from RMA release #144,
Oct. 7, 1938

RCA-6SJ7, 6SK7

R-F AMPLIFIER PENTODES
Single-Ended Metal Type

The 6SJ7 and the 6SK7 are two new metal r-f amplifier pentodes featuring single-ended construction with interlead shielding. As a result of modern methods of tube manufacture, these new types not only have the same grid-plate capacitance as similar capped types, but also have lower values of input and output capacitance, and higher transconductance.

From a circuit standpoint, the single-ended construction offers distinct advantages in comparison with types previously available, as follows: (1) elimination of loose or broken grid leads, (2) wiring can be completed below the set panel, (3) neater appearance of the chassis, (4) more stable amplifier operation, (5) greater uniformity of gain in amplifiers, (6) higher gain per stage, (7) lowered cost, and (8) simplification of tube renewal.

The 6SJ7 has a sharp cut-off characteristic: the 6SK7 has a remote cut-off characteristic. Each type has a small wafer octal 8-pin base which fits the standard octal socket.

RCA-6SJ7

TENTATIVE CHARACTERISTICS and RATINGS

HEATER VOLTAGE (A.C. or D.C.)	6.3	Volts
HEATER CURRENT	0.3	Ampere
DIRECT INTERELECTRODE CAPACITANCES: °		
Grid to Plate	0.005 max.	μμf
Input	6.0	μμf
Output	7.0	μμf
MAXIMUM OVERALL LENGTH	2-5/8"	
MAXIMUM DIAMETER	1-5/16"	
BASE	Small Wafer Octal 8-Pin	

Amplifier - Class A

OPERATING CONDITIONS and CHARACTERISTICS:			
Heater Voltage *	6.3	6.3	Volts
Plate Voltage	100	250 max.	Volts
Screen Voltage	100 max.	100 max.	Volts
Grid Voltage	-3	-3	Volts
Suppressor	Connected to cathode at socket		
Plate Current	2.9	3.0	Milliamperes
Screen Current	0.9	0.8	Milliamperes
Amplification Factor (Approx.)	1100	2500	
Plate Resistance (Approx.)	0.7	1.5	Megohms
Transconductance	1575	1650	Micromhos

Pin Connections

Pin 1 - Shell	Pin 5 - Cathode
Pin 2 - Heater	Pin 6 - Screen
Pin 3 - Suppressor	Pin 7 - Heater
Pin 4 - Grid	Pin 8 - Plate

(Pin numbers are according to RMA system)

Mounting Position

Vertical or Horizontal - No restrictions

RCA-6SK7

TENTATIVE CHARACTERISTICS and RATINGS

HEATER VOLTAGE (A.C. or D.C.)	6.3	Volts
HEATER CURRENT	0.3	Ampere
DIRECT INTERELECTRODE CAPACITANCES: °		
Grid to Plate	0.005 max.	μμf
Input	6.0	μμf
Output	7.0	μμf
MAXIMUM OVERALL LENGTH	2-5/8"	
MAXIMUM DIAMETER	1-5/16"	
BASE	Small Wafer Octal 8-Pin	

°, *: See next page.

Amplifier - Class A

OPERATING CONDITIONS and CHARACTERISTICS:			
Heater Voltage *	6.3	6.3	Volts
Plate Voltage	100	250 max.	Volts
Screen Voltage	100 max.	100 max.	Volts
Grid Voltage	-3 min.	-3 min.	Volts
Suppressor	Connected to cathode at socket		
Plate Current	8.9	9.2	Milliamperes
Screen Current	2.6	2.4	Milliamperes
Amplification Factor (Approx.)	475	1600	
Plate Resistance (Approx.)	0.25	0.8	Megohm
Transconductance	1900	2000	Micromhos
Grid Voltage for Transconductance = 10 micromhos	-	-35	Volts

Pin Connections

Pin 1 - Shell	Pin 5 - Cathode
Pin 2 - Heater	Pin 6 - Screen
Pin 3 - Suppressor	Pin 7 - Heater
Pin 4 - Grid	Pin 8 - Plate

(Pin numbers are according to RMA system)

