

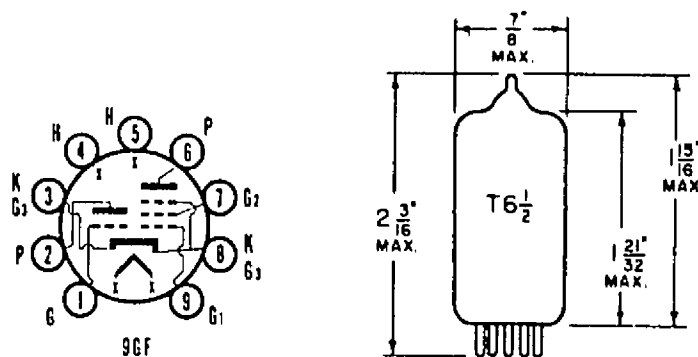
RECEIVING  
TUBES

SYLVANIA

VHF OSCILLATOR AND MIXER

6LJ8, 5LJ8, 4LJ8

- COLOR TV TYPE
- MEDIUM MU TRIODE
- SHARP CUTOFF PENTODE
- MULTI-SECTION
- LOW B+ OPERATION
- FRAME GRID PENTODE
- T-6½ ENVELOPE
- 9 PIN BASE



DESCRIPTION

Sylvania Types 6LJ8, 5LJ8 and 4LJ8 have a medium mu triode and sharp cutoff pentode contained in a T-6½ envelope. They are designed for service as VHF oscillators and mixers.

Types 5LJ8 and 4LJ8 have controlled heater warm-up time for series connected circuits.

MECHANICAL DATA

Envelope . . . . .	T-6½
Base . . . . .	E9-1
Outline Drawing . . . . .	6-2
Max. Diameter . . . . .	0.875"
Max. Seated Height . . . . .	1.938"
Max. Overall Length . . . . .	2.188"
Cathode . . . . .	Coated Unipotential
Operating Position . . . . .	Any
Basing Diagram . . . . .	9GF
Pin No. 1 - Triode Grid	Pin No. 6 - Pentode Plate
Pin No. 2 - Triode Plate	Pin No. 7 - Pentode Grid No. 2
Pin No. 3 - Cathode & Grid No. 3	Pin No. 8 - Cathode & Grid No. 3
Pin No. 4 - Heater	Pin No. 9 - Pentode Grid No. 1
Pin No. 5 - Heater	

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ELECTRICAL DATA

HEATER CHARACTERISTICS AND RATINGS (Design Maximum Rating System)(1)

	4LJ8	5LJ8	6LJ8	
Heater Operation	Series(2)	Series(2)	Parallel(3)	
Heater Voltage	4.3	5.6	6.3 ± 0.6(4)	Volts
Heater Current	.600 ± .040(4)	.450 ± .030(4)	.400(5)	Amperes
Heater Warm-up Time(6)	11	11	-	Seconds
Maximum Heater Cathode Voltage				
Heater Negative with Respect to Cathode				
Total DC and Peak . . . . .			200	Volts
Heater Positive with Respect to Cathode				
DC . . . . .			100	Volts
Total DC and Peak . . . . .			200	Volts

DIRECT INTERELECTRODE CAPACITANCES

Triode Section

Grid to Plate . . . . .	1.4	pf
Input: g1 to (k+Pg3+IS+h). . . . .	2.4	pf
Output: p to (k+Pg3+IS+h). . . . .	2.0	pf

Pentode Section

Grid No. 1 to Plate . . . . .	0.015	pf Max.
Input: g1 to (k+g3+IS+g2+h). . . . .	5.5	pf
Output: p to (k+g3+IS+g2+h). . . . .	3.4	pf

RATINGS (Design Maximum Rating System)(1)

	Triode Section	Pentode Section	
Plate Voltage . . . . .	280	280	Volts Max.
Grid No. 2 Supply Voltage . . . . .	-	280	Volts Max.
Grid No.2 Voltage . . . . .	See Rating Chart		
Cathode Current . . . . .	20	20	Ma Max.
Plate Dissipation . . . . .	2.0	2.0	Watts Max.
Grid No.2 Dissipation . . . . .	-	0.5	Watt Max.
Positive Grid No. 1 Voltage . . . . .	0	0	Volt Max.
Maximum Grid No. 1 Circuit Resistance			
Self Bias . . . . .	0.5	0.25	Megohm
Fixed Bias . . . . .	1.0	0.5	Megohm

Control grid to cathode spacing of the pentode section of this type is of such low order of magnitude as to preclude the use of voltage between these elements of more than 30 volts dc or peak ac in commercial tube checkers and shorts indicating devices, particularly where mechanical excitation of the tube is employed.

