

ELECTRONIC TUBE REFERENCE

6211

Voltage - Dual Triode (similar) electronic tube

CONSOLIDATED TECHNICAL DATA

2 SECTIONS

CONSTRUCTION

TRIODE-TRIODE

Medium-mu twin triode intended for voltage amplification and related electronic service, with two similar sections and published Class-A operating characteristics.

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	7500 Ω
TRANSCONDUCTANCE	0.0036 S
AMPLIFICATION FACTOR	27
MAXIMUM PLATE VOLTAGE	200 V
MAXIMUM PLATE DISSIPATION	1 W
MAXIMUM GRID DISSIPATION	0.01 W
MAXIMUM CATHODE CURRENT	16 mA
<i>Representative electrical row for repeated identical physical sections.</i>	

SECTION2 Triode	
PLATE RESISTANCE	7500 Ω
TRANSCONDUCTANCE	0.0036 S
AMPLIFICATION FACTOR	27
MAXIMUM PLATE VOLTAGE	200 V
MAXIMUM PLATE DISSIPATION	1 W
MAXIMUM CATHODE CURRENT	16 mA
<i>Second physical triode restored.</i>	

Miniature medium-mu twin triode designed for frequency-divider circuits in electronic computers and other on-off control applications involving long cutoff periods.



SOURCE OPERATING CONDITIONS

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1950 Sylvania

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

1950 SYLVANIA

Section 1 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Class A plate voltage	100 V	ClassA
Class A plate current	4.6 mA	ClassA



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1958 Mullard Receiving Tubes

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1958 MULLARD RECEIVING TUBES

Section 1 · Triode

APPLICATION		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Application	Industrial long-life amplifier	—

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater operation	Series or parallel	—



195X General Electric Essential Characteristics

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195X GENERAL ELECTRIC ESSENTIAL CHARACTERISTICS

Section 1 · Triode

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Input capacitance	2.9 pF	—
Output capacitance	0.54 pF	Section1
Grid-to-plate capacitance	2.22 pF	—
Output capacitance	0.462 pF	Section2

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage	100 V	ClassA
Cathode-bias resistor	470 ohm	ClassA
Plate current	4.6 mA	ClassA
Plate voltage	150 V	FrequencyHalter
Grid voltage	0 V	FrequencyHalter
Plate current	4.8 mA	FrequencyHalter
Input plate resistance	47000 ohm	FrequencyHalter
Anode load resistance	47000 ohm	FrequencyHalter
Output load resistance	20000 ohm	FrequencyHalter

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate resistance	7500 ohm	—
Transconductance	3600 uS	—
Amplification factor	27	—



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
Heater Voltage	6.3 V	—
Heater Current	300 mA	—
Application	Frequency divider	Computer



SOURCE DATA APPENDIX

1963 Amperex Condensed

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1963 AMPEREX CONDENSED

Section 1 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage	100 V	VoltageAmplifier;EachSection
Cathode resistor	470 Ω	VoltageAmplifier;EachSection
Plate current	4.6 mA	VoltageAmplifier;EachSection

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate resistance	7500 Ω	EachSection
Transconductance	3600 μS	EachSection
Amplification factor	27	EachSection



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1963 Mullard

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1963 MULLARD

Section 1 · Triode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
HeaterOrFilamentVoltage	6.3 V	—
HeaterOrFilamentCurrent	600 mA	—
Plate Voltage	100 V	—
Plate Current	4.6 mA	—
Transconductance	3600 μ S	—
Plate Resistance	7800 ohm	—
Amplification Factor	28	—



SOURCE OPERATING CONDITIONS

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1963 Philips Electron Tubes Handbook V1

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1963 PHILIPS ELECTRON TUBES HANDBOOK V1

Section 1 · Triode

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid capacitance	2.6 pF	EachSection
Plate capacitance	0.4 pF	EachSection
Grid-to-plate capacitance	2.5 pF	EachSection

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage	100 V	ComputerCircuit;EachSection
Cathode resistor	470 Ω	ComputerCircuit;EachSection
Plate current	4.6 mA	ComputerCircuit;EachSection
Application	Computer circuits with prolonged cutoff operation Section1	

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Transconductance	3600 μS	EachSection
Plate resistance	7800 Ω	EachSection
Amplification factor	28	EachSection
Life expectancy	5000 h	ComputerCircuit



SOURCE OPERATING CONDITIONS

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1963 Philips Electron Tubes Handbook V3

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1963 PHILIPS ELECTRON TUBES HANDBOOK V3