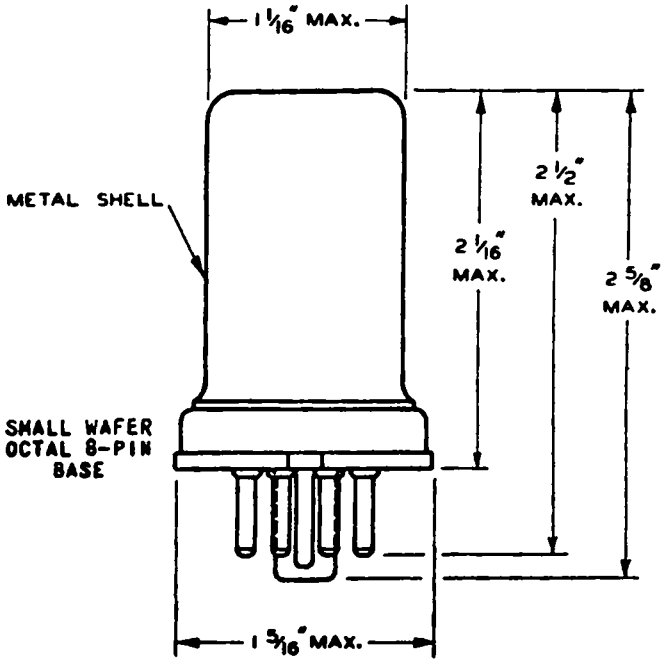
Mounting Position

Vertical or Horizontal - No restrictions

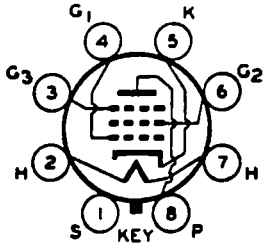
° With shell connected to cathode.

* In circuits where the cathode is not directly connected to the heater, the potential difference between heater and cathode should be kept as low as possible.