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## CHARACTERISTICS AND TYPICAL OPERATION

## Class A1 Amplifier (7)

	Triode Section	Pentode Section	
Plate Voltage . . . . .	125	125	Volts
Grid No. 2 Voltage . . . . .	-	125	Volts
Grid No. 1 Voltage. . . . .	0	0	Volt
Cathode Bias Resistor . . . . .	68	33	Ohms
Plate Current . . . . .	13	12	Ma
Grid No. 2 Current . . . . .	-	3.5	Ma
Transconductance . . . . .	8000	13,000	$\mu$ mhos
Amplification Factor . . . . .	40	-	
Plate Resistance (Approx.). . . . .	5000	125,000	Ohms
E <sub>c1</sub> for I <sub>b</sub> = 30 $\mu$ a (Approx.). . . . .	-6.5	-4	Volts

## NOTES:

- (1) Design Maximum Ratings are limiting values of operating and environmental conditions applicable to a bogey electron tube of a specified type as defined by the published data, and should not be exceeded under the worst probable conditions.

The tube manufacturer chooses these values to provide acceptable serviceability of the tube, making allowance for the effects of changes in operating conditions due to variations in the characteristics of the tube under consideration.

The equipment manufacturer should design so that initially and throughout life no design maximum value for the intended service is exceeded with a bogey tube under the worst probable operating conditions with respect to supply voltage variation, equipment component variation, equipment control adjustment, load variation, signal variation, environmental conditions, and variations in the characteristics of all other electron devices in the equipment.

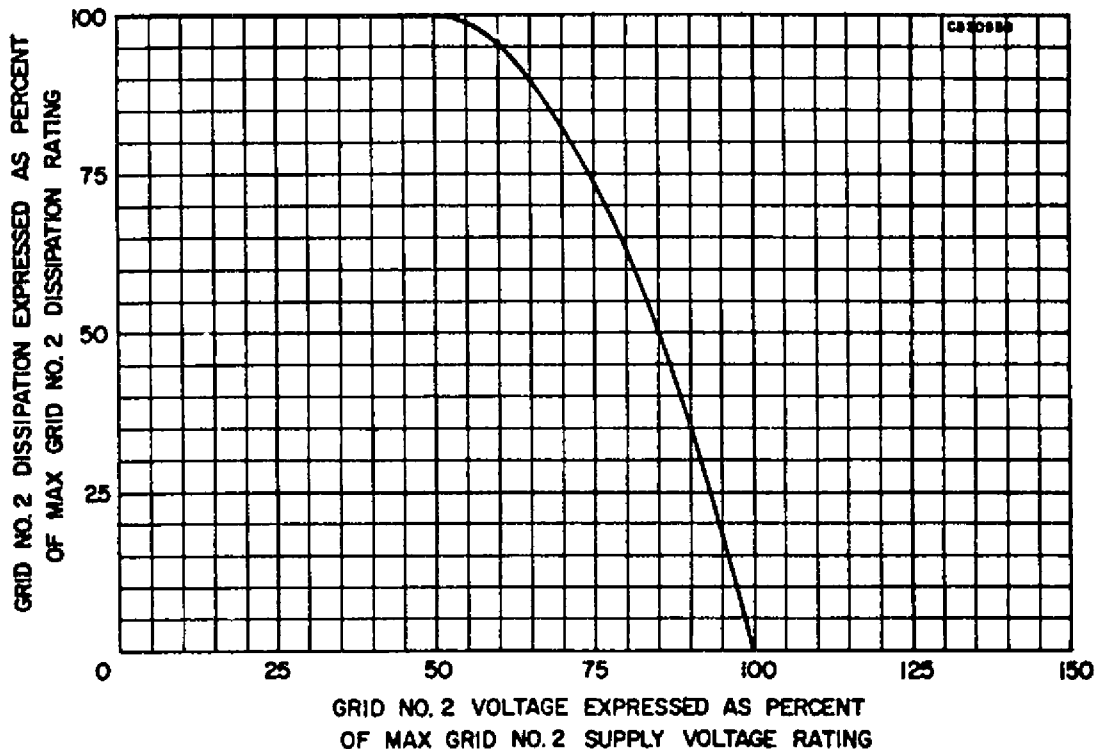
- (2) Operated with the heater in series with the heaters of other tubes having the same bogey current.
- (3) Operated with the heater in parallel with the heaters of other tubes having the same bogey heater voltage.
- (4) For series/parallel heater operation, the equipment designer should design the equipment so that heater current/voltage is centered at the specified bogey value, with heater supply variations restricted to maintain heater current/voltage within the specified tolerance.
- (5) Heater current of a bogey tube at E<sub>f</sub> = 6.3 volts.

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