

ELECTRONIC TUBE REFERENCE

3A4

Power - Pentode Single (NOT beam) (under 10W) electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION
CONSTRUCTION
PENTODE

Directly heated power pentode for oscillator, Class-A audio, or Class-C RF power service. Series/parallel filament operation supports portable equipment, with documented output around one watt under suitable conditions.

GENERAL CHARACTERISTICS

BASE DESIGNATION	7B8	BASE PINS	7
NOMINAL HEATER	1.4 V / 200 mA	PARALLEL HEATER	1.4 V / 200 mA
HEATING	Direct	SERIES OPERATION	Capable
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION1 Pentode	
PLATE RESISTANCE	90000 Ω
TRANSCONDUCTANCE	0.0019 S
AMPLIFICATION FACTOR	190
MAXIMUM PLATE VOLTAGE	150 V
MAXIMUM SCREEN VOLTAGE	135 V
MAXIMUM PLATE DISSIPATION	2 W
MAXIMUM SCREEN DISSIPATION	0.9 W
MAXIMUM GRID DISSIPATION	0.00025 W
MAXIMUM CATHODE CURRENT	25 mA
Promoted maximum values include the most permissive published AF/RF rating where applicable.	

Power pentode for oscillator or Class A amplifier service, with series or parallel filament operation.



SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

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 · Pentode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum Plate/Inverse Voltage	135 V	Source rating
Maximum Plate Dissipation	1.5 W	—

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Parallel Filament Voltage	1.4 V	—
Parallel Filament Current	220 mA	—



SOURCE OPERATING CONDITIONS

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195X General Electric Essential Characteristics

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

195X GENERAL ELECTRIC ESSENTIAL CHARACTERISTICS

Section 1 · Pentode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum plate voltage	150 V	Published handbook rating
Maximum screen voltage	90 V	Published handbook rating
Plate voltage	150 V	ClassA
Screen voltage	90 V	ClassA

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Control-grid bias	8.4 V	ClassA
Plate current	13.3 mA	ClassA
Screen current	2.2 mA	ClassA
Load resistance	8000 ohm	ClassA
Power output	0.7 W	ClassA

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate resistance	100000 ohm	Published handbook characteristic
Transconductance	1900 μ S	Published handbook characteristic
Heater/filament voltage	2.8 V	Published heater/filament rating
Heater/filament current	100 mA	Published heater/filament rating


SOURCE DATA APPENDIX

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195X Raytheon Special Purpose Tubes

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

195X RAYTHEON SPECIAL PURPOSE TUBES

Section 1 · Pentode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Voltage	150 V	—
Grid 1 Voltage	-8.4 V	—
Grid 2 Voltage	90 V	—
Plate Current	13.3 mA	—
Grid 2 Current	2.2 mA	—
Output Power	0.7 W	—
Load Resistance	8000 ohm	—

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Resistance	0.1 Mohm	—

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Transconductance	1900 μ S	—


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1960 RCA Industrial and Communications Types

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

1960 RCA INDUSTRIAL AND COMMUNICATIONS TYPES

Section 1 · Pentode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
RF power output at 10 MHz	1.2 W	ClassC


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1961 Tung Sol

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

1961 TUNG SOL

Section 1 · Pentode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage	150 V	AFPowerAmplifier
Screen voltage	90 V	AFPowerAmplifier
Plate dissipation	2 W	—
Screen dissipation	0.9 W	RFPowerAmplifier
Plate voltage	150 V	ClassA
Load resistance	8000 ohm	ClassA
Maximum-signal power output	0.7 W	ClassA

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
RF power output	1.2 W	10MHz



