



ELECTRONIC TUBE REFERENCE

YU191A

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

CONSOLIDATED TECHNICAL DATA

1 SECTION
CONSTRUCTION
TRIODE

Eimac ceramic-metal water-cooled high-mu power triode for amplifier, oscillator, modulator, and voltage-regulator applications. Approximately 7 kW plate dissipation and high gain support substantial grounded-grid and control power.

GENERAL CHARACTERISTICS

BASE DESIGNATION	—	BASE PINS	—
NOMINAL HEATER	7.5 V / 51.5 A	PARALLEL HEATER	— / —
HEATING	Direct	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION 1 Triode	
AMPLIFICATION FACTOR	160
MAXIMUM PLATE VOLTAGE	5000 V
MAXIMUM PLATE DISSIPATION	7000 W
MAXIMUM GRID DISSIPATION	225 W
MAXIMUM CATHODE CURRENT	2.16 A
Maximum ratings and general characteristics promoted from explicitly labeled datasheet fields.	

The EIMAC YU-191A is a ceramic/metal, water-cooled, high-mu triode intended for use as an amplifier, oscillator or modulator, or in voltage-regulator applications. Its maximum rated anode dissipation is 7000 watts. Zero-grid-bias operation can simplify circuitry, and grounded-grid operation can provide power gain exceeding 20 times.

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

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
or modulator, or in voltage regulator applications. Its maximum rated anode dissipation is	7000 W	or modulator, or in voltage regulator applications. Its maximum rated anode dissipation is 7000 watts.
Grounded grid operation is attractive since a power gain of over	20	Grounded grid operation is attractive since a power gain of over 20 times can be obtained.
Voltage [1]	7.5	Voltage 7.5 ± 0.37 V Length 10.4 in; 264 mm
Voltage [2]	0.37	Voltage 7.5 ± 0.37 V Length 10.4 in; 264 mm
Voltage [3]	10.4	Voltage 7.5 ± 0.37 V Length 10.4 in; 264 mm
Voltage [4]	264	Voltage 7.5 ± 0.37 V Length 10.4 in; 264 mm
Current @ [1]	7.5 V	Current @ 7.5 volts 51.5 A Width 7.1 in; 180 mm
Current @ [2]	51.5 V	Current @ 7.5 volts 51.5 A Width 7.1 in; 180 mm
Current @ [3]	7.1 V	Current @ 7.5 volts 51.5 A Width 7.1 in; 180 mm
Current @ [4]	180 V	Current @ 7.5 volts 51.5 A Width 7.1 in; 180 mm

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Amplification Factor, Average [1]	160	Amplification Factor, Average 160 Net Weight.....5.5 lb; 2.5 kg
Amplification Factor, Average [2]	5.5	Amplification Factor, Average 160 Net Weight.....5.5 lb; 2.5 kg
Amplification Factor, Average [3]	2.5	Amplification Factor, Average 160 Net Weight.....5.5 lb; 2.5 kg
Direct Interelectrode Capacitances (Grounded Filament)	2	Direct Interelectrode Capacitances (Grounded Filament)2 Operating Position Vertical, Base Up or Down
Cin	38 pF	Cin 38.0 pF Maximum Operating Temperature:
Cgp	24 pF	Cgp 24.0 pF Cooling Water
Direct Interelectrode Capacitances (Grounded Grid)	2	Direct Interelectrode Capacitances (Grounded Grid)2 Base Special Coaxial
Frequency of Maximum Ratings (CW)	110 MHz	Frequency of Maximum Ratings (CW) 110 MHz
Plate Voltage [1]	4800 V	Plate Voltage 4800 4800 4900 Vdc
Plate Voltage [2]	4800 V	Plate Voltage 4800 4800 4900 Vdc
Plate Voltage [3]	4900 V	Plate Voltage 4800 4800 4900 Vdc
Class AB2 Zero-Signal Plate Current ₁ [1]	350 mA	Class AB2 Zero-Signal Plate Current ₁ 0.35 0.35 0.36 Adc
Class AB2 Zero-Signal Plate Current ₁ [2]	350 mA	Class AB2 Zero-Signal Plate Current ₁ 0.35 0.35 0.36 Adc
Class AB2 Zero-Signal Plate Current ₁ [3]	360 mA	Class AB2 Zero-Signal Plate Current ₁ 0.35 0.35 0.36 Adc
Single -Tone Plate Current [1]	1.68 A	Single -Tone Plate Current 1.68 2.00 2.25 Adc
Single -Tone Plate Current [2]	2 A	Single -Tone Plate Current 1.68 2.00 2.25 Adc
Single -Tone Plate Current [3]	2.25 A	Single -Tone Plate Current 1.68 2.00 2.25 Adc

