6F6

POWER PENTODE

METAL TYPE

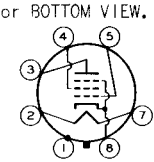
GENERAL DATA

Electrical:

Heater, for Unipotential Cathode:		
Voltage	6.3	ac or dc volts
Current	0.7	amp
Direct Interelectrode Capacitances (Approx.):		
Grid No.1 to plate	0.26	μμf ←
Grid No.1 to cathode & grid No.3, grid No.2, shell, and heater	6.5	μμf
Plate to cathode & grid No.3, grid No.2, shell, and heater	13.5	μμf

Mechanical:

Mounting Position	Any
Maximum Overall Length	3-1/4"
Maximum Seated Length	2-11/16"
Maximum Diameter	1-5/16"
Dimensional Outline	*See General Section*
Bulb	Metal Shell MT8B ←
Base	Small-Wafer Octal 7-Pin (JETEC No.B7-22) ←
Basing Designation for BOTTOM VIEW	7S



Pin 1 – Shell
Pin 2 – Heater
Pin 3 – Plate
Pin 4 – Grid No.2
Pin 5 – Grid No.1
Pin 7 – Heater
Pin 8 – Cathode, Grid No.3

AF POWER AMPLIFIER – Class A_1

Maximum Ratings, *Design-Center Values:*

PLATE VOLTAGE	375 max.	volts
GRID-No.2 (SCREEN-GRID) VOLTAGE	285 max.	volts
GRID-No.2 INPUT	3.75 max.	watts
PLATE DISSIPATION	11 max.	watts
PEAK HEATER-CATHODE VOLTAGE:		←
Heater negative with respect to cathode	90 max.	volts
Heater positive with respect to cathode	90 max.	volts

Typical Operation and Characteristics:

	Fixed Bias		*Cathode Bias*		
Plate Voltage	250	285	250	285	volts
Grid-No.2 Voltage	250	285	250	285	volts
Grid-No.1 (Control-Grid) Voltage	-16.5	-20	–	–	volts
Cathode Resistor	–	–	410	440	ohms
Peak AF Grid-No.1 Voltage	16.5	20	16.5	20	volts
Zero-Signal Plate Current	34	38	34	38	ma

← Indicates a change.

TUBE DIVISION
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

6F6

6F6

POWER PENTODE

	Fixed Bias		*Cathode Bias*		
Max.-Signal Plate Current	36	40	35	38	ma
Zero-Signal Grid-No.2 Current	6.5	7	6.5	7	ma
Max.-Signal Grid-No.2 Current	10.5	13	9.7	12	ma
Plate Resistance (Approx.)	80000	78000	–	–	ohms
Transconductance	2500	2550	–	–	μmhos
Load Resistance	7000	7000	7000	7000	ohms
Total Harmonic Distortion	8	9	8.5	9	%
Max.-Signal Power Output	3.2	4.8	3.1	4.5	watts

Maximum Circuit Values:

Grid-No.1-Circuit Resistance:

For fixed-bias operation	0.1 max.	megohm
For cathode-bias operation	0.5 max.	megohm

AF POWER AMPLIFIER - Class A_1

Triode Connection - Grid No.2 Connected to Plate

Maximum Ratings, *Design-Center Values:*

PLATE VOLTAGE	350 max.	volts
PLATE DISSIPATION	10 max.	watts
→ PEAK HEATER-CATHODE VOLTAGE:		
Heater negative with respect to cathode	90 max.	volts
Heater positive with respect to cathode	90 max.	volts

Typical Operation and Characteristics:

	Fixed Bias	*Cathode Bias*	
Plate Voltage	250	250	volts
Grid-No.1 (Control-Grid) Voltage	-20	–	volts
Cathode Resistor	–	650	ohms
Peak AF Grid-No.1 Voltage	20	20	volts
Zero-Signal Plate Current	31	31	ma
Max.-Signal Plate Current	34	32	ma
Amplification Factor	6.8	–	
Plate Resistance (Approx.)	2600	–	ohms
Transconductance	2600	–	μmhos
Load Resistance	4000	4000	ohms
Total Harmonic Distortion	6.5	6.5	%
Max.-Signal Power Output	0.85	0.8	watt

Maximum Circuit Values:

Grid-No.1-Circuit Resistance:

For fixed-bias operation	0.1 max.	megohm
For cathode-bias operation	0.5 max.	megohm

→ Indicates a change.

