



3S4

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POWER PENTODE

MINIATURE TYPE

GENERAL DATA

Electrical:

Filament, Coated:

Filament arrangement	Series*	Parallel**	
Voltage	2.8	1.4	volts
Current	0.05	0.1	amp

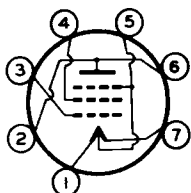
Direct Interelectrode Capacitances:^o

Grid No.1 to plate	0.3	μf
Grid No.1 to filament (mid-tap) & grid No.3, and grid No.2	4.8	μf
Plate to filament (mid-tap) & grid No.3, and grid No.2	4	μf

Mechanical:

Mounting Position	Any
Maximum Overall Length	2-1/8"
Maximum Seated Length	1-7/8"
Length, Base Seat to Bulb Top (Excluding tip)	1-1/2" $\pm$ 3/32"
Maximum Diameter	3/4"
Bulb	T-5-1/2
Base	Small-Button Miniature 7-Pin (JETEC No.E7-1)
Basing Designation for BOTTOM VIEW	7BA

Pin 1 - Filament
(-series)
Pin 2 - Plate
Pin 3 - Grid No.1
Pin 4 - Grid No.2



Pin 5 - Filament
Mid-Tap
(-parallel),
Grid No.3
Pin 6 - Plate
Pin 7 - Filament (+)

AMPLIFIER - Class A₁

Maximum Ratings, Design-Center Values:

	Series*	Parallel**	
PLATE VOLTAGE	90 max.	90 max.	volts
GRID-No.2 (SCREEN) VOLTAGE	67.5 max.	67.5 max.	volts
TOTAL MAXIMUM-SIGNAL CATHODE CURRENT	6 [#] max.	12 max.	ma
TOTAL ZERO-SIGNAL CATHODE CURRENT	4.5 [#] max.	9 max.	ma

Typical Operation and Characteristics:

	Series*	Parallel**	
Plate Voltage	67.5	90	volts
Grid-No.2 Voltage	67.5	67.5	volts

^o Without external shield.

* For each 1.4-volt filament section. For series operation of the sections, a shunting resistor must be connected across the section between pins No.1 and No.5 to bypass any cathode current in excess of the rated maximum per section. When other tubes in series filament arrangement contribute to the filament current of the 3S4, an additional shunting resistor may be required between pins No.1 and No.7.

*, **: See next page.

← indicates a change.

JAN. 3, 1955

TUBE DIVISION

DATA

RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

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POWER PENTODE

	Series*		Parallel**		
→ Grid-No.1 (Control-Grid)					
Voltage	-7	-7	-7	-7	volts
Peak AF Grid-No.1					
Voltage	7	7	7	7	volts
Zero-Sig. Plate Current . .	6	6.1	7.2	7.4	ma
Zero-Sig. Grid-No.2 Current .	1.2	1.1	1.5	1.4	ma
Plate Resistance (Approx.) .	0.1	0.1	0.1	0.1	megohm
Transconductance	1400	1425	1550	1575	μmhos
Load Resistance	5000	8000	5000	8000	ohms
Total Harmonic Distortion .	12	13	10	12	%
Max.-Sig. Power Output . . .	160	235	180	270	mW

→ **Maximum Circuit Values (For maximum rated conditions):**

Grid-No.1-Circuit Resistance:

For fixed-bias operation	2.2 max.	megohms
For cathode-bias operation	2.2 max.	megohms

→ **Typical Operation with Single Filament Section:***

Filament Voltage	1.4	volts
Filament Current	0.05	amp
Plate Voltage	90	volts
Grid-No.2 Voltage	67.5	volts
Grid-No.1 Voltage	-7	volts
Peak AF Grid-No.1 Voltage	7	volts
Zero-Signal Plate Current	3.7	ma
Zero-Signal Grid-No.2 Current	0.7	ma
Plate Resistance (Approx.)	0.2	megohm
Transconductance	800	μmhos
Load Resistance	16000	ohms
Total Harmonic Distortion	12	%
Maximum-Signal Power Output	145	mW

→ **Maximum Circuit Values (For maximum rated conditions):**

Grid-No.1-Circuit Resistance:

For fixed-bias operation	2.2 max.	megohms
For cathode-bias operation	2.2 max.	megohms

* Filament voltage applied across the two sections in series between pins No.1 and No.7. Grid-No.1 voltage is referred to pin No.1.

** Filament voltage applied across the two sections in parallel between pin No.5 and pins No.1 and No.7 connected together. Grid-No.1 voltage is referred to pin No.5.

• Either filament section may be operated singly with the other section floating. It is to be noted, however, that such operation may impair the emission capabilities of the unused section. Although in subsequent operation the unused section may be operated in series with the used section, it should not be operated singly.

Curves shown under Type 1S4 also apply to the 3S4 with the filaments connected in parallel

→ Indicates a change.