OUTLINE DRAWING FOR 6SJ7 and 6SK7



BOTTOM VIEW OF SOCKET CONNECTIONS FOR 6SJ7 and 6SK7

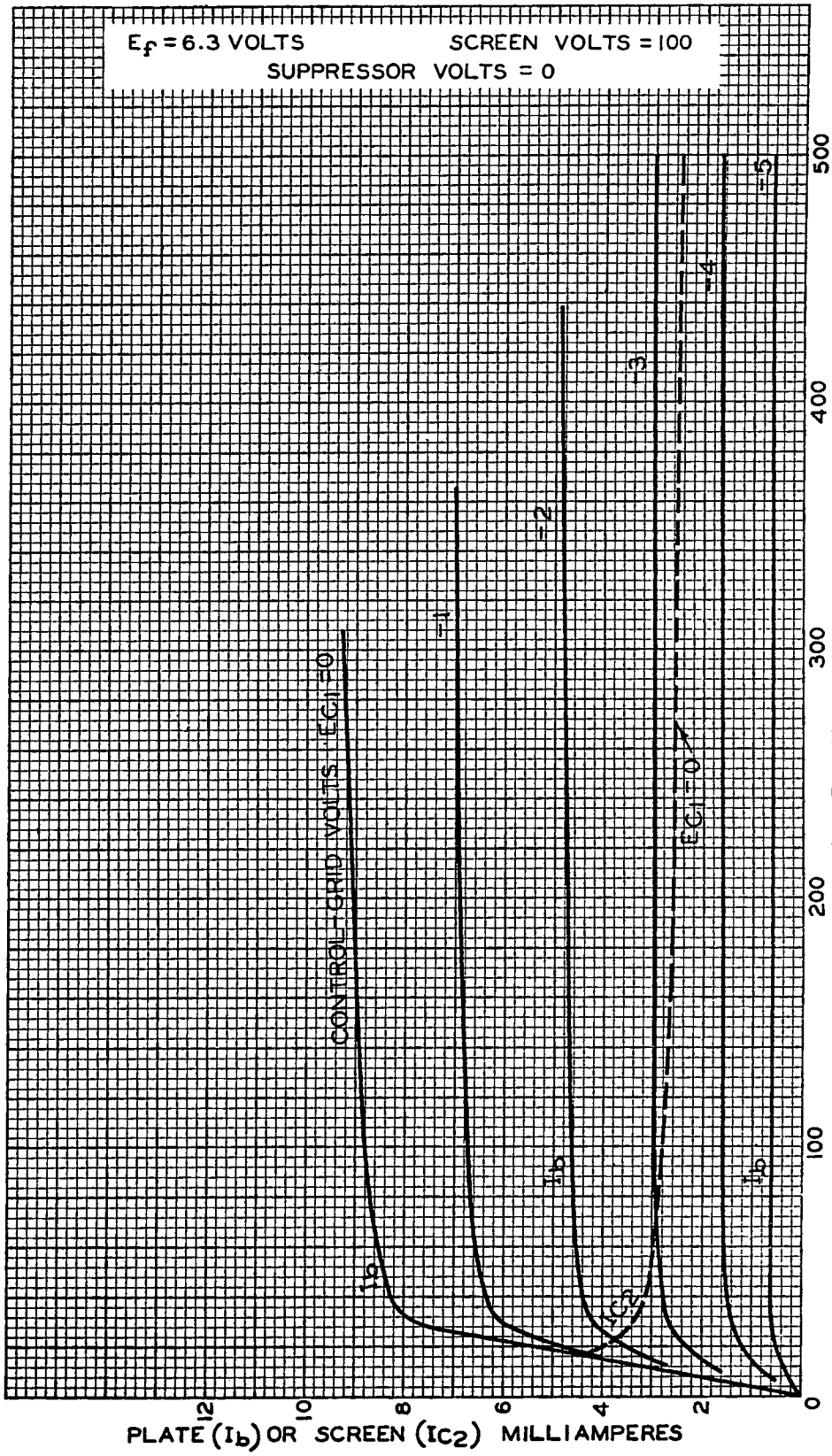


8N

G_1 = GRID
G_2 = SCREEN
G_3 = SUPPRESSOR
H = HEATER
K = CATHODE
P = PLATE
S = SHELL