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Single-Tone Grid Current2 [1]	460 mA	Single-Tone Grid Current2 0.46 0.60 0.65 Adc
Single-Tone Grid Current2 [2]	600 mA	Single-Tone Grid Current2 0.46 0.60 0.65 Adc
Single-Tone Grid Current2 [3]	650 mA	Single-Tone Grid Current2 0.46 0.60 0.65 Adc
DC PLATE VOLTAGE [1]	5000 V	DC PLATE VOLTAGE..... 5000 Volts Driving Power2 293 410 535 Watts
DC PLATE VOLTAGE [2]	293 V	DC PLATE VOLTAGE..... 5000 Volts Driving Power2 293 410 535 Watts
DC PLATE VOLTAGE [3]	410 V	DC PLATE VOLTAGE..... 5000 Volts Driving Power2 293 410 535 Watts
DC PLATE VOLTAGE [4]	535 V	DC PLATE VOLTAGE..... 5000 Volts Driving Power2 293 410 535 Watts
DC PLATE CURRENT [1]	2.5 A	DC PLATE CURRENT. 2.5 Amperes Plate Dissipation 2275 2275 2275 Watts
DC PLATE CURRENT [2]	2275 A	DC PLATE CURRENT. 2.5 Amperes Plate Dissipation 2275 2275 2275 Watts
DC PLATE CURRENT [3]	2275 A	DC PLATE CURRENT. 2.5 Amperes Plate Dissipation 2275 2275 2275 Watts
DC PLATE CURRENT [4]	2275 A	DC PLATE CURRENT. 2.5 Amperes Plate Dissipation 2275 2275 2275 Watts
Single-Tone Plate Output Power [1]	6000 W	Single-Tone Plate Output Power 6000 7266 8250 Watts
Single-Tone Plate Output Power [2]	7266 W	Single-Tone Plate Output Power 6000 7266 8250 Watts
Single-Tone Plate Output Power [3]	8250 W	Single-Tone Plate Output Power 6000 7266 8250 Watts
PLATE DISSIPATION [1]	7000 W	PLATE DISSIPATION 7000 Watts Resonant Load Impedance 1720 1425 1308 Ω
PLATE DISSIPATION [2]	1720 W	PLATE DISSIPATION 7000 Watts Resonant Load Impedance 1720 1425 1308 Ω
PLATE DISSIPATION [3]	1425 W	PLATE DISSIPATION 7000 Watts Resonant Load Impedance 1720 1425 1308 Ω
PLATE DISSIPATION [4]	1308 W	PLATE DISSIPATION 7000 Watts Resonant Load Impedance 1720 1425 1308 Ω
GRID DISSIPATION [1]	225 W	GRID DISSIPATION 225 Watts Driving Impedance 50.0 46.3 49.2 Ω
GRID DISSIPATION [2]	50 W	GRID DISSIPATION 225 Watts Driving Impedance 50.0 46.3 49.2 Ω

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
GRID DISSIPATION [3]	46.3 W	GRID DISSIPATION 225 Watts Driving Impedance 50.0 46.3 49.2 Ω
GRID DISSIPATION [4]	49.2 W	GRID DISSIPATION 225 Watts Driving Impedance 50.0 46.3 49.2 Ω
Published value	1	1. Bias voltage may be required.
Class AB2 Plate Voltage [1]	4000 V	Class AB2 Plate Voltage 4000 4900 Vdc
Class AB2 Plate Voltage [2]	4900 V	Class AB2 Plate Voltage 4000 4900 Vdc
Zero-Signal Plate Current1 [1]	250 mA	Zero-Signal Plate Current1 0.25 0.36 Adc
Zero-Signal Plate Current1 [2]	360 mA	Zero-Signal Plate Current1 0.25 0.36 Adc
MAXIMUM RATINGS: DC Plate Current [1]	740 mA	MAXIMUM RATINGS: DC Plate Current 0.74 1.23 Adc
MAXIMUM RATINGS: DC Plate Current [2]	1.23 A	MAXIMUM RATINGS: DC Plate Current 0.74 1.23 Adc
DC PLATE VOLTAGE [1]	5000 V	DC PLATE VOLTAGE..... 5000 Volts DC Grid Current1 0.13 0.17 Adc
DC PLATE VOLTAGE [2]	0.13 V	DC PLATE VOLTAGE..... 5000 Volts DC Grid Current1 0.13 0.17 Adc
DC PLATE VOLTAGE [3]	0.17 V	DC PLATE VOLTAGE..... 5000 Volts DC Grid Current1 0.13 0.17 Adc
Peak RF Grid Voltage2 [1]	85 V	Peak RF Grid Voltage2 85.0 125 Volts
Peak RF Grid Voltage2 [2]	125 V	Peak RF Grid Voltage2 85.0 125 Volts
DC PLATE CURRENT	2.5 A	DC PLATE CURRENT..... 2.5 Amperes
Driving Power2 [1]	11.5 W	Driving Power2 11.5 21.2 Watts
Driving Power2 [2]	21.2 W	Driving Power2 11.5 21.2 Watts
PLATE DISSIPATION [1]	7000 W	PLATE DISSIPATION 7000 Watts Plate Dissipation 1830 3840 Watts
PLATE DISSIPATION [2]	1830 W	PLATE DISSIPATION 7000 Watts Plate Dissipation 1830 3840 Watts
PLATE DISSIPATION [3]	3840 W	PLATE DISSIPATION 7000 Watts Plate Dissipation 1830 3840 Watts
GRID DISSIPATION [1]	225 W	GRID DISSIPATION 225 Watts Carrier Plate Output Power 1130 2200 Watts
GRID DISSIPATION [2]	1130 W	GRID DISSIPATION 225 Watts Carrier Plate Output Power 1130 2200 Watts
GRID DISSIPATION [3]	2200 W	GRID DISSIPATION 225 Watts Carrier Plate Output Power 1130 2200 Watts

