



ELECTRONIC TUBE REFERENCE

3CW20000A7

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 / 104 A	PARALLEL HEATER	— / —
HEATING	Direct	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION1 Triode	
AMPLIFICATION FACTOR	200
MAXIMUM PLATE VOLTAGE	7000 V
MAXIMUM PLATE DISSIPATION	20000 W
MAXIMUM GRID DISSIPATION	500 W
MAXIMUM CATHODE CURRENT	5 A
Single triode section; promoted values mapped from printed General Characteristics and Maximum Ratings headings.	

The EIMAC 3CW20000A7 is a water-cooled high-mu zero-bias power triode for rf and audio class-b amplifier service.

SOURCE OPERATING CONDITIONS

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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 3CW20,000A7 is a ceramic and metal power triode intended to be used	3 a	The Eimac 3CW20,000A7 is a ceramic and metal power triode intended to be used
Voltage	7.5 volts	GeneralCharacteristics Voltage ----- 7.5 volts
Current	94 amperes	GeneralCharacteristics Current ----- 94 104 amperes
Amplification Factor	200	GeneralCharacteristics Amplification Factor - - ----- 200
Grid-Filament	500 uuf	GeneralCharacteristics Grid-Filament ----- 500 62.0 uuf
Grid-Plate	320 uuf	GeneralCharacteristics Grid-Plate - 320 40.0 uuf
Plate-Filament	0.3 uuf	GeneralCharacteristics Plate-Filament ----- 0.3 uuf

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Anode Core	250 °C	Anode Core 250°C
Ceramic-to-Metal Seals	250 °C	Ceramic-to-Metal Seals ----- 250°C
Height	114 inches	Height - - - . - - - - - 114 inches
Diameter	4.7 inches	Diameter - . - - - - - - - - 4.7 inches
Net Weight	12 pounds	Net Weight - - - - - - - - - 12 pounds
LINEAR AMPLIFIER DC Plate Voltage -«	7000 volts	RADIO-FREQUENCY TYPICAL OPERATION, Single-Tone Conditions LINEAR AMPLIFIER DC Plate Voltage -« - . 7000 7000 volts

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Zero-Sig DC Plate Current*	0 amps	RADIO-FREQUENCY TYPICAL OPERATION, Single-Tone Conditions . Zero-Sig DC Plate Current* . - 0.0 060 amps
Grounded Grid, Class-B Max-Sig DC Plate Current	3.72 amps	RADIO-FREQUENCY TYPICAL OPERATION, Single-Tone Conditions Grounded Grid, Class-B Max-Sig DC Plate Current - - - 3.72 500 amps
DC PLATE VOLTAGE	7000 VOLTS	MaximumRatings DC PLATE VOLTAGE - - - - 7000 MAX. VOLTS :""""9 ""'L ""j""l"" oo 'O;g . 71: °:""f
DC PLATE CURRENTS	50 AMPS	MaximumRatings DC PLATE CURRENTS - . . . 50 MAX. AMPS M°'°';':""D'.'" . e T e isio v
PLATE DISSIPATION	20 KW	MaximumRatings PLATE DISSIPATION - - - . 20 MAX. KW Pork Eveloger
GRID DISSIPATION	500 WATTS	MaximumRatings GRID DISSIPATION - - - - 500 MAX. WATTS Output Power - i i . 17,700 34,200 watts
*Approximate Values Power Gain	20	MaximumRatings *Approximate Values Power Gain - - . - - 20.0 15.7 times
AMPLIFIER OR MODULATOR DC Plate Voltage	5000 volts	AUDIO-FREQUENCY TYPICAL OPERATION, Two Tubes, Sinusoidal Wave AMPLIFIER OR MODULATOR DC Plate Voltage - - - - 5000 7000 volts
Class-B, Grid Driven DC Grid Voltage	0 volts	AUDIO-FREQUENCY TYPICAL OPERATION, Two Tubes, Sinusoidal Wave Class-B, Grid Driven DC Grid Voltage - - - 0 0 volts
Zero-Sig DC Plate Currentf'	1.2 amps	AUDIO-FREQUENCY TYPICAL OPERATION, Two Tubes, Sinusoidal Wave Zero-Sig DC Plate Currentf' - - 1.2 1.2 amps
DC PLATE YOLTAGE	7000 amps	MaximumRatings DC PLATE YOLTAGE - - - - 7000 MAX. YOLTS Max-Sig DC Grid Current - - - 1.2 2.1 amps
DC PLATE CURRENT	5 AMPS	MaximumRatings DC PLATE CURRENT - - - 5.0 MAX. AMPS Driving Power - - - - 290 560 watts
Peak AF Driving Voltage (Per Tube)	240 volts	MaximumRatings Peak AF Driving Voltage (Per Tube) - 240 310 volts
PLATE DISSIPATION	20 KW	MaximumRatings PLATE DISSIPATION - - - - 20 MAX. KW
Load Resistance, Plate-to-Plate	1030 ohms	MaximumRatings Load Resistance, Plate-to-Plate - - 1030 1520 ohms
GRID DISSIPATION	500 WATTS	MaximumRatings GRID DISSIPATION - - - - 500 MAX. WATTS