TUBE DIVISION
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

6F6

POWER PENTODE

PUSH-PULL AF POWER AMPLIFIER - Class A_1

Maximum Ratings, *Design-Center Values:*

PLATE VOLTAGE	375 max.	volts
GRID-No.2 (SCREEN-GRID) VOLTAGE	285 max.	volts
GRID-No.2 INPUT	3.75 max.	watts
PLATE DISSIPATION	11 max.	watts
PEAK HEATER-CATHODE VOLTAGE:		
Heater negative with respect to cathode	90 max.	volts
Heater positive with respect to cathode	90 max.	volts

Typical Operation:

Values are for 2 tubes

	Fixed Bias	*Cathode Bias*	
Plate Voltage	315	315	volts
Grid-No.2 Voltage	285	285	volts
Grid-No.1 Voltage	-24	-	volts
Cathode Resistor	-	320	ohms
Peak AF Grid-No.1-to-Grid-No.1 Voltage	48	58	volts
Zero-Signal Plate Current	62	62	ma
Max.-Signal Plate Current	80	73	ma
Zero-Signal Grid-No.2 Current	12	12	ma
Max.-Signal Grid-No.2 Current	19.5	18	ma
Effective Load Resistance (Plate to plate)	10000	10000	ohms
Total Harmonic Distortion	4	3	%
Max.-Signal Power Output	11	10.5	watts

Maximum Circuit Values:

Grid-No.1-Circuit Resistance:		
For fixed-bias operation	0.1 max.	megohm
For cathode-bias operation	0.5 max.	megohm

PUSH-PULL AF POWER AMPLIFIER - Class AB_2

Maximum Ratings, *Design-Center Values:*

PLATE VOLTAGE	375 max.	volts
GRID-No.2 (SCREEN-GRID) VOLTAGE	285 max.	volts
GRID-No.2 INPUT	3.75 max.	watts
PLATE DISSIPATION	11 max.	watts
PEAK HEATER-CATHODE VOLTAGE:		
Heater negative with respect to cathode	90 max.	volts
Heater positive with respect to cathode	90 max.	volts

Typical Operation:

Values are for 2 tubes

	Fixed Bias	*Cathode Bias*	
Plate Voltage	375	375	volts

← Indicates a change.

TUBE DIVISION
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

RCA

6F6

POWER PENTODE

	Fixed Bias	*Cathode Bias*	
Grid-No.2 Voltage.	250	250	volts
Grid-No.1 Voltage.	-26	-	volts
Cathode Resistor	-	340	ohms
Peak AF Grid-No.1-to-Grid-No.1 Voltage.	82	94	volts
Zero-Signal Plate Current. .	34	54	ma
Max.-Signal Plate Current. .	82	77	ma
Zero-Signal Grid-No.2 Current.	5	8	ma
Max.-Signal Grid-No.2 Current.	19.5	18	ma
Effective Load Resistance (Plate to plate)	10000	10000	ohms
Total Harmonic Distortion. .	3.5	5	%
Max.-Signal Power Output . .	18.5	19	watts

Maximum Circuit Values:

Grid-No.1-Circuit Resistance:		
For fixed-bias operation	0.1 max.	megohm
For cathode-bias operation	0.5 max.	megohm

PUSH-PULL AF POWER AMPLIFIER - Class AB_2

Triode Connection - Grid No.2 Connected to Plate

Maximum Ratings, *Design-Center Values:*

PLATE VOLTAGE.	350 max.	volts
PLATE DISSIPATION.	10 max.	watts
→ PEAK HEATER-CATHODE VOLTAGE:		
Heater negative with respect to cathode.	90 max.	volts
Heater positive with respect to cathode.	90 max.	volts

Typical Operation:

Values are for 2 tubes

	Fixed Bias	*Cathode Bias*	
Plate Voltage.	350	350	volts
Grid-No.1 (Control-Grid) Voltage.	-38	-	volts
Cathode Resistor	-	730	ohms
Peak AF Grid-No.1-to-Grid-No.1 Voltage.	123	132	volts
Zero-Signal Plate Current. .	48	50	ma
Max.-Signal Plate Current. .	92	60	ma
Effective Load Resistance (Plate to plate)	6000	10000	ohms
Total Harmonic Distortion. .	2	3	%
Max.-Signal Power Output . .	13	9	watts

Maximum Circuit Values:

Grid-No.1-Circuit Resistance:		
For fixed-bias operation	0.1 max.	megohm
For cathode-bias operation	0.5 max.	megohm

→ Indicates a change.

