

ELECTRONIC TUBE REFERENCE

12AT7

Voltage - Dual Triode (similar) electronic tube

CONSOLIDATED TECHNICAL DATA

2 SECTIONS

CONSTRUCTION

TRIODE-TRIODE

High-mu dual triode widely specified for RF and AF amplification, oscillators, and frequency-changing circuits, combining substantial transconductance with moderate plate resistance.

GENERAL CHARACTERISTICS

BASE DESIGNATION	9A	BASE PINS	9
NOMINAL HEATER	12.6 V / 150 mA	PARALLEL HEATER	6.3 V / 300 mA
HEATING	Indirect	SERIES OPERATION	Capable
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

9A - TERMINAL PINOUT

TERMINAL	SECTION	ELEMENT	STATUS
PIN1 – 2P	B	P – Plate (Anode)	CONNECTED
PIN2 – 2G1	B	G1 – Control Grid	CONNECTED
PIN3 – 2K	B	K – Cathode	CONNECTED
PIN4 – H	–	H – Heater	CONNECTED
PIN5 – H	–	H – Heater	CONNECTED
PIN6 – 1P	A	P – Plate (Anode)	CONNECTED
PIN7 – 1G1	A	G1 – Control Grid	CONNECTED
PIN8 – 1K	A	K – Cathode	CONNECTED
PIN9 – HCT	–	HCT – Heater Center Tap	CONNECTED

SECTION RATINGS

SECTION1 Triode	
PLATE RESISTANCE	10900 Ω
TRANSCONDUCTANCE	0.0055 S
AMPLIFICATION FACTOR	60
MAXIMUM PLATE VOLTAGE	300 V
MAXIMUM PLATE DISSIPATION	2.5 W
MAXIMUM CATHODE CURRENT	18 mA
<i>Each identical triode section.</i>	

SECTION2 Triode	
PLATE RESISTANCE	10900 Ω
TRANSCONDUCTANCE	0.0055 S
AMPLIFICATION FACTOR	60
MAXIMUM PLATE VOLTAGE	330 V
MAXIMUM PLATE DISSIPATION	2.5 W
<i>Published promoted values applied where semantically applicable; additional table values retained in section parameters.</i>	

Twin triode for oscillator and AF/RF amplifier service; source also designates ECC81.



SOURCE OPERATING CONDITIONS

1950 Sylvania

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

1950 SYLVANIA

Section 1 · Triode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Resistance	10900 ohm	—
Transconductance	5500 μ S	—
Amplification Factor	60	—

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum Plate Voltage	330 V	—
Maximum Plate Dissipation	2.8 W	—
Heater Voltage Series	12.6 V	—
Heater Current Series	150 mA	—
Heater Voltage Parallel	6.3 V	—



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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	250 V	Published table
Plate current	10 mA	Published table

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Transconductance	5500 μ S	Published table
Amplification factor	55	Published table
Heater/filament voltage	6.3 V	Published rating
Heater/filament current	300 mA	Published rating
Series heater voltage	12.6 V	SeriesHeater
Series heater current	150 mA	SeriesHeater



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1958 Brimar Radio Valve No 7

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1958 BRIMAR RADIO VALVE NO 7

Section 1 · Triode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater Voltage	12.6 V	—
Heater Current	150 mA	—
MaximumFrequencyAsFrequencyChanger	500 MHz	—



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1960 RCA Industrial and Communications Types

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1960 RCA INDUSTRIAL AND COMMUNICATIONS TYPES

Section 1 · Triode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
HeaterOrFilamentVoltage	12.6 V	—
HeaterOrFilamentCurrent	150 mA	—
FrequencyConverterMaximumFrequency	300 MHz	—



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1961 Ferranti Technical Handbook

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1961 FERRANTI TECHNICAL HANDBOOK

Section 1 · Triode

APPLICATION		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Application	RF amplifier / frequency changer	—

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum intended frequency	300 MHz	—



