



ELECTRONIC TUBE REFERENCE

2C39WA

Power - Triode electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION

CONSTRUCTION

TRIODE

Ruggedized 2C39-family UHF transmitting triode for demanding military and professional equipment. Its high-transconductance ceramic-metal construction supports oscillator, multiplier, and power-amplifier operation into the microwave region while emphasizing resistance to severe service conditions.

GENERAL CHARACTERISTICS

BASE DESIGNATION	—	BASE PINS	—
NOMINAL HEATER	5.8 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
Promoted fields populated from published ratings/characteristics; additional published values retained in TUBE_SECTION_PARAMETER.	

Rugged ceramic/metal planar triode for CW/pulsed oscillator, amplifier, frequency multiplier, pulse modulator or regulator service to 3 GHz.



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

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



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
Heater: Voltage	5.8 V	Heater: Voltage - 5.8 Volts
Current (Ef= [1])	5.8 A	Current (Ef=5.8v) 0.87 I.03 ampere
Current (Ef= [2])	870 mA	Current (Ef=5.8v) 0.87 I.03 ampere
Current (Ef= [3])	3 A	Current (Ef=5.8v) 0.87 I.03 ampere
Frequency for Maximum Ratings	2500	Frequency for Maximum Ratings - 2500 mc
Gri d-Cathode [1]	5.6	Gri d-Cathode - - 5.6 7.6 uuf
Gri d-Cathode [2]	7.6	Gri d-Cathode - - 5.6 7.6 uuf
plate-Cathode	0.035	plate-Cathode - 0.035 uuf
Maximum Seal and Anode Core Temperature	2	Maximum Seal and Anode Core Temperature 2!f yJf) C
D-C PLATE VOLTAGE [1]	6 V	D-C PLATE VOLTAGE 6cO 1000 MAX. VOLTS
D-C PLATE VOLTAGE [2]	1000 V	D-C PLATE VOLTAGE 6cO 1000 MAX. VOLTS
D-C CATHODE CURRENT loo	125 mA	D-C CATHODE CURRENT loo 125 MA:X. NIA
D-C GRID VOLTAGE	-150 V	D-C GRID VOLTAGE - - -150 -i5O Aluex. vOLTs
D-C GRID CURRENT [1]	50 mA	D-C GRID CURRENT - 50 50 MAX. RA
D-C GRID CURRENT [2]	50 mA	D-C GRID CURRENT - 50 50 MAX. RA
INSTANTANEOUS PEAK POSITIVE GRID VOLTAGE [1]	50 V	INSTANTANEOUS PEAK POSITIVE GRID VOLTAGE 50 30 MAX. VOLTS
INSTANTANEOUS PEAK POSITIVE GRID VOLTAGE [2]	30 V	INSTANTANEOUS PEAK POSITIVE GRID VOLTAGE 50 30 MAX. VOLTS
EEiiE INSTANTANEOUS PEAK NEGATIVE GRID VOLTAGE [1]	400 V	EEiiE INSTANTANEOUS PEAK NEGATIVE GRID VOLTAGE 400 400 MAX. VOLTS
EEiiE INSTANTANEOUS PEAK NEGATIVE GRID VOLTAGE [2]	400 V	EEiiE INSTANTANEOUS PEAK NEGATIVE GRID VOLTAGE 400 400 MAX. VOLTS
PLATE DISSIPATloN (WITH [1])	12.5	PLATE DISSIPATloN (WITH 12.5 CFM AIR FLCW} - 70 loo RAX. WATTS
PLATE DISSIPATloN (WITH [2])	70	PLATE DISSIPATloN (WITH 12.5 CFM AIR FLCW} - 70 loo RAX. WATTS
GRID DISSIPATloN [1]	2	GRID DISSIPATloN - 2 2 New. w^FTs
GRID DISSIPATloN [2]	2	GRID DISSIPATloN - 2 2 New. w^FTs

SOURCE OPERATING CONDITIONS

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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
The ML [1]	2	The ML-2C39WA is a ruggedized high-mu triode of its low interelectrode capacitances and compact, rugged ring-
The ML [2]	9	The ML-2C39WA is a ruggedized high-mu triode of its low interelectrode capacitances and compact, rugged ring-
lator, frequency multiplier or power amplifier in radio trans- The ML [1]	2	lator, frequency multiplier or power amplifier in radio trans- The ML-2C39WA is the result of an intensive develop-
lator, frequency multiplier or power amplifier in radio trans- The ML [2]	9	lator, frequency multiplier or power amplifier in radio trans- The ML-2C39WA is the result of an intensive develop-
Heater Current (AC-or DC) at [1]	6 V	Heater Current (AC-or DC) at 6.0 Volts 1.0 Amp
Heater Current (AC-or DC) at [2]	1 V	Heater Current (AC-or DC) at 6.0 Volts 1.0 Amp
Heater Heating Time, minimum	60 s	Heater Heating Time, minimum 60 secs
Amplification Factor	100	Amplification Factor 100
Frequency for Maximum Ratings	2500 mA	Frequency for Maximum Ratings 2500 Mc
Maximum Anode Temperature	200 mA	Maximum Anode Temperature 200 °C
D-C Plate Voltage	1000 V	D-C Plate Voltage . . 1000 volts
D-C Grid Voltage	-150 V	D-C Grid Voltage ... —150 volts Maximum Ratings, Absolute Values
D-C Cathode Current ... mA D-C Plate Voltage*	600 V	D-C Cathode Current ... mA D-C Plate Voltage* .. 600 volts