Section 1 · Triode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater voltage	6.3 V	Vf = 6.3 V 12.6V
Heater current	300 mA	If = 300 mA 150 mA
Plate voltage	85 V	Va = 85T V
Plate current	16 mA	Ia = 16 12-20 7.2 mA
Heater voltage	6.3 V	Vf = 6.3V Ra = 4.3 kQ
Load resistance	4.3 kohm	Vf = 6.3V Ra = 4.3 kQ
Plate supply voltage	150 V	Vba = 150 V Rg = 1.8 MC

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid capacitance	2.6 pF	$C_g = 2.6 \text{ } 2.1\text{-}3.1 \text{ pF}$ $C_{g'} = 2.6 \text{ } 2.1\text{-}3.1 \text{ pF}$
Plate capacitance	0.4 pF	$C_a = 0.4 \text{ } 0.25\text{-}0.55 \text{ pF}$ $C_{a'} = 0.35 \text{ } 0.23\text{-}0.47 \text{ pF}$
Grid-to-plate capacitance	2.5 pF	$C_{ag} = 2.5 \text{ } 2.0\text{-}3.0 \text{ pF}$ $C_{a'g'} = 2.5 \text{ } 2.0\text{-}3.0 \text{ pF}$
Cathode-heater capacitance	2.8 pF	$C_{kf} = 2.8 \text{ pF}$ $C_{k'f} = 2.8 \text{ pF}$
Heater voltage	6.3 V	$V_f 6.3 \text{ I I V}$
Heater current	300 mA	$I_f = 300 \text{ } 285\text{-}315 \text{ } 285\text{-}315 \text{ mA}$

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage	100 V	$V_a 100 \text{ V}$ $V_a = 150 \text{ V}$
Cathode resistor	470 ohm	$R_k = 470 \text{ } \Omega$ $V_g = -10 \text{ V}$
Plate current	4.6 mA	$I_a = 4.6 \text{ } 3.6\text{-}5.6 \text{ mA}$ $I_a = <100 \text{ } 100 \text{ } \mu\text{A}$
Transconductance	3.6 mA/V	$S = 3.6 \text{ } 2.7\text{-}4.5 \text{ } 1.6 \text{ mA/V}$
Plate voltage	100 V	$R_i = 7.8 \text{ k}\Omega$ $V_a = 100 \text{ V}$
Plate resistance	7.8 kohm	$R_i = 7.8 \text{ k}\Omega$ $V_a = 100 \text{ V}$
Amplification factor	28	$\mu = 28$ $V_g = -2 \text{ V}$
Heater voltage	12.6 V	$V_f = 12.6\text{V}\pm 5\%$
Transconductance	5 mA/V	S5



SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

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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

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater current series	150 mA	Series
Heater voltage parallel	6.3 V	Parallel
Heater current parallel	300 mA	Parallel
Maximum plate voltage	200 V	Promoted published value
Maximum plate dissipation	1 W	Promoted published value
Maximum cathode current	16 mA	Promoted published value
grid of unit No	0.06 mA	Direct Interelectrode Capacitances:°
Plate-Supply Vcltage	100 V	Characteristics, Class Ai Amplifier (Each Unit):
Cathode Resistor	470 ohm	Characteristics, Class Ai Amplifier (Each Unit):
Plate Resistance (Approx.)	7500 ohm	Characteristics, Class Ai Amplifier (Each Unit):
Transconductance	3600 uS	Characteristics, Class Ai Amplifier (Each Unit):
Plate Current	4.6 mA	Characteristics, Class Ai Amplifier (Each Unit):
of 150 volts and plate current of 100 μamp. . -8 volts	-8 V	Characteristics, Class Ai Amplifier (Each Unit):
PLATE VOLTAGE	200 V	Maximum Ratings, Absolute Values:
DC POSITIVE GRiD CURRENT	2 mA	Maximum Ratings, Absolute Values:
DC CATHODE CURRENT	16 mA	Maximum Ratings, Absolute Values:
PLATE DISSIPATION	1 W	Maximum Ratings, Absolute Values:
Heater negative with respect to cathode	180 V	Maximum Ratings, Absolute Values:
Heater positive with respect to cathode	180 V	Maximum Ratings, Absolute Values:
For cathode-bias operation	0.5 megohm	Maximum Ratings, Absolute Values:

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate resistance	7500 ohm	Promoted published value
Transconductance	3600 uS	Promoted published value
Amplification factor	27	Promoted published value
Voltage	5 V	—
Current	300 mA	—

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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
Anode current	4.6 mA	Typical per triode
Anode-grid capacitance	2.5 pF	Interelectrode
Grid capacitance	2.6 pF	Interelectrode