



ELECTRONIC TUBE REFERENCE

3CV1500A7

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.

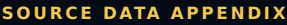
GENERAL CHARACTERISTICS

BASE DESIGNATION	—	BASE PINS	—
NOMINAL HEATER	5 V / 30 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	3500 V
MAXIMUM PLATE DISSIPATION	1500 W
MAXIMUM GRID DISSIPATION	45 W
Single triode section; promoted values mapped from printed General Characteristics and Maximum Ratings headings.	

The 3CV1500A7 is an integral-boiler, ceramic/metal, vapor cooled zero- bias triode, intended for Class AB2 linear amplifier service in either grid driven or cathode driven configuration. Except for the anode dissipation



SOURCE PDF

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

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
YS 8 8060 0000000000000000000000000000ϕ 5.0:+025 V	8 V	GeneralCharacteristics YS 8 8060 0000000000000000000000000000ϕ 5.0:+025 V
Current, at 5.0 volts	5 volts	GeneralCharacteristics Current, at 5.0 volts t i vttt i it it anenas 30 A
Amplification Factor (average)	200	GeneralCharacteristics Amplification Factor (average) o vvvvveoonns 200
05 32.0 pF	5 pF	GeneralCharacteristics 05 32.0 pF
(6 L1 S T I I R R R 0.15 pF	6 pF	GeneralCharacteristics (6 L1 S T I I R R R 0.15 pF
) 5 050008 a 00000 a00800063080000003053800053a300800000000 14.0 pF	5 a	GeneralCharacteristics) 5 050008 a 00000 a00800063080000003053800053a300800000000 14.0 pF
(05 1 R S S S 0 G B S S S S B S S S S S s 32.0 pF	5 pF	GeneralCharacteristics (05 1 R S S S 0 G B S S S S B S S S S S s 32.0 pF
0 14.0 pF	0 pF	GeneralCharacteristics 0 14.0 pF
] 0.15 pF	0.15 pF	GeneralCharacteristics] 0.15 pF
CW ittt ittt ittt ses st snsoonesssasoonasnsassssnons 220 MHz	220 MHZ	GeneralCharacteristics CW ittt ittt ittt ses st snsoonesssasoonasnsassssnons 220 MHz
2. Capacitance values are for a cold tube, as measured in a shielded fixture in accordance with Electronic Industries	2 a	GeneralCharacteristics 2. Capacitance values are for a cold tube, as measured in a shielded fixture in accordance with Electronic Industries

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
N R i L A R R N R R R 2.38 1b; 1.08 kg	2.38 A	N R i L A R R N R R R 2.38 1b; 1.08 kg

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Ceramic/metal SEALS « v v v v vttt vttt vttt ensestononnnssarsanansoes 250°C	250 v	Ceramic/metal SEALS « v v v v vttt vttt vttt ensestononnnssarsanansoes 250°C
Recommended Socket. . « v v v v vttt vttt i s sttt e st e EIMAC SK-861	861 v	Recommended Socket. . « v v v v vttt vttt i s sttt e st e EIMAC SK-861
(Effective 6-15-71) © by Varian Printed in U.S.A	6 A	(Effective 6-15-71) © by Varian Printed in U.S.A.
DC PLATEVOLTAGE	3500 VOLTS	MaximumRatings DC PLATEVOLTAGE 3500 VOLTS Zero-Signal Plate Current 238 305 129 mAdc
DCPLATE CURRENT	1 AMPERE	MaximumRatings DCPLATE CURRENT 1.0 AMPERE Single Tone Plate Current 875 800 857 mAdc
PLATE DISSIPATION	1500 WATTS	MaximumRatings PLATE DISSIPATION 1500 WATTS Two-Tone Plate Current 600 585 590 mAdc
GRID DISSIPATION	45 WATTS	MaximumRatings GRID DISSIPATION 45 WATTS Single-Tone Grid Current3. . . . 230 205 225 mAdc
Peak rf Drive Voltage3	80 v	MaximumRatings Peak rf Drive Voltage3. 80 74 110 v
Peak Driving Power	80 w	MaximumRatings Peak Driving Power 80 60 100 w
1. Adjust to specified zero- signal dc plate current. Plate Dissipation	1 W	MaximumRatings 1. Adjust to specified zero- signal dc plate current. Plate Dissipation 800 830 940 W
Usefu! Output Power	940 W	MaximumRatings Usefu! Output Power 940 1170 2060 W
DC PLATE VOLTAGE!	3500 VOLTS	MaximumRatings DC PLATE VOLTAGE!. 3500 VOLTS Max. Signal Plate Current ., ... 2.0 2.0 Adc
DC PLATECURRENT	1 AMPERE	MaximumRatings DC PLATECURRENT 1.0 AMPERE Max. Signal Grid Current2. 590 480 mAdc
PLATE DISSIPATION	1500 WATTS	MaximumRatings PLATE DISSIPATION 1500 WATTS Peak af Grid Voltage3. 95 90 v
GRID DISSIPATION	45 WATTS	MaximumRatings GRID DISSIPATION 45 WATTS Peak Driving Powerd 25 44 w
Plate Input Power	4000 W	MaximumRatings Plate Input Power 4000 5000 W