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Resonant Load Impedance [1]	1750	Resonant Load Impedance 1750 1100 Ω
Resonant Load Impedance [2]	1100	Resonant Load Impedance 1750 1100 Ω
Class C Plate Voltage	4900 V	Class C Plate Voltage 4900 Vdc
Grid Voltage	-50 V	Grid Voltage -50 Vdc
MAXIMUM RATINGS: Plate Current	2.16 A	MAXIMUM RATINGS: Plate Current 2.16 Adc
DC PLATE VOLTAGE [1]	5000 V	DC PLATE VOLTAGE.....5000 Volts Grid Current1 0.61 Adc
DC PLATE VOLTAGE [2]	0.61 V	DC PLATE VOLTAGE.....5000 Volts Grid Current1 0.61 Adc
Peak RF Cathode Voltage1	300 V	Peak RF Cathode Voltage1 300 Volts
DC PLATE CURRENT	2.5 A	DC PLATE CURRENT..... 2.5 Amperes
Calculated Driving Power1	691 W	Calculated Driving Power1 691 Watts
PLATE DISSIPATION [1]	7000 W	PLATE DISSIPATION 7000 Watts Plate Dissipation 2315 Watts
PLATE DISSIPATION [2]	2315 W	PLATE DISSIPATION 7000 Watts Plate Dissipation 2315 Watts
GRID DISSIPATION [1]	225 W	GRID DISSIPATION..... 225 Watts Useful Output Power2 7500 Watts
GRID DISSIPATION [2]	7500 W	GRID DISSIPATION..... 225 Watts Useful Output Power2 7500 Watts
Published value [1]	2	2. Output circuit and filter loss of 10% assumed.
Published value [2]	10	2. Output circuit and filter loss of 10% assumed.
Filament Current @ [1]	7.5 V	Filament Current @ 7.5 volts..... 48.0 54.0 A
Filament Current @ [2]	48 V	Filament Current @ 7.5 volts..... 48.0 54.0 A
Filament Current @ [3]	54 V	Filament Current @ 7.5 volts..... 48.0 54.0 A
Zero Bias Plate Current (Eb = [1]	5000 V	Zero Bias Plate Current (Eb = 5000 Volts)..... 0.36 0.52 A
Zero Bias Plate Current (Eb = [2]	0.36 V	Zero Bias Plate Current (Eb = 5000 Volts)..... 0.36 0.52 A
Zero Bias Plate Current (Eb = [3]	0.52 V	Zero Bias Plate Current (Eb = 5000 Volts)..... 0.36 0.52 A

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
base down or up at the convenience of the circuit cooling. A minimum of	6	base down or up at the convenience of the circuit cooling. A minimum of 6 cfm should be directed into the
temperature should not exceed	70 C	temperature should not exceed 70°C. be used to minimize power loss, corrosion of metal fittings,
Published value [1]	4 ohm	4 1.3 2.5 column resistance is above 4 megohms per 1000 plate
Published value [2]	1.3 ohm	4 1.3 2.5 column resistance is above 4 megohms per 1000 plate
Published value [3]	2.5 ohm	4 1.3 2.5 column resistance is above 4 megohms per 1000 plate
Published value [4]	4 ohm	4 1.3 2.5 column resistance is above 4 megohms per 1000 plate
Published value [5]	1000 ohm	4 1.3 2.5 column resistance is above 4 megohms per 1000 plate
Published value	5	5 or more. final layout if capacitance values are highly significant in

TUBE TINKER

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