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Max-Sig Plate Output Power	31000 watts	MaximumRatings Max-Sig Plate Output Power -- 31,000 47,700 watts
LINEAR AMPLIFIER DC Plate Voltage	7000 volts	RADIO-FREQUENCY TYPICAL OPERATION LINEAR AMPLIFIER DC Plate Voltage - - - - - 7000 volts
Carrier Conditions, Grounded-Grid, Class-B, DC Grid Voltage	0 volts	RADIO-FREQUENCY TYPICAL OPERATION Carrier Conditions, Grounded-Grid, Class-B, DC Grid Voltage - - - - - 0 volts
Zero-Sig DC Plate Current*	0.6 amp	RADIO-FREQUENCY TYPICAL OPERATION Zero-Sig DC Plate Current* - - - - - 0.6 amp
DC PLATE VOLTAGE	7000 amp	MaximumRatings DC PLATE VOLTAGE - - - - 7000 MAX. YOLTS DC Grid Current - N . _ _ R . 025 amp
DC PLATE CURRENT	50 AMPS	MaximumRatings DC PLATE CURRENT . . . - 50 MAX. AMPS Driving Impedancet - - - . - 32 ohms
PLATE DISSIPATION	20 KW	MaximumRatings PLATE DISSIPATION - - - - 20 MAX. KW Peak Driving Voltaget - - - - - 310 volts


SOURCE DATA APPENDIX

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	200	—
Heater/filament voltage	7.5 V	—
Heater/filament current	94 A	—

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum plate voltage	7000 V	—
Maximum plate dissipation	20000 W	—

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum grid dissipation	500 W	—
Maximum cathode/plate current	5 A	—
Frequency for maximum ratings	140 MHz	—
Typical grounded-grid plate voltage	7000 V	ClassB
Typical grounded-grid output power	24200 W	ClassB

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Input/grid-filament capacitance	59–59 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	—



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1976 Eimac Tube Manual

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1976 EIMAC TUBE MANUAL

Section 1 · Triode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Amplification factor	200	—
Heater/filament voltage	7.5 V	—
Heater/filament current	94 A	—

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum plate voltage	7000 V	—
Maximum plate dissipation	20000 W	—
Maximum grid dissipation	500 W	—
Maximum cathode/plate current	5 A	—
Frequency for maximum ratings	140 MHz	—
Typical grounded-grid plate voltage	7000 V	ClassB
Typical grounded-grid output power	24200 W	ClassB

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Input/grid-filament capacitance	59–59 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

SOURCE OPERATING CONDITIONS

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199X Svetlana

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

199X SVETLANA

Section 1 · Triode

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Current @	7.5 V	power triode designed for use in zero-bias, class B RF or audio amplifiers. A modern
Input	59 pF	power triode designed for use in zero-bias, class B RF or audio amplifiers. A modern
Output	36 pF	power triode designed for use in zero-bias, class B RF or audio amplifiers. A modern
Feedback	0.2 pF	power triode designed for use in zero-bias, class B RF or audio amplifiers. A modern
Input	59 pF	power triode designed for use in zero-bias, class B RF or audio amplifiers. A modern
Output	0.2 pF	power triode designed for use in zero-bias, class B RF or audio amplifiers. A modern
Feedback	36 pF	power triode designed for use in zero-bias, class B RF or audio amplifiers. A modern
Maximum frequency for full ratings (CW)	200 MHz	power triode designed for use in zero-bias, class B RF or audio amplifiers. A modern

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate dissipation	20000 W	Maximum Ratings
Grid dissipation	500 W	Maximum Ratings
DC plate voltage 7000	7000 V	Typical Operation
Zero-signal DC plate current* 0.60	600 mA	Typical Operation
Single-tone DC plate current 3.72	5 A	Typical Operation
Grid bias 0	0 V	Typical Operation
Single-tone DC grid current* 0.71	1 A	Typical Operation
Peak driving power 885	1540 W	Typical Operation
Single-tone plate output power 17.7	24200 W	Typical Operation
Resonant load impedance 1020	745 Ohms	Typical Operation
Driving impedance 35	32 Ohms	Typical Operation
DC plate voltage	7000 V	Maximum Ratings

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
DC plate current	4 A	Maximum Ratings
Plate dissipation	20000 W	Maximum Ratings
Grid dissipation	500 W	Maximum Ratings
DC plate voltage 5000	7000 V	Typical Operation 10
DC grid voltage -210	-210 V	Typical Operation 10
DC plate current 4.0	4 A	Typical Operation 10
DC grid current* 0.84	775 mA	Typical Operation 10
Peak RF grid voltage* 510	555 V	Typical Operation 10
Driving power 420	530 W	Typical Operation 10
Plate output power 14.0	21300 W	Typical Operation 10
DC plate voltage	7000 V	Maximum ratings (per tube) Svetlana 3CW20,000A7
DC plate current	5 A	Maximum ratings (per tube) Svetlana 3CW20,000A7
400	4 A	Maximum ratings (per tube) Svetlana 3CW20,000A7
Plate dissipation	12000 W	Maximum ratings (per tube) Svetlana 3CW20,000A7
Grid dissipation	500 W	Maximum ratings (per tube) Svetlana 3CW20,000A7
DC grid voltage 0	0 V	Typical Operation (two tubes sinusoidal waveform) -300