1966 Tung Sol Electronic Tubes 1 of 4

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

1966 TUNG SOL ELECTRONIC TUBES 1 OF 4

Section 1 · Pentode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
FIER SERVICE THE	1.2 W	FIER SERVICE THE 3A4 WILL DELIVER A POWER OUTPUT OF ABOUT 1.2 WATTS AT
PLATE VOLTAGE	150 V	ClassA PLATE VOLTAGE 135 150 150 VOLTS
SCREEN VOLTAGE	135 V	ClassA SCREEN VOLTAGE 90 90 135 VOLTS
PEAK AF GRID VOLTAGE	4 V	ClassA PEAK AF GRID VOLTAGE 7.5 \$.4 VOLTS
ZERO-SIGNAL PLATE CURRENT	13.3 mA	ClassA ZERO-SIGNAL PLATE CURRENT 14.\$ 13.3 MA.
MA%IMU M-SIGNAL PLATE CURRENT	3 mA	ClassA MA%IMU M-SIGNAL PLATE CURRENT 14.9 14.1 1\$.3 MA.
GRID CURRENT	0.13 mA	ClassA GRID CURRENT --- --- 0.13 MA.
Filament voltage	2.8 V	SeriesFilament
Filament current	100 mA	SeriesFilament
Filament voltage	1.4 V	ParallelFilament
Filament current	200 mA	ParallelFilament

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
MAXIMUM PLATE VOI TA GE	150 V	MAXIMUM PLATE VOI TA GE 150 150 voLTs
MAXIMUM SCREEN VOLTAGE	135 V	MAXIMUM SCREEN VOLTAGE 90 135 voLTs
MAXIMUM GRID VOLTAGE	-30 V	MAXIMUM GRID VOLTAGE --- -30 voLTs
MAXIMUM PLATE CURtRENT	20 mA	MAXIMUM PLATE CURtRENT 20 Ma.
MAXIMUM GRID CURRENT	0.25 mA	MAXIMUM GRID CURRENT --- 0.25 Ma.

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
MAXIMUM TOTAL CATNODE CURRENT	25 mA	MAXIMUM TOTAL CATNODE CURRENT 18 25 MA.
MAXIMUM SCREEN DISSIPATION 0	9 W	MAXIMUM SCREEN DISSIPATION 0.4 0.9 WATT
MAXIMUM-SIGNAL SCREEN CURRENT	6.5 mA	ClassA MAXIMUM-SIGNAL SCREEN CURRENT 3.5 3.5 6.5 MA.
MAXIMUM-SIGNAL POWER OUTPUT 0	1 W	ClassA MAXIMUM-SIGNAL POWER OUTPUT 0.6 O.~ 1.ZIAPPRO%. 1 WATTS



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1968 Mazda Belvu

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

1968 MAZDA BELVU
Section 1 · Pentode

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater or filament voltage	1.4 V	Published nominal value
Heater or filament current	200 mA	Published nominal value
Transconductance	1900 μ S	Published operating characteristic

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum plate dissipation	2.2 W	Published maximum rating
Audio output power	0.7 W	ClassA; 150 V plate condition



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1971 RCA HB3 Binder 3 of 7

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

1971 RCA HB3 BINDER 3 OF 7

Section 1 · Pentode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum plate voltage	—150 V	—
Maximum screen voltage	—135 V	—
Maximum plate dissipation	—2 W	—
Maximum screen dissipation	—0.9 W	—
Maximum cathode current	—25 mA	—
AF plate voltage	135 V	ClassA
AF plate voltage	150 V	ClassA
AF screen voltage	90 V	ClassA
AF grid voltage	-7.5 V	ClassA
AF grid voltage	-8.4 V	ClassA
Zero-signal plate current	14.8 mA	ClassA
Zero-signal plate current	13.3 mA	ClassA
Zero-signal screen current	2.6 mA	ClassA
Load resistance	8000 Ω	ClassA
Maximum-signal power output	700 mW	ClassA
RF plate voltage	150 V	ClassC
RF screen voltage	135 V	ClassC
RF plate current	18.3 mA	ClassC
RF power output	1.2 W	ClassC

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate resistance	100000 Ω	—
Transconductance	1900 μ S	—

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid to Plate	0.34 pF	—
Input	4.8 pF	—
Output	4.2 pF	—



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and their source documents.

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