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
1. See zero-bias operation in Application Section. Max. Signal Plate Dissipation	1 W	MaximumRatings 1. See zero-bias operation in Application Section. Max. Signal Plate Dissipation 1650 1900 W
2. Approximate value. Plate Output Power	2 W	MaximumRatings 2. Approximate value. Plate Output Power 2350 3100 W
Heater: Current at 5.0 volts	5 volts	NOTE: TYPICAL OPERATION data are obtained by measurement or calculation from published characteristic curves. Heater: Current at 5.0 volts et eeee... 280 33.0A
ctetieeaaes 29.0 350 pF	29 pF	NOTE: TYPICAL OPERATION data are obtained by measurement or calculation from published characteristic curves. ctetieeaaes 29.0 350 pF
751 ceersaees. 120 16.0 pF	751 pF	NOTE: TYPICAL OPERATION data are obtained by measurement or calculation from published characteristic curves. 751 ceersaees. 120 16.0 pF
0.2 pF	0.2 pF	NOTE: TYPICAL OPERATION data are obtained by measurement or calculation from published characteristic curves. 0.2 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 measurement or calculation from published characteristic curves. 1. Capacitance values are for a cold tube as measured in a special shielded fixture in accordance with Electronic In-
anode surface, to be converted into steam and 2500 volts since plate dissipation may be exceed	2500 volts	anode surface, to be converted into steam and 2500 volts since plate dissipation may be exceed-
keeps the anode surface at approximately 100°C. as mentioned above under “Class-C Operation”	100 °C	keeps the anode surface at approximately 100°C. as mentioned above under “Class-C Operation”
the correct level, as shown on the outline drawing is, of course, permissible up to 3500 volts where	3500 volts	the correct level, as shown on the outline drawing is, of course, permissible up to 3500 volts where
level. A condenser unit is used to convert the 1500 watts attainable through vapor cooling pro	1500 A	level. A condenser unit is used to convert the 1500 watts attainable through vapor cooling pro-
electrode voltages, including the filament, and column resistance is above 100,000 ohms per	100000 ohms	electrode voltages, including the filament, and column resistance is above 100,000 ohms per

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
may be removed simultaneously with the removal 1000 supply volts. It is essential that high purity	1000 volts	may be removed simultaneously with the removal 1000 supply volts. It is essential that high purity
ionized water will have a resistance of 1 to 2	1 a	ionized water will have a resistance of 1 to 2
resistivity falls to 50,000 ohms cm3	50000 ohms	resistivity falls to 50,000 ohms cm3.
3CV1500A7 is 5.0 volts. Filament voltage, as	3 volts	3CV1500A7 is 5.0 volts. Filament voltage, as
lowed to deviate from 5.0 volts by more than plus	5 volts	lowed to deviate from 5.0 volts by more than plus
tissue is dependent on frequency. Under 30 MHz, factors being equal, controlling internal tube	30 MHz	tissue is dependent on frequency. Under 30 MHz, factors being equal, controlling internal tube
quencies as low as the 13 and 27 MHz bands. cordance with Standard RS-191	13 MHz	quencies as low as the 13 and 27 MHz bands. cordance with Standard RS-191.
W -- [-- 1o03mB [--	3 W	W -- [-- 1o03mB [-- -- 953



SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1965 Eimac Tube Manual

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

1965 EIMAC TUBE MANUAL

Section 1 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
bias triode, intended for Class A8	2	bias triode, intended for Class A82 linear amplifier service in either grid
Voltage.....I [1]	5 V	Voltage.....I..... 5.0 ± 0.25 V
Voltage.....I [2]	0.25 V	Voltage.....I..... 5.0 ± 0.25 V
Current, at [1]	5 A	Current, at 5.0 volts 30A
Current, at [2]	30 A	Current, at 5.0 volts 30A