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1961 Tung Sol

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1961 TUNG SOL

Section 1 · Triode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Transconductance	5500 μ S	HigherCurrentOperatingPoint



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1963 Amperex Condensed

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1963 AMPEREX CONDENSED

Section 1 · Triode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater voltage	6.3 V	Published heater rating
Heater current	300 mA	Published heater rating
Amplification factor	55	VoltageAmplifier
Transconductance	5500 μ S	VoltageAmplifier
Series heater voltage	12.6 V	SeriesHeater

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage	250 V	VoltageAmplifier
Control-grid bias	-2 V	VoltageAmplifier
Plate current	10 mA	VoltageAmplifier



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1965 Sylvania Electronic Tubes Vol3

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1965 SYLVANIA ELECTRONIC TUBES VOL3

Section 1 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater voltage	12.6 V	—
Heater current	150 mA	—

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage	250 V	ClassA
Plate current	10 mA	ClassA

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate resistance	10900 ohm	ClassA
Transconductance	5500 uS	ClassA
Amplification factor	60	ClassA


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1965 Westinghouse Data Book

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1965 WESTINGHOUSE DATA BOOK

Section 1 · Triode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater Voltage	12.6 V	—
Heater Current	150 mA	—
Plate Current	3.7 mA	—
Plate Resistance	15000 ohm	—
Transconductance	4000 uS	—
Amplification Factor	60	—

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Voltage	100 V	EachUnit
Cathode Bias Resistance	270 ohm	EachUnit


SOURCE DATA APPENDIX

1966 Tung Sol Electronic Tubes 2 of 4

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1966 TUNG SOL ELECTRONIC TUBES 2 OF 4

Section 1 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage	250 V	ClassA;EachSection
Plate current	10 mA	ClassA;EachSection
Grid voltage	-12 V	ClassA;EachSection

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate resistance	10900 ohm	ClassA;EachSection
Transconductance	5500 uS	ClassA;EachSection
Amplification factor	60	ClassA;EachSection

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid-to-plate capacitance	1.7 pF	EachSection
Input capacitance	1.8 pF	EachSection



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1968 General Electric Co

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1968 GENERAL ELECTRIC CO

Section 1 · Triode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Voltage	250 V	EachSection
Amplification Factor	60	EachSection

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Resistance	10900 ohm	EachSection
Transconductance	5500 uS	EachSection


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1968 Mazda Belvu

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1968 MAZDA BELVU

Section 1 · Triode

APPLICATION		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Application	Oscillator_RF_AF_Amplifier text	—


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1971 RCA HB3 Binder 3 of 7

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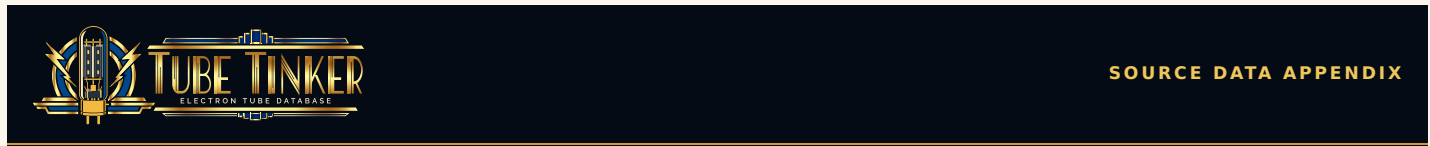
1971 RCA HB3 BINDER 3 OF 7

Section 1 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater voltage	6.3 V	Nominal
Heater current	300 mA	Nominal
Heater voltage series	12.6 V	Series
Heater current series	150 mA	Series
Heater voltage parallel	6.3 V	Parallel
Heater current parallel	300 mA	Parallel
Maximum plate voltage	330 V	Promoted published value

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum plate dissipation	2.8 W	Promoted published value

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate resistance	10900 ohm	Promoted published value