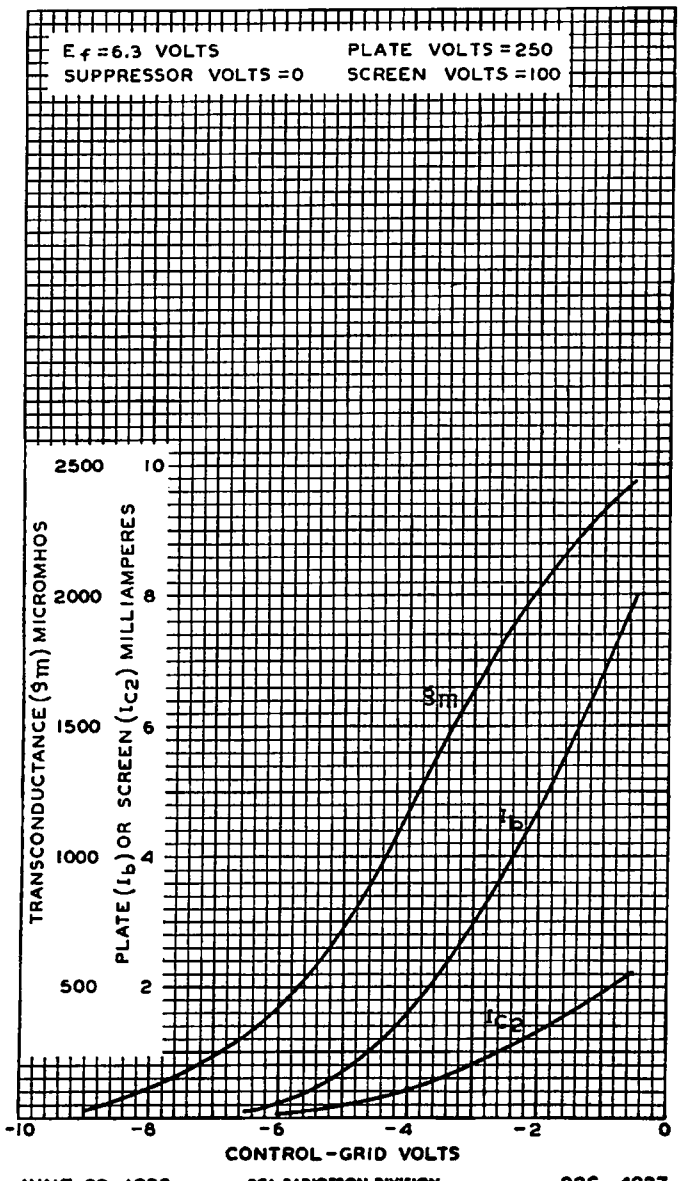
6SJ7

AVERAGE PLATE CHARACTERISTICS



6SJ7

AVERAGE CHARACTERISTICS



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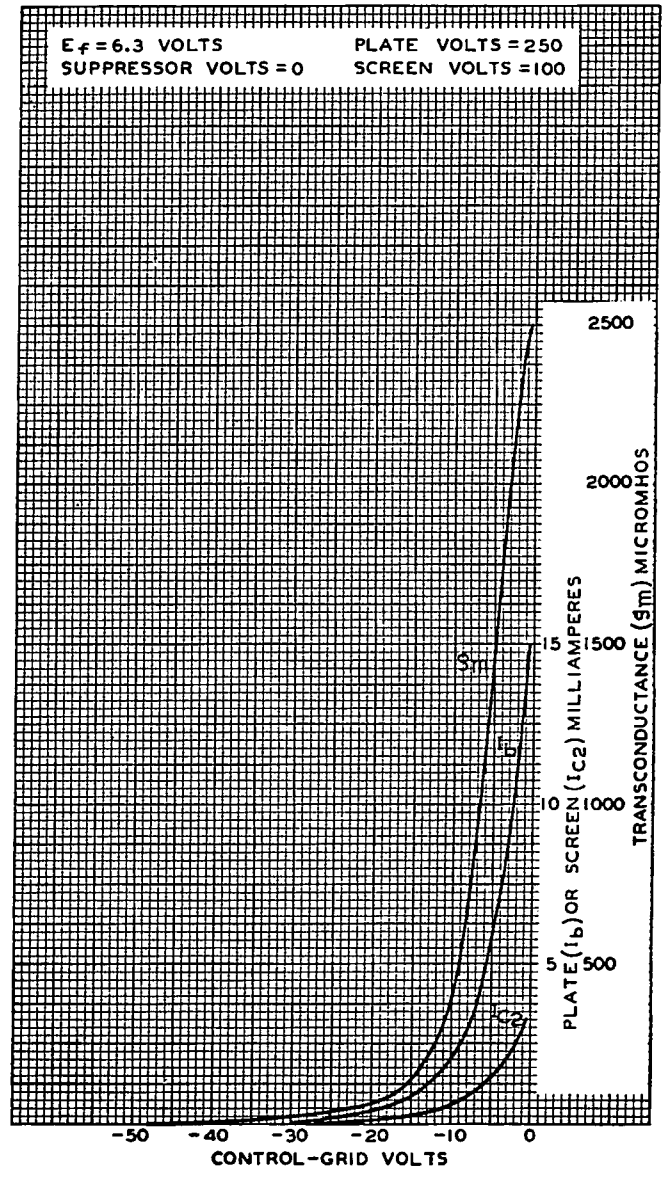
6SK7