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Direct Interelectrode Capacitances (grounded filament)	2 pF	Direct Interelectrode Capacitances (grounded filament) 2
Direct Interelectrode Capacitances (grounded grid)	2 pF	Direct Interelectrode Capacitances (grounded grid) 2
Published value	2 pF	2. Capacitance values are for a cold tube, as measured in a shielded fixture in accordance with Electronic Industries
Ceramic/metal seals	250	Ceramic/metal seals 250OC
RADIO FREQUENCY LINEAR AMPLIFIER TYPICAL OPERATION (Frequencies to	30 MHz	RADIO FREQUENCY LINEAR AMPLIFIER TYPICAL OPERATION (Frequencies to 30 MHz)
CATHODE DRIVEN Class A8 [1]	2	CATHODE DRIVEN Class A82 Class A82 Peak Envelope or Modulation Crest Conditions
CATHODE DRIVEN Class A8 [2]	2	CATHODE DRIVEN Class A82 Class A82 Peak Envelope or Modulation Crest Conditions
DC PLATE VOLTAGE [1]	3500 V	DC PLATE VOLTAGE 3500 VOLTS Zero-Signal Plate Current . 238
DC PLATE VOLTAGE [2]	238 V	DC PLATE VOLTAGE 3500 VOLTS Zero-Signal Plate Current . 238
DC PLATE CUF}PIENT [1]	1 A	DC PLATE CUF}PIENT 1.0 AMPERE Single Tone plate Current . 875
DC PLATE CUF}PIENT [2]	875 A	DC PLATE CUF}PIENT 1.0 AMPERE Single Tone plate Current . 875
PLATE DISSIPATION [1]	1500 A	PLATE DISSIPATION 1500 WATTS Two-Tone Plate Current . . 600
PLATE DISSIPATION [2]	600 A	PLATE DISSIPATION 1500 WATTS Two-Tone Plate Current . . 600
GRID DISSIPATION [1]	45 A	GRID DISSIPATION 45 WATTS Single-Tone Grid Current3. 230
GRID DISSIPATION [2]	230 A	GRID DISSIPATION 45 WATTS Single-Tone Grid Current3. 230
Two-Tone Grid Current3	130 A	Two-Tone Grid Current3. . . 130
Peak rf Drive Voltage3	80 V	Peak rf Drive Voltage3. . . 80
Peak Driving Power	80 W	Peak Driving Power 80
Published value [1]	1 A	1. Adjust to specif ied zero-signal dc plate current. Plate Dissipation 800
Published value [2]	800 A	1. Adjust to specif ied zero-signal dc plate current. Plate Dissipation 800
Useful Output Power ...,	940 W	Useful Output Power ..., 940

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
MODULATOR Class A8	2	MODULATOR Class A82, Grid Driven(Sinusoidal Wave)
DC PLATE VOLTAGE1	3500 V	DC PLATE VOLTAGE1 . 3500 VOLTS Max. Signal Plate Current
DC PLATE CURRENT	1 mA	DC PLATE CURRENT . 1.0 AMPERES Max. Signal Grid Current2
PLATE DISSIPATION	1500 W	PLATE DISSIPATION . 1500 WATTS Peak at Grid Voltage
GRID DISSIPATION	45 W	GRID DISSIPATION . 45 WATTS Peak Driving Power4
Published value	1 W	1. See zero-bias operation in Application Section. Max. Signal Plate Dissipation . .
Published value	4 W	4. Nominal drive power is one-half peak power.
(plate to plate) [1]	1900	(plate to plate) 1900 2580 a a
(plate to plate) [2]	2580	(plate to plate) 1900 2580 a a
Heater: Current at [1]	5 A	Heater: Current at 5.0 volts 28.0 33.0 A
Heater: Current at [2]	28 A	Heater: Current at 5.0 volts 28.0 33.0 A
Heater: Current at [3]	33 A	Heater: Current at 5.0 volts 28.0 33.0 A
Cathode Warmup Time	5	Cathode Warmup Time 5 --- sec®
Interelectrode Capacitance	1 pF	Interelectrode Capacitance 1 (grounded grid connection)
Published value	1 pF	1. Capacitance values are for a cold tube as measured in a special shielded fixture in accordance with Electronic In-
the boiler. The use of the EIMAC socket SK	861	the boiler. The use of the EIMAC socket SK-861 C amplifiers by employing only grid leak bias. If
anode surface, to be converted into steam and	2500 W	anode surface, to be converted into steam and 2500 volts since plate dissipation may be exceed-
keeps the anode surface at approximately	100	keeps the anode surface at approximately 100°C. as mentioned above under "Class-C Operation"
is not available at plate voltages above	2500 V	is not available at plate voltages above 2500
level. A condenser unit is used to convert the	1500	level. A condenser unit is used to convert the 1500 watts attainable through vapor cooling pro-
column resistance is above	100000	column resistance is above 100,000 ohms per
ionized water will have a resistance of [1]	1	ionized water will have a resistance of 1 to 2

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
ionized water will have a resistance of [2]	2	ionized water will have a resistance of 1 to 2
Published value [1]	3 V	3CV1500A7 is 5.0 volts. Filament voltage, as
Published value [2]	500 V	3CV1500A7 is 5.0 volts. Filament voltage, as
Published value [3]	5 V	3CV1500A7 is 5.0 volts. Filament voltage, as

TUBE TINKER

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