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1971 RCA HB3 Binder 5 of 7

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1971 RCA HB3 BINDER 5 OF 7

Section 1 · Triode

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater voltage series	12.6 V	SeriesHeater
Heater current series	150 mA	SeriesHeater
Heater voltage parallel	6.3 V	ParallelHeater
Heater current parallel	300 mA	ParallelHeater
Plate supply voltage	100 V	ClassA1;PublishedPoint1
Plate supply voltage	250 V	ClassA1;PublishedPoint2
Cathode-bias resistor	270 ohm	ClassA1;PublishedPoint1
Cathode-bias resistor	200 ohm	ClassA1;PublishedPoint2
Amplification factor	60	ClassA1

1971 RCA HB3 BINDER 5 OF 7

Section 2 · Triode

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater voltage series	12.6 V	SeriesHeater
Heater current series	150 mA	SeriesHeater
Heater voltage parallel	6.3 V	ParallelHeater
Heater current parallel	300 mA	ParallelHeater

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate supply voltage	100 V	ClassA1;PublishedPoint1
Plate supply voltage	250 V	ClassA1;PublishedPoint2
Cathode-bias resistor	270 ohm	ClassA1;PublishedPoint1
Cathode-bias resistor	200 ohm	ClassA1;PublishedPoint2
Amplification factor	60	ClassA1
Plate resistance	15000 ohm	ClassA1;PublishedPoint1
Plate resistance	10900 ohm	ClassA1;PublishedPoint2
Transconductance	4000 μ S	ClassA1;PublishedPoint1
Transconductance	5500 μ S	ClassA1;PublishedPoint2
Plate current	3.7 mA	ClassA1;PublishedPoint1
Plate current	10 mA	ClassA1;PublishedPoint2

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum plate voltage	300 V	ClassA1
Maximum plate dissipation	2.5 W	ClassA1
Maximum negative grid bias	50 V	ClassA1
Peak heater-cathode voltage	90 V	—

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid-to-plate capacitance	1.5 pF	GridDrive
Grid-to-cathode capacitance	2.2 pF	GridDrive
Plate-to-cathode capacitance	0.4 pF	GridDrive
Heater-to-cathode capacitance	2.4 pF	GridDrive





TUBE TINKER

ELECTRON TUBE DATABASE

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1975 RCA RC30

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

1975 RCA RC30

Section 1 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater Voltage (ac/dc) 12.6	6.3 V	Published in approved ECC81 target datasheet entry; Section1
Heater Current 0.15	300 mA	Published in approved ECC81 target datasheet entry; Section1

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid to Cathode and Heater (Each unit)	2.2 pF	Published in approved ECC81 target datasheet entry; Section1
Unit No.1	0.5 pF	Published in approved ECC81 target datasheet entry; Section1
Unit No.2	0.4 pF	Published in approved ECC81 target datasheet entry; Section1
Cathode to Plate (Each unit)	0.2 pF	Published in approved ECC81 target datasheet entry; Section1
Cathode to Grid and Heater (Each unit)	4.6 pF	Published in approved ECC81 target datasheet entry; Section1
Plate to Grid and Heater (Each unit)	1.8 pF	Published in approved ECC81 target datasheet entry; Section1



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2026 Genalex Rebrand

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2026 GENALEX REBRAND

Section 1 · Triode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Transconductance	4500–6500 μS	Plate 250 V; grid -2 V
Plate Current	9–12 mA	Plate 250 V; grid -2 V



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2026 JJ Electronic

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2026 JJ ELECTRONIC

Section 1 · Triode

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Ua	250 V	Published value
Ia	10 mA	Published value
Ug	-2 V	Published value
S	5500 μ S	Published value
μ	60	Published value
Ri	11 k Ω	Published value

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Ua	300 V	Published value
Wa	2.5 W	Published value
Ik	15 mA	Published value



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2026 Mullard Rebrand

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

2026 MULLARD REBRAND

Section 1 · Triode

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater current at 6.3 V	350–390 mA	Published min/max range

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater current at 12.6 V	175–195 mA	Published min/max range

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