



ELECTRONIC TUBE REFERENCE

1F4

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

CONSOLIDATED TECHNICAL
DATA

1 SECTION
CONSTRUCTION
PENTODE

Directly heated power pentode for Class-A audio output in battery receivers using a 2 V filament.

GENERAL CHARACTERISTICS

BASE DESIGNATION	5K	BASE PINS	5
NOMINAL HEATER	2 V / 120 mA	PARALLEL HEATER	– / –
HEATING	Direct	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION 1 Pentode	
PLATE RESISTANCE	200000 Ω
TRANSCONDUCTANCE	0.0017 S
AMPLIFICATION FACTOR	340
MAXIMUM PLATE VOLTAGE	180 V
MAXIMUM SCREEN VOLTAGE	180 V
MAXIMUM PLATE DISSIPATION	1.75 W
MAXIMUM SCREEN DISSIPATION	0.75 W
MAXIMUM CATHODE CURRENT	11 mA
<i>Promoted characteristics use first listed Class A1 condition (90 V).</i>	

Directly heated power-amplifier pentode for Class A service.

SOURCE OPERATING CONDITIONS

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1937 Raytheon Radio Receiving Tubes

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

1937 RAYTHEON RADIO RECEIVING TUBES

Section 1 · Pentode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum Plate Voltage	135 V	Published ratings
Maximum Screen Voltage	135 V	Published ratings
Plate Voltage	20 V	ClassA; Column1
Plate Voltage	135 V	ClassA; Column2
Screen Voltage	90	ClassA; Column1
Screen Voltage	135	ClassA; Column2
Grid Bias	-3 V	ClassA; Column1
Grid Bias	-4.5 V	ClassA; Column2
Amplification Factor	340	ClassA; Column1
Amplification Factor	340	ClassA; Column2
Plate Resistance	0.24 Mohm	ClassA; Column1
Plate Resistance	0.2 Mohm	ClassA; Column2
Transconductance	1400 uS	ClassA; Column1
Transconductance	1700 uS	ClassA; Column2
Plate Current	4 mA	ClassA; Column1
Plate Current	8 mA	ClassA; Column2
Screen Current	1.3 mA	ClassA; Column1
Screen Current	2.6 mA	ClassA; Column2
Load Resistance	20000 ohm	ClassA; Column1
Load Resistance	16000 ohm	ClassA; Column2
Total Harmonic Distortion	5 %	ClassA; Column1
Total Harmonic Distortion	5 %	ClassA; Column2
Power Output	120 mW	ClassA; Column1

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Power Output	340 mW	ClassA; Column2



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1940 RCA

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1940 RCA

Section 1 · Pentode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
HeaterVoltageNominal	2 V	Nominal
HeaterCurrentNominal	120 mA	Nominal
Maximum Plate Voltage	135 V	—
Maximum Screen Voltage	135 V	—
Maximum Cathode Current	11 mA	—

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Transconductance	1700 μ S	Typical
Amplification Factor	340	Typical
Plate Resistance	200000 ohm	Typical



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1950 Sylvania

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1950 SYLVANIA

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Current	8 mA	ClassA; Plate 135 V
Power Output	0.31 W	ClassA
Power Output	1.25 W	ClassAB; PushPull; TwoTubes



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195X General Electric Essential Characteristics

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195X GENERAL ELECTRIC ESSENTIAL CHARACTERISTICS

Section 1 · Pentode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum plate voltage	180 V	—
Maximum screen-grid voltage	180 V	—
Plate voltage	135 V	ClassA
Screen-grid voltage	135 V	ClassA
Control-grid voltage	-4.5 V	ClassA
Plate current	5 mA	ClassA
Screen-grid current	2.4 mA	ClassA
Plate resistance	200000 Ohm	ClassA
Transconductance	1700 uS	ClassA
Load resistance	16000 Ohm	ClassA
Power output	0.31 W	ClassA
Plate voltage	90 V	ClassA 90V
Screen-grid voltage	90 V	ClassA 90V
Control-grid voltage	-3 V	ClassA 90V
Plate current	4 mA	ClassA 90V

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Screen-grid current	1.1 mA	ClassA 90V
Plate resistance	240000 Ohm	ClassA 90V
Transconductance	1400 uS	ClassA 90V



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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
Filament Voltage	2 V	Nominal
Filament Current	120 mA	Nominal
Plate Voltage	90 V	ClassA1;PlateVoltage=90V
Screen Voltage	90 V	ClassA1;PlateVoltage=90V
Control Grid Voltage	-3 V	ClassA1;PlateVoltage=90V
Plate Current	4 mA	ClassA1;PlateVoltage=90V
Screen Current	1.1 mA	ClassA1;PlateVoltage=90V
Load Resistance	20000 ohm	ClassA1;PlateVoltage=90V
Total Harmonic Distortion	6 %	ClassA1;PlateVoltage=90V
Power Output	0.11 W	ClassA1;PlateVoltage=90V
Plate Voltage	135 V	ClassA1;PlateVoltage=135V
Screen Voltage	135 V	ClassA1;PlateVoltage=135V
Control Grid Voltage	-4.5 V	ClassA1;PlateVoltage=135V
Plate Current	8 mA	ClassA1;PlateVoltage=135V
Screen Current	2.4 mA	ClassA1;PlateVoltage=135V
Load Resistance	16000 ohm	ClassA1;PlateVoltage=135V
Total Harmonic Distortion	5 %	ClassA1;PlateVoltage=135V
Power Output	0.31 W	ClassA1;PlateVoltage=135V

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Voltage	180 V	ClassAB1;PushPull;TwoTubes
Screen Voltage	180 V	ClassAB1;PushPull;TwoTubes
Control Grid Voltage	-7.5 V	ClassAB1;PushPull;TwoTubes
PeakAFSignalVoltageGridToGrid	15 V	ClassAB1;PushPull;TwoTubes
Zero Signal Plate Current	19 mA	ClassAB1;PushPull;TwoTubes
Zero Signal Screen Current	5.5 mA	ClassAB1;PushPull;TwoTubes
Maximum Signal Plate Current	21 mA	ClassAB1;PushPull;TwoTubes
Maximum Signal Screen Current	7 mA	ClassAB1;PushPull;TwoTubes
PlateToPlateLoadResistance	20000 ohm	ClassAB1;PushPull;TwoTubes
Total Harmonic Distortion	4.5 %	ClassAB1;PushPull;TwoTubes
Power Output	1.25 W	ClassAB1;PushPull;TwoTubes

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Resistance	240000 ohm	ClassA1;PlateVoltage=90V
Transconductance	1400 uS	ClassA1;PlateVoltage=90V
Plate Resistance	200000 ohm	ClassA1;PlateVoltage=135V
Transconductance	1700 uS	ClassA1;PlateVoltage=135V