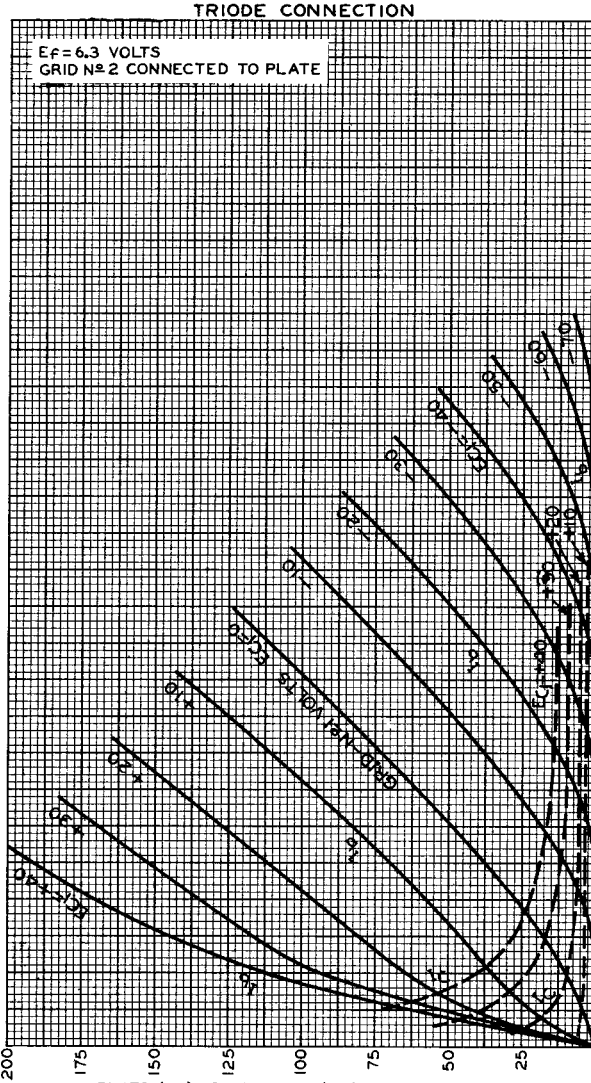
TUBE DIVISION
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

RCA
6F6
6F6
AVERAGE CHARACTERISTICS
PENTODE CONNECTION
Ef = 6.3 VOLTS
GRID-No2 VOLTS = 250
GRID-No1 (Ic1) MILLIAMPERES
20
10
0
500
400
300
200
100
0
PLATE VOLTS
-35
-30
-25
-20
-16.5
-15
-10
-5
GRID-No1 VOLTS Ec1=0
+10
Ec1=+10
Ec1=+20
Ec1=+30
Ib
Ic2
200
150
100
50
0
PLATE (Ib) MILLIAMPERES
TUBE DIVISION
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY
92CM-4431RI

6F6

6F6

AVERAGE CHARACTERISTICS
TRIODE CONNECTION



TUBE DIVISION
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

92CM-4440RI

RCA

6F6

OPERATION CHARACTERISTICS
PENTODE CONNECTION—CLASS AB_2 OPERATION

E_f = 6.3 VOLTS

INPUT STAGE: CLASS A_1 DRIVER—ONE TYPE 6F6 AS TRIODE.
PLATE-SUPPLY VOLTS = 250
CATHODE RESISTOR (OHMS) = 650

OUTPUT STAGE: CLASS AB_2—TWO TYPE 6F6'S AS PENTODES.
ZERO-SIGNAL PLATE VOLTS = 375 FROM SOURCE HAVING RESISTANCE (R_b) SHOWN IN TABLE.
ZERO-SIGNAL GRID-No.2 VOLTS = 250 FROM THE ABOVE 375-VOLT PLATE SUPPLY THROUGH RESISTANCE (R_b) SHOWN IN TABLE.
ZERO-SIGNAL BIAS VOLTS = VALUE FROM GRID RESISTOR (R_c) OF 340 OHMS.
EFFECTIVE LOAD RESISTANCE (PLATE TO PLATE) = 10000 OHMS

CONDITION	CURVE	R_b Ohms	R_d Ohms	DRIVER STAGE: Input-Sig. Volts* (RMS)	DRIVER STAGE: Plate Load Ohms	INTERSTAGE TRANSFORMER: Voltage Ratio Prim.: 1/2Sec.	INTERSTAGE TRANSFORMER: Peak Power Efficiency Per Cent
1	———	0	0	14.6	51100	2.50:1	47.7
2	– – –	1000	2000	10.3	33100	1.74:1	64.4

* For maximum output.