



ELECTRONIC TUBE REFERENCE

3CW30000H7

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	6.3 V / 160 A	PARALLEL HEATER	— / —
HEATING	Direct	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION 1 Triode	
AMPLIFICATION FACTOR	200
MAXIMUM PLATE VOLTAGE	28000 V
MAXIMUM PLATE DISSIPATION	30000 W
MAXIMUM GRID DISSIPATION	500 W
MAXIMUM CATHODE CURRENT	40 A
Single triode section; promoted values mapped from printed General Characteristics and Maximum Ratings headings.	

The EIMAC 3CW30000H7 is a water-cooled high-mu power triode for rf, zero-bias linear, regulator, switch, and pulsed 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 3CW30,000H7 is a ceramic/metal water-cooled high-mu power	3 a	The EIMAC 3CW30,000H7 is a ceramic/metal water-cooled high-mu power
The anode power dissipation rating is 30,000 watts with water cooling	30000 watts	The anode power dissipation rating is 30,000 watts with water cooling.
Voltage « oo v v vii it ittt it it i i et 6.3:03 V	6.3 v	GeneralCharacteristics Voltage « oo v v vii it ittt it it i i et 6.3:03 V
Current, at 6.3 volts	6.3 volts	GeneralCharacteristics Current, at 6.3 volts . . . i v i eenans 160 A
Amplification Factor (Average)	200 v	GeneralCharacteristics Amplification Factor (Average):. . . .o v v 200
3 61 pF	3 pF	GeneralCharacteristics 3 61 pF
CoUt & v ittt i it it it i i e e 0.2 pF	0.2 v	GeneralCharacteristics CoUt & v ittt i it it it i i e e 0.2 pF
CEP v ittt ittt i i i it i e e e 36 pF	36 v	GeneralCharacteristics CEP v ittt ittt i i i it i e e e 36 pF
5 61 pF	5 pF	GeneralCharacteristics 5 61 pF
0 36 pF	0 pF	GeneralCharacteristics 0 36 pF
L 0.2 pF	0.2 pF	GeneralCharacteristics L 0.2 pF
W it ittt st e sttt astanastasnaasoansannns 110 MHz	110 W	GeneralCharacteristics W it ittt st e sttt astanastasnaasoansannns 110 MHz
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-

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
(Effective 2-1-75) © by Varian Printed In U.S.A	2 A	General Characteristics (Effective 2-1-75) © by Varian Printed In U.S.A.

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Envelope & Ceramic/Metal Seals	250 v	Envelope & Ceramic/Metal Seals v v v v vvvv et vnerenneseneenssa. 250°C
DC PLATE VOLTAGE	8000 VOLTS	Maximum Ratings DC PLATE VOLTAGE 8000 VOLTS Single-Tone Plate Current? , . . . , 5.92 6.0 Adc
DC PLATE CURRENT	6 AMPERES	Maximum Ratings DC PLATE CURRENT 6.0 AMPERES Single-Tone Grid Current LI 1.22 *1.0 Adc
PLATE DISSIPATION	30000 WATTS	Maximum Ratings PLATE DISSIPATION 30,000 WATTS Driving Power1, ... 1750 1540 W
GRID DISSIPATION	500 WATTS	Maximum Ratings GRID DISSIPATION 500 WATTS Plate Dissipation 13.4 10.8 kW
Single-Tone Plate Output Power	29.6 kW	Maximum Ratings Single-Tone Plate Output Power .. 29.6 24.2 kW
DC PLATE VOLTAGE	8000 VOLTS	Maximum Ratings DC PLATE VOLTAGE 8000 VOLTS Peak rf Grid Voltage1 555 v
DC GRID VOLTAGE	-500 VOLTS	Maximum Ratings DC GRID VOLTAGE -500 VOLTS Calculated Driving Power 1. 430 W
DC PLATE CURRENT	5 AMPERES	Maximum Ratings DC PLATE CURRENT 5.0 AMPERES Plate Input Power 28 kW
PLATE DISSIPATION	30000 WATTS	Maximum Ratings PLATE DISSIPATION 30,000 WATTS Plate Dissipation 6.7 kW
GRID DISSIPATION	500 WATTS	Maximum Ratings GRID DISSIPATION 500 WATTS Plate Output Power 21.3 kW
GRID DISSIPATIONZ	500 WATTS	Maximum Ratings GRID DISSIPATIONZ. 500 WATTS
DC GRID VOLTAGE	-500 VOLTS	Maximum Ratings DC GRID VOLTAGE -500 VOLTS 2. With duty in excess of approximately 0.1 excessive
.. 6 AMPERES element heating may occur during the pulse .and	6 AMPERES	Maximum Ratings .. 6 AMPERES element heating may occur during the pulse .and