AVERAGE CHARACTERISTICS



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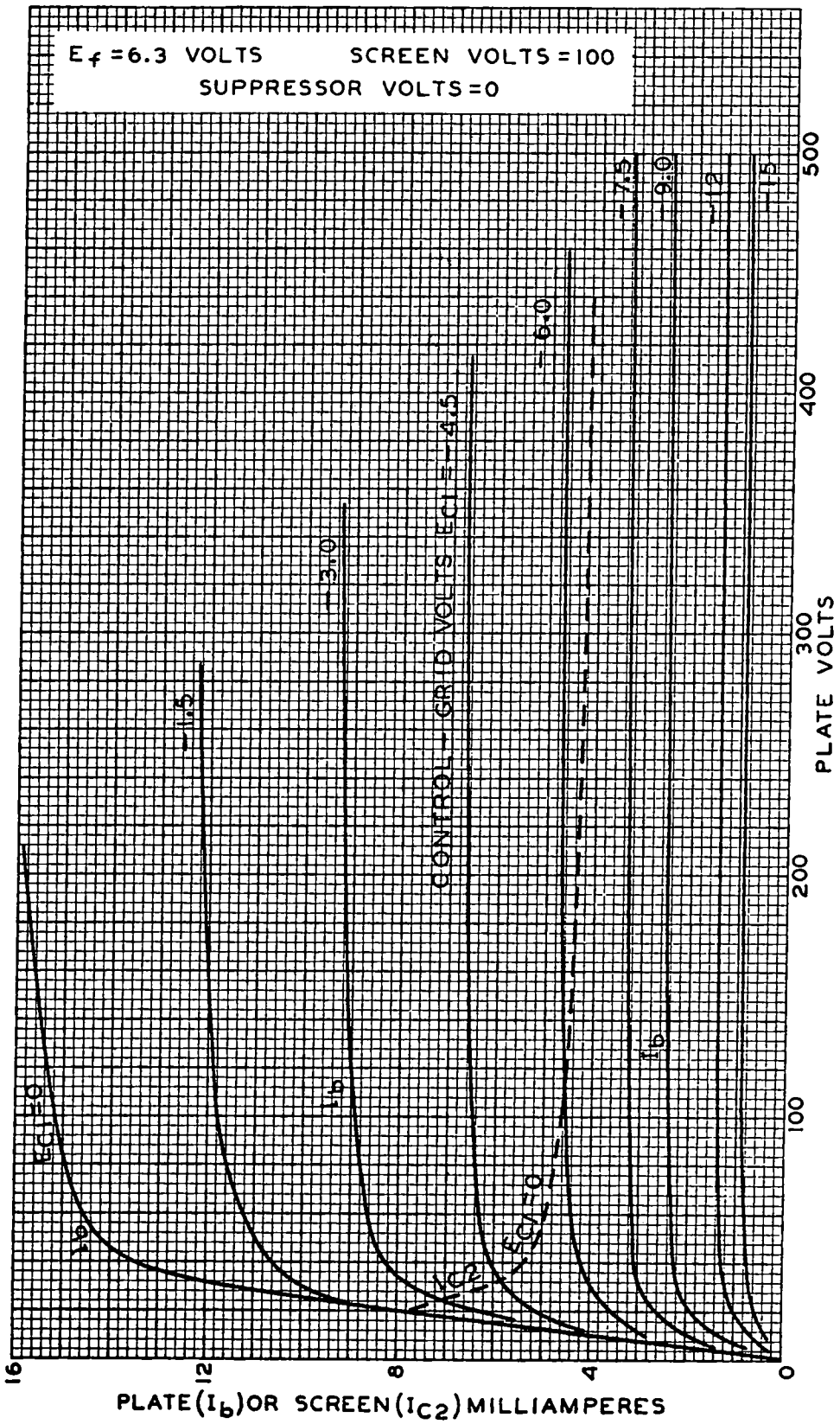
6SK7

AVERAGE PLATE CHARACTERISTICS



JUNE 24, 1938

RCA RADIOTRON DIVISION
RCA MANUFACTURING COMPANY, INC.

92C-4940

JETEC DATA
JOINT ELECTRON TUBE ENGINEERING COUNCIL
COMMITTEE ON RECEIVING TUBES

JETEC TYPE 6SJ7

PENTODE

MECHANICAL DATA

Coated unipotential cathode

Outline drawing	8-1	Bulb	MT-8
Base		B8-21 small wafer octal 8-pin	
Maximum diameter			1-5/16"
Maximum overall length			2-5/8"
Maximum seated height			2-1/16"
Pin connections			Basing 8N

Pin 1 - Shell, internal shield
Pin 2 - Heater
Pin 3 - Grid #3
Pin 4 - Grid #1
Pin 5 - Cathode
Pin 6 - Grid #2
Pin 7 - Heater
Pin 8 - Plate

Mounting position . . . . . any

ELECTRICAL DATA

Direct Interelectrode Capacitances*

Pentode connection:

Grid to plate: (g1 to p) max.	0.005	μμf
Input: g1 to (h+k+g2+g3+S)	6.0	μμf
Output: p to (h+k+g2+g3+S)	7.0	μμf

Triode connection: (g2 and g3 tied to plate)

Grid to plate: g1 to (p+g2+g3)	2.8	μμf
Input: g1 to (h+k+S)	3.4	μμf
Output: (p+g2+g3) to (h+k+S)	11	μμf

*Pin #1 connected to pin #5

Ratings	Triode**	Pentode	
Heater voltage (ac or dc)	6.3	6.3	volts
Maximum heater-cathode voltage	90	90	volts
Maximum plate voltage	250	300	volts
Maximum grid #2 supply voltage	Plate	300	volts
Maximum grid #2 voltage	Plate	See J5-C4	
Maximum grid #3 voltage. Pin #3 connected to:	Plate	Cathode	
Maximum plate dissipation	2.5	2.5	watts
Maximum grid #2 dissipation	-	0.4	watts
Maximum positive dc grid #1 voltage	0	0	volts
Maximum grid circuit resistance	1.0	1.0	megohm

**Grid #2, grid #3 connected to plate

Continued on Page 2

ELECTRICAL DATA (Continued)

