 W	Maximum Ratings
DC grid voltage	-1000 V	Maximum Ratings
DC grid current	600 mA	Maximum Ratings
Plate input power	40000 W	Maximum Ratings
Huntsville, AL 35802 Portola Valley, CA	94028 W	Maximum Ratings

TUBE TINKER

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