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
PULSE PLATE CURRENT	40 AMPERES	MaximumRatings PULSE PLATE CURRENT 40 AMPERES consequent element dissipation derating may be re-
Heater: Current at 6.3 volts	6.3 volts	NOTE: TYPICAL OPERATION data are obtained by measurement or calculation from published characteristic curves. Heater: Current at 6.3 volts 152 168 A
1. Capacitances values are for a cold tube as measured in a shielded fixture in accordance with Electronic indus	1 a	NOTE: TYPICAL OPERATION data are obtained by measurement or calculation from published characteristic curves. 1. Capacitances values are for a cold tube as measured in a shielded fixture in accordance with Electronic indus-
MOUNTING	3 a	MOUNTING - The 3CW30,000H7 must be opera- Where a liquid coolant other than water is
means, and the grid is also provided with a flange 50 psi	50 a	means, and the grid is also provided with a flange 50 psi.
ture of 50°C with the anode mounted either up or	50 °C	ture of 50°C with the anode mounted either up or
known volume. The resistance of the water should 3CW30,000H7 may be operated as a Class-C amp	3 a	known volume. The resistance of the water should 3CW30,000H7 may be operated as a Class-C amp-
be maintained above 50 KQ/cm , and preferably lifier or oscillator or as a plate- modulated radio	50 a	be maintained above 50 KQ/cm , and preferably lifier or oscillator or as a plate- modulated radio-
above 250 KQ/cm . A relative water resistance frequency amplifier. The zero-bias characteristic	250 A	above 250 KQ/cm . A relative water resistance frequency amplifier. The zero-bias characteristic
with a minimum of 50 cfm of air at 50°C maximum	50 a	with a minimum of 50 cfm of air at 50°C maximum
should be measured at the terminals with a 1 per- used with this tube are deadly, and the equip	1 a	should be measured at the terminals with a 1 per- used with this tube are deadly, and the equip-
3CW30,000H7 by a substantial percentage. It is mary circuits of the power supply and to dis	3 a	3CW30,000H7 by a substantial percentage. It is mary circuits of the power supply and to dis-

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
tank circuit operate at a “Q” of 5 or more. provided on all sides of tubes operating at these	5 a	tank circuit operate at a “Q” of 5 or more. provided on all sides of tubes operating at these
be operated without adequate shielding in place sue is dependent on frequency. Under 30 MHz,	30 MHz	be operated without adequate shielding in place sue is dependent on frequency. Under 30 MHz,
Operation of high-voltage equipment with quencies as low as the 13 and 27 MHz bands	13 MHz	Operation of high-voltage equipment with quencies as low as the 13 and 27 MHz bands.
all external tube leads from each other and elim- ohms to 25 ohms, should be used in series with	25 ohms	all external tube leads from each other and elim- ohms to 25 ohms, should be used in series with
being equal, controlling internal tube capacitance supply stored energy exceeds 750 watt seconds,	750 watt	being equal, controlling internal tube capacitance supply stored energy exceeds 750 watt seconds,
(A) 39VLI0A QIHO	39 A	(A) 39VLI0A QIHO
(v) LN3uHNI 31vd	31 v	(v) LN3uHNI 31vd
PLATE VOLTAGE (kV) CURVE #4461	4461 kV	PLATE VOLTAGE (kV) CURVE #4461
(v) LN34H¥NI QI¥9	4 v	(v) LN34H¥NI QI¥9
A (40944156	40944156 A	A (40944156 - - [10399]10556] - -
I2_NCH SHORT FLARED TURE OOUPLING 1T v	1 v	I2_NCH SHORT FLARED TURE OOUPLING 1T v - - - - 10250 - - - - 1635
JSNF- W] 29° 31°	29 W	JSNF- W] 29° 31° - - 29° [31° - -



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	200	—
Heater/filament voltage	6.3 V	—
Heater/filament current	160 A	—

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum plate voltage	28000 V	—
Maximum plate dissipation	30000 W	—
Maximum grid dissipation	500 W	—
Maximum cathode/plate current	40 A	—
Frequency for maximum ratings	110 MHz	—
Pulse-service plate voltage	28000 V	Pulse
Pulse plate current	40 A	Pulse
Typical linear output power	24200 W	ClassAB

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Input/grid-filament capacitance	61–61 pF	—
Output/plate-filament capacitance	0.2–0.2 pF	—
Feedback/grid-plate capacitance	36–36 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
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PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
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TUBE TINKER

An independent reference for electronic tubes, vacuum tubes,
and their source documents.

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