



ELECTRONIC TUBE REFERENCE

838

Power - Triode electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION

CONSTRUCTION

TRIODE

High-mu zero-bias power triode for Class B audio amplification and RF oscillator or power-amplifier service. Its high amplification factor, roughly 100 W plate dissipation, and kilovolt operation provide strong gain in audio and transmitting stages.

GENERAL CHARACTERISTICS

BASE DESIGNATION	—	BASE PINS	4
NOMINAL HEATER	10 V / 3.25 A	PARALLEL HEATER	— / —
HEATING	Direct	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION 1 Triode	
PLATE RESISTANCE	12500 Ω
TRANSCONDUCTANCE	0.008 S
AMPLIFICATION FACTOR	100
MAXIMUM PLATE VOLTAGE	1250 V
MAXIMUM PLATE DISSIPATION	100 W
MAXIMUM CATHODE CURRENT	175 mA
<i>Maximum ratings and characteristic constants promoted where reliably published in the approved sheet.</i>	

Zero-bias Class-B AF power amplifier and RF oscillator/power-amplifier triode.

SOURCE OPERATING CONDITIONS

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1938 RCA Transmitting Tubes

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

1938 RCA TRANSMITTING TUBES

Section 1 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
megacycles. The maximum plate dissipation of the RCA-838 is	100 W	megacycles. The maximum plate dissipation of the RCA-838 is 100 watts for
D-C Plate Voltage	1250 V	D-C Plate Voltage -- 1250 max. Volts
D-C Plate Voltage. 1000	1250 V	D-C Plate Voltage. 1000 1250 Volts
D-C Plate Voltage	1250 V	D-C Plate Voltage .. 1250 max. Volts
Plate Dissipation	100 W	Plate Dissipation . 100 max. Watts
D-C Plate Voltage 1000	1250 V	D-C Plate Voltage 1000 1250 Volts
Peak R-F Grid Voltage -. . . 70	60 V	Peak R-F Grid Voltage -. . . 70 60 Volts
D-C Grid Current (Approx.) 15	15 mA	D-C Grid Current (Approx.) 15 15 Milliamperes
D-C Plate Voltage	1000 V	D-C Plate Voltage ... 1000 max. Volts
D-C Plate Current	175 mA	D-C Plate Current.-. 175 max. Milliamperes
Plate Dissipation	67 W	Plate Dissipation ... 67 max. Watts
D-C Plate Voltage . 750	1000 V	D-C Plate Voltage . 750 1000 Volts
Peak R-F Grid Voltage .. 220	255 V	Peak R-F Grid Voltage .. 220 255 Volts
D-C Plate Current .. 150	150 mA	D-C Plate Current .. 150 150 Milliamperes
Grid Resistor .. 1670	2250 Ω	Grid Resistor .. 1670 2250 Ohms
Driving Power (Approx.) . 14	16 W	Driving Power (Approx.) . 14 16 Watts
Power Output (Approx.) . 65	100 W	Power Output (Approx.) . 65 100 Watts
D-C Plate Voltage	1250 V	D-C Plate Voltage 1250 max. Volts
D-C Grid Voltage	-400 V	D-C Grid Voltage -400 max. Volts
D-C Plate Current	175 mA	D-C Plate Current 175 max. Milliamperes

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
D-C Grid Current	70 mA	D-C Grid Current . 70 max. Milliamperes
Plate Input	220 W	Plate Input .. 220 max. Watts
Plate Dissipation	100 W	Plate Dissipation 100 max. Watts
D-C Plate Voltage --- 750 1000	1250 V	D-C Plate Voltage --- 750 1000 1250 Volts
Peak R-F Grid Voltage . 190 195	200 V	Peak R-F Grid Voltage . 190 195 200 Volts
D-C Plate Current .. 150 150	150 mA	D-C Plate Current .. 150 150 150 Milliamperes
D-C Grid Current (Approx.) . 30 30	30 mA	D-C Grid Current (Approx.) . 30 30 30 Milliamperes
Grid Resistor ... 2670 2835	3000 Ω	Grid Resistor ... 2670 2835 3000 Ohms
Driving Power (Approx.) --- 6 6	6 W	Driving Power (Approx.) --- 6 6 6 Watts
Power Output (Approx.) - 65 100	130 W	Power Output (Approx.) - 65 100 130 Watts
voltage of	1250 V	voltage of 1250 volts, the exceptions are: grid-bias volt→
For high-frequency operation above	30 MHz	For high-frequency operation above 30 megacycles,



SOURCE OPERATING CONDITIONS

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1940 RCA

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1940 RCA

Section 1 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
This feature facilitates the design of class	8 A	This feature facilitates the design of class 8 amplifiers to give high output
ble of giving an output of	838 W	ble of giving an output of 260 watts with less than 5% distortion. The 838 may
ings for frequencies as high as	8 MHz	ings for frequencies as high as 30 Mc. The maximum plate dissipation for class 8