Typical Operating Conditions and Characteristics, Class A1 Amplifier

	Triode**		Pentode		
Heater voltage	6.3	6.3	6.3	6.3	volts
Heater current	300	300	300	300	ma
Plate voltage	180	250	100	250	volts
Grid #2 voltage	Plate	Plate	100	100	volts
Grid #1 voltage	-6	-8.5	-3	-3	volts
Grid #3 voltage	Plate	Plate	Pin #3 connected to pin #5 at socket		
Transconductance	2300	2500	1575	1650	μmhos
Plate resistance	.0082	.0076	0.7	>1.0	megohm
Amplification factor	19	19	-	-	
Plate current	6	9.2	2.9	3	ma
Grid #2 current	-	-	0.9	0.8	ma
Grid #1 voltage (approx.) for Ib = 10μa			-8	-8	volts

**Grid #2, grid #3 connected to plate

Refer to "Interpretation of Receiving Tube Ratings"

JETEC DATA
JOINT ELECTRON TUBE ENGINEERING COUNCIL
COMMITTEE ON RECEIVING TUBES

JETEC TYPE 6SK7

PENTODE

MECHANICAL DATA

Coated unipotential cathode

Outline drawing	8-1	Bulb	MT-8
Base	B8-21 small wafer octal 8-pin		
Maximum diameter	1-5/16"		
Maximum overall length	2-5/8"		
Maximum seated height	2-1/16"		
Pin connections	Basing 8N		

Pin 1 - Shell, internal shield	Pin 5 - Cathode
Pin 2 - Heater	Pin 6 - Grid #2
Pin 3 - Grid #3	Pin 7 - Heater
Pin 4 - Grid #1	Pin 8 - Plate

Mounting position . . . . . any

ELECTRICAL DATA

Direct Interelectrode Capacitances*

Grid to plate: (g1 to p) max.	0.003	μμf
Input: g1 to (h+k+g2+g3+s)	6.0	μμf
Output: p to (h+k+g2+g3+s)	7.0	μμf

*Pin #1 connected to pin #5

Ratings

Heater voltage (ac or dc)	6.3	volts
Maximum heater-cathode voltage	90	volts
Maximum plate voltage	300	volts
Maximum grid #2 supply voltage	300	volts
Maximum grid #2 voltage	See J5-C4	
Maximum grid #2 dissipation	0.4	watts
Maximum positive dc grid #1 voltage	0	volts
Maximum plate dissipation	4.0	watts

Typical Operating Conditions and Characteristics, Class A1 Amplifier

Heater voltage	6.3	6.3	volts
Heater current	300	300	ma.
Plate voltage	100	250	volts
Grid #2 voltage	100	100	volts
Grid #1 voltage	-1	-3	volts
Grid #3 voltage	Pin 3 connected to pin 5 at socket		
Plate current	13	9.2	ma
Grid #2 current	4.0	2.6	ma
Plate resistance (approx.)	0.12	0.8	megohm
Transconductance	2350	2000	μmhos
Grid #1 voltage (approx.) for Gm = 10 μmhos	-35	-35	volts

Refer to "Interpretation of Receiving Tube Ratings"

JOINT ELECTRON DEVICE ENGINEERING COUNCIL

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Announcement
of
Electron Device Type Reregistration

Release No. 144B (Tentative)*

March 21, 1960

The Joint Electron Device Engineering Council announced the registration of the following electron device designation

6SJ7

on October 7, 1938, Release No. 144, under the sponsorship of Radio Corporation of America, Harrison, New Jersey.

The sponsor now proposes reregistration based on the following data:

ITEM	AS REGISTERED		AS PROPOSED	
Under ELECTRICAL DATA				
Ratings	Triode**	Pentode	Triode**	Pentode
Maximum grid # 2 dissipation	-	0.4	-	delete watt
Maximum grid # 2 dissipation:				
For grid # 2 voltages up to 150 volts	-	none	-	0.7 watt
For grid # 2 voltages between 150 and 300 volts	-	none	-	See J5-C4
Typical Operating Conditions and Characteristics, Class A_1 Amplifier				
	Triode**	Pentode	Triode**	Pentode
Plate Resistance	.0082	.0076	.00825	.0076 megohm

*Unless valid objection to this reregistration is lodged with the EIA Standards Laboratory prior to April 21, 1960, this reregistration will be made and this information will be considered "FINAL" WITHOUT FURTHER NOTICE!