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
D-C Grid Current\$ mA D-C Grid Voltage L	-150 V	D-C Grid Current\$ mA D-C Grid Voltage L —150 volts
Peak Positive R-F Grid-Cathode Voltage volts D-C Cathode Current	100 V	Peak Positive R-F Grid-Cathode Voltage volts D-C Cathode Current 100 mA
Peak Negative R-F Grid-Cathode Voltage volts D-C Grid Current\$... L	50 V	Peak Negative R-F Grid-Cathode Voltage volts D-C Grid Current\$... L 50 mA
Plate Dissipation (Forced-air Cooling) watts Peak Positive R-F Grid Voltage	30 W	Plate Dissipation (Forced-air Cooling) watts Peak Positive R-F Grid Voltage 30 volts
Grid Dissipation ... watts Peak Negative R-F Grid Voltage	-400 V	Grid Dissipation ... watts Peak Negative R-F Grid Voltage —400 volts
Plate Dissipation (Forced-air Cooling)	70 W	Plate Dissipation (Forced-air Cooling) 70 watts
Power Amplifier, Grid Separation Circuit ~	500 MHz	Power Amplifier, Grid Separation Circuit ~—500 Mc
D-C Plate Voltage	900 V	D-C Plate Voltage 900 volts
D-C Grid Voltage	-40 V	D-C Grid Voltage —40 volts
D-C Plate Current	90 mA	D-C Plate Current 90 mA
D-C Grid Current, Approximate	30 mA	D-C Grid Current, Approximate 30 mA
Useful Power Output	40 W	Useful Power Output 40 watts Min. Max.
Filament Current at [1]	6 V	Filament Current at 6.0 volts 0.90 1.05 amps
Filament Current at [2]	0.9 V	Filament Current at 6.0 volts 0.90 1.05 amps
Filament Current at [3]	1.05 V	Filament Current at 6.0 volts 0.90 1.05 amps
D-C Plate Voltage [1]	900 V	D-C Plate Voltage 900 volts Grid-Plate Capacitance (Note 2) 1.86 2.16 μ f
D-C Plate Voltage [2]	2 V	D-C Plate Voltage 900 volts Grid-Plate Capacitance (Note 2) 1.86 2.16 μ f
D-C Plate Voltage [3]	1.86 V	D-C Plate Voltage 900 volts Grid-Plate Capacitance (Note 2) 1.86 2.16 μ f
D-C Plate Voltage [4]	2.16 V	D-C Plate Voltage 900 volts Grid-Plate Capacitance (Note 2) 1.86 2.16 μ f
D-C Grid Voltage, Approximate [1]	-22 V	D-C Grid Voltage, Approximate —22 volts Grid-Cathode Capacitance (Note 2) 5.60 7.60 μ f

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
D-C Grid Voltage, Approximate [2]	2 V	D-C Grid Voltage, Approximate —22 volts Grid-Cathode Capacitance (Note 2) 5.60 7.60 upf
D-C Grid Voltage, Approximate [3]	5.6 V	D-C Grid Voltage, Approximate —22 volts Grid-Cathode Capacitance (Note 2) 5.60 7.60 upf
D-C Grid Voltage, Approximate [4]	7.6 V	D-C Grid Voltage, Approximate —22 volts Grid-Cathode Capacitance (Note 2) 5.60 7.60 upf
D-C Plate Current [1]	90 mA	D-C Plate Current . 90 mA Note 1 - Measured at 1 mA of plate current and a plate voltage
D-C Plate Current [2]	1 mA	D-C Plate Current . 90 mA Note 1 - Measured at 1 mA of plate current and a plate voltage
D-C Plate Current [3]	1 mA	D-C Plate Current . 90 mA Note 1 - Measured at 1 mA of plate current and a plate voltage
D-C Grid Current [1]	10 V	D-C Grid Current 10 mA of 600 volts.



SOURCE OPERATING CONDITIONS

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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	—
Pulse Plate Current Maximum	3 A	—
Pulse Grid Current Maximum	1.8 A	—



SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

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1976 Eimac Tube Manual

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

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	—
Pulse Grid Current Maximum	1.8 A	—

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