



ELECTRONIC TUBE REFERENCE

2C39A

Power - Triode electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION

CONSTRUCTION

TRIODE

High-mu ceramic-metal UHF transmitting triode for amplification, oscillation, and pulse service into the microwave region. Approximately 100 W plate dissipation and high transconductance support useful RF power at frequencies extending into the gigahertz range.

GENERAL CHARACTERISTICS

BASE DESIGNATION	—	BASE PINS	—
NOMINAL HEATER	6.3 V / 1 A	PARALLEL HEATER	— / —
HEATING	Indirect	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION1 Triode	
TRANSCONDUCTANCE	0.025 S
AMPLIFICATION FACTOR	100
MAXIMUM PLATE VOLTAGE	1000 V
MAXIMUM PLATE DISSIPATION	100 W
MAXIMUM GRID DISSIPATION	2 W
MAXIMUM CATHODE CURRENT	125 mA
<i>Promoted fields populated from published ratings/characteristics; additional published values retained in TUBE_SECTION_PARAMETER.</i>	

The RCA 2C39A is a forced-air-cooled uhf power triode. The supplied source provides transmitting, RF, or rectifier ratings appropriate to this device.



SOURCE OPERATING CONDITIONS

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1950 Eimac Tubes

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

1950 EIMAC TUBES

Section 1 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater Cu rrent	1	Heater Cu rrent 1.0 amperes
Grid -Cathode	6.5	Grid -Cathode 6.50
Pla te- Cathode [1]	0	Pla te- Cathode 0 .035
Pla te- Cathode [2]	35	Pla te- Cathode 0 .035
MAXIM UM RATIN G S D-C Plate Voltage	900 V	MAXIM UM RATIN G S D-C Plate Voltage - 900 Volts
D-C Cathode Cu rr ent	90	D-C Cathode Cu rr ent 90 Ma.
D-C PLATE VOLTAG E [1]	1000	D-C PLATE VOLTAG E - 1000 VO LTS - 22 Volts
D-C PLATE VOLTAG E [2]	22	D-C PLATE VOLTAG E - 1000 VO LTS - 22 Volts
D-C GRID VOLTAGE [1]	-150 V	D-C GRID VOLTAGE - -150 VOLTS 12 Wat ts
D-C GRID VOLTAGE [2]	12 V	D-C GRID VOLTAGE - -150 VOLTS 12 Wat ts
PEAK NEG ATIVE R-F G RID VOLTAGE	400 V	PEAK NEG ATIVE R-F G RID VOLTAGE - 400 VOLTS
PLATE DISSIPATIO N '	100	PLATE DISSIPATIO N ' 100 WATTS
D-C Plate Volta ge	800	D-C Plate Volta ge - 800 Volts ra dio fre qu e ncy rate . Usually suc h actio n



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1956 RCA Transmitting Tubes

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

1956 RCA TRANSMITTING TUBES

Section 1 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum Plate/Inverse Voltage	600 V	Source rating
Maximum Plate Dissipation	100 W	—

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum Full-Input Frequency	2500 MHz	—
Transconductance	22000 μ S	—



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1958 Amperex Industrial

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1958 AMPEREX INDUSTRIAL

Section 1 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage	800 V	RFAmplifierOrOscillator; ClassC; Telegraphy
Plate current	90 mA	RFAmplifierOrOscillator; ClassC; Telegraphy
Grid voltage	-40 V	RFAmplifierOrOscillator; ClassC; Telegraphy
Grid current	30 mA	RFAmplifierOrOscillator; ClassC; Telegraphy
Maximum frequency at full input rating	2500 MHz	—

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid-to-plate capacitance	2 pF	—
Grid-to-cathode capacitance	6.6 pF	—
Plate-to-cathode capacitance	0.035 pF	—

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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

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater Current	900 mA–1.05 A	—

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid-Cathode Capacitance	5.6–7 pF	—
Grid-Plate Capacitance	1.95–2.15 pF	—
Plate-Cathode Capacitance Maximum	0.035 pF	—

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Frequency for Maximum Ratings	2.5 GHz	—
Pulse Plate Voltage Maximum	3500 V	PlatePulsed
Pulse Plate Current Maximum	3 A	PlatePulsed
Pulse Cathode Current Maximum	4.8 A	PulseModulator
Typical CW Useful Output	40 W	Frequency=500MHz

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1963 Siemens

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

1963 SIEMENS

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater voltage	6.3 V	—
Heater current	1.025 A	—



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SOURCE OPERATING CONDITIONS

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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
The Eimac [1]	2	The Eimac 2C39A is a ceramic-metal high-mu planai. triode with a plate-
The Eimac [2]	9	The Eimac 2C39A is a ceramic-metal high-mu planai. triode with a plate-
frequency multiplier at frequencies to above	2500 MHz	frequency multiplier at frequencies to above 2500 megacycles. The new ceramic-metal
at seal temperatures up to	250	at seal temperatures up to 250°C, and longer life expectancy than its glass pi.ototypes.
deliver [1]	27 W	deliver 27 watts useful power output with 6 watts driving powei.. As an r-f oscillator
deliver [2]	6 W	deliver 27 watts useful power output with 6 watts driving powei.. As an r-f oscillator
at [1]	2500 MHz	at 2500 megacycles the 2C39A will deliver a minimum of 12 watts useful power output.
at [2]	2 MHz	at 2500 megacycles the 2C39A will deliver a minimum of 12 watts useful power output.
at [3]	9 MHz	at 2500 megacycles the 2C39A will deliver a minimum of 12 watts useful power output.
at [4]	12 MHz	at 2500 megacycles the 2C39A will deliver a minimum of 12 watts useful power output.