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
and class C telegraph services is	100 W	and class C telegraph services is 100 watts.
FILAMENT VOLTAGE (A.C. or D.C.)	10 V	FILAMENT VOLTAGE (A.C. or D.C.) 10.0 volts
FtLAMENT CURRENT	3.25 A	FtLAMENT CURRENT 3.25 Amperes
D-C PLATE VOLTAGE	1250 V	D-C PLATE VOLTAGE 1250 max. Volts
MAX.~SIGNAL D~C PLATE CURRENT¥	175 mA	MAX.~SIGNAL D~C PLATE CURRENT¥ 175 max. Milliamperes
MAX.~SIGNAL PLATE INPUT*	220 W	MAX.~SIGNAL PLATE INPUT* 220 max. watts
PLATE DISSIPATION*	100 W	PLATE DISSIPATION* 100 max. Watts
D-C Plate Voltage	1250 V	D-C Plate Voltage 1000 1250 Volts
0-C Grid voltage 00 [[volts	0 V	0-C Grid voltage 00 [[volts
Peak A-F Grid-to-Grid voltage	200 V	Peak A-F Grid-to-Grid voltage 200 200 volts
Zero-Sig. D-C Plate Current	148 mA	Zero-Sig. D-C Plate Current 106 148 Milliamperes
Max.-Sig. D-C Plate Current	320 mA	Max.-Sig. D-C Plate Current 320 320 Milliamperes
Max,~Sig. Driving Power (Approx	7.5 W	Max,~Sig. Driving Power (Approx 7 7.5 watts
Max.-Sig. Power Output (Approx.) #	260 W	Max.-Sig. Power Output (Approx.) # 200 260 watts
0-C PLATE VOLTAGE 1250 max. Volts	1250 V	0-C PLATE VOLTAGE 1250 max. Volts
D-C PLATE CURRENT	150 mA	D-C PLATE CURRENT 150 max. Milliamperes
PLATE {NPUT	150 W	PLATE {NPUT 150 max. Watts
PLATE DISSIPATION	100 W	PLATE DISSIPATION 100 max. Watts
D--C Plate voltage	1250 V	D--C Plate voltage 1000 1250 volts
D-C Grid vVolitage	0 V	D-C Grid vVolitage 00 0 0 Volts
Peak R-F Grid Voltage	60 V	Peak R-F Grid Voltage 70 60 volts
0-C Plate Current 130 106 Milliamperes	106 mA	0-C Plate Current 130 106 Milliamperes
D-C Grid current {Approx,) **	15 mA	D-C Grid current {Approx,) ** 15 15 Milliamperes
Driving Power (Approx,) o	6 W	Driving Power (Approx,) o 8 6 watts
Power Output (Approx.)	42.5 W	Power Output (Approx.) 40 42.5 watts

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
D-C PLATE VOLTAGE	1000 V	D-C PLATE VOLTAGE 1000 max. Volts
D-C GRID VOLTAGE ~	400 V	D-C GRID VOLTAGE ~400 max. Volts
D-C PLATE CURRENT	175 mA	D-C PLATE CURRENT 175 max. Milliamperes
0-C GRID CURRENT 70 max. Milliamperes	70 mA	0-C GRID CURRENT 70 max. Milliamperes
PLATE (INPUT	175 W	PLATE (INPUT 175 max, watts
PLATE DISSIPATION	67 W	PLATE DISSIPATION 67 max. Watts

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Load Resistance {Per tube)	2250 ohm	Load Resistance {Per tube) 1725 2250 ohms
Effective Load Resistance (Plate-to-plate)	9000 ohm	Effective Load Resistance (Plate-to-plate) 6900 9000 Ohms



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1945 United Electronics

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1945 UNITED ELECTRONICS

Section 1 · Triode

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Filament voltage	10 V	—
Filament current	3.25 A	—
Plate resistance	12500 ohm	—
Mutual conductance	8000 uS	—
Amplification factor	100	—

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum direct plate voltage	1250 V	—
Maximum plate dissipation	100 W	—

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum direct plate current	175 mA	—


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1950 General Electric Transmitting Types

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1950 GENERAL ELECTRIC TRANSMITTING TYPES

Section 1 · Triode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
HeaterOrFilamentVoltage	10 V	—
HeaterOrFilamentCurrent	3.25 A	—

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
FrequencyForMaximumRatings	30 MHz	—


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1956 RCA Transmitting Tubes

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1956 RCA TRANSMITTING TUBES

Section 1 · Triode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
HeaterOrFilamentVoltage	10 V	—
HeaterOrFilamentCurrent	3.25 A	—

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
MaximumOperatingFrequency	120 MHz	Reduced ratings may apply at upper frequencies


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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	1250 V	RFPowerAmplifier;ClassC
Plate current	160 mA	RFPowerAmplifier;ClassC
Power output	150 W	RFPowerAmplifier;ClassC
Control-grid voltage	-150 V	RFPowerAmplifier;ClassC
Grid current	26 mA	RFPowerAmplifier;ClassC
Maximum frequency at full input	30 MHz	RFPowerAmplifier

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid-to-plate capacitance	8 pF	Section1
Grid-to-filament capacitance	6.5 pF	Section1
Plate-to-filament capacitance	3 pF	Section1


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1963 Amperex Condensed

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1963 AMPEREX CONDENSED
Section 1 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage	1250 V	RFPowerAmplifier
Plate current	175 mA	RFPowerAmplifier
Power output	130 W	RFPowerAmplifier
Control-grid voltage	-90 V	RFPowerAmplifier
Grid current	30 mA	RFPowerAmplifier
Maximum frequency at full input	30 MHz	RFPowerAmplifier

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid-to-plate capacitance	8 pF	Section1
Grid-to-filament capacitance	6.5 pF	Section1
Plate-to-filament capacitance	3 pF	Section1

TUBE TINKER

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