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater: Jot:::neg(T!::eeHipp i-ca+io;sn)	6.3	Heater: Jot:::neg(T!::eeHipp i-ca+io;sn) : : : : - 6.3 yol's
Current [1]	-950 mA	Current----- -0.95 I.10 amperes
Current [2]	10 A	Current----- -0.95 I.10 amperes



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1971 Machlette Laboratories

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

1971 MACHLETTE LABORATORIES

Section 1 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
frequency multiplier, or power amplifier in radio trans- is forced-air cooled and is capable of dissipating	100 W	frequency multiplier, or power amplifier in radio trans- is forced-air cooled and is capable of dissipating 100 watts.
mitting service from low frequency to above	2500 MHz	mitting service from low frequency to above 2500 Mc.
Heater Voltage	6.3 V	Heater Voltage 6.3 Voltst
Heater Current ac [1]	6.3 V	Heater Current ac 6.3 Volts 1.0 Amps
Heater Current ac [2]	1 V	Heater Current ac 6.3 Volts 1.0 Amps
Heater Heating Time, minimum (Before Applying Plate Voltage)	60 s	Heater Heating Time, minimum (Before Applying Plate Voltage) ... 60 Seconds
Amplification Factor	100	Amplification Factor 100
Maximum Incoming Air Temperature	45 mA	Maximum Incoming Air Temperature 45 °C
Maximum Anode Temperature ... e	175 mA	Maximum Anode Temperature ... e 175 °C
D-C Plate Voltage . T	1000 V	D-C Plate Voltage . T . 1000 wvolts
D-C Grid Voltage	150 V	D-C Grid Voltage ... 150 volts Maximum Ratings, Absolute Values

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
D-C Cathode Current . L [1]	125 V	D-C Cathode Current . L 125 mA D-C Plate Voltage* 600 volts
D-C Cathode Current . L [2]	600 V	D-C Cathode Current . L 125 mA D-C Plate Voltage* 600 volts



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1975 Eimac Tube Manual

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1975 EIMAC TUBE MANUAL

Section 1 · Triode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater Current Range	900 mA–1.05 A	—
Cathode Heating Time	60 s	—

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Input Capacitance	6.3 pF	—
Output Capacitance	0.035 pF	—
Grid-Plate Capacitance	1.98 pF	—

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Frequency Maximum	3 GHz	—
Pulse Plate Voltage Maximum	3500 V	PlatePulsed
Pulse Current Maximum	4.8 A	PulseModulator
Pulse Duration Maximum	6 us	—
Duty Factor Maximum	0.0033	—
Grid-Pulsed Plate Voltage Maximum	1000 V	—
Plate-Pulsed Peak Plate Voltage Maximum	3500 V	—

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Pulse Plate Current Maximum	3 A	—



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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
Heater Current Range	900 mA–1.05 A	—
Cathode Heating Time	60 s	—

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Input Capacitance	6.3 pF	—
Output Capacitance	0.035 pF	—
Grid-Plate Capacitance	1.98 pF	—

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Frequency Maximum	3 GHz	—
Pulse Plate Voltage Maximum	3500 V	PlatePulsed
Pulse Current Maximum	4.8 A	PulseModulator
Pulse Duration Maximum	6 us	—
Duty Factor Maximum	0.0033	—
Grid-Pulsed Plate Voltage Maximum	1000 V	—
Plate-Pulsed Peak Plate Voltage Maximum	3500 V	—
Pulse Plate Current Maximum	3 A	—

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1999 Philips 0-D

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

1999 PHILIPS 0-D

Section 1 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Cathode current $I_x = \max$	125 mA	Cathode current $I_x = \max$. 125 mA
Anode voltage $V_a = \max$	1000 V	Anode voltage $V_a = \max$. 1000 V
Anode dissipation $W_a = \max$	100 W	Anode dissipation $W_a = \max$. 100 W
Grid dissipation $W_g = \max$	2 W	Grid dissipation $W_g = \max$. 2 W

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Mutual conductance S	25 mA	Mutual conductance $S = 25 \text{ mA/V}$
Output power W_o	18 W	Output power $W_o = 18 \text{ W}$
Heater voltage V_h	6.3 V	Heater voltage $V_h = 6.3 \text{ V}$
Heater current $I_h = 0.95 \text{ to } 1$	1 A	Heater current $I_h = 0.95 \text{ to } 1 \text{ A}$
For pulsed operation,	6.3 V	. For pulsed operation, 6.3 V is normally required for preheating. For C.W.
Anode to grid $C_{ag} > 1.86 <$	2.16 pF	Anode to grid $C_{ag} > 1.86 < 2.16 \text{ pF}$
Anode to cathode $C_{ak} <$	0.035 pF	Anode to cathode $C_{ak} < 0.035 \text{ pF}$
Grid to cathode $C_{gk} > 5.6 <$	7.6 pF	Grid to cathode $C_{gk} > 5.6 < 7.6 \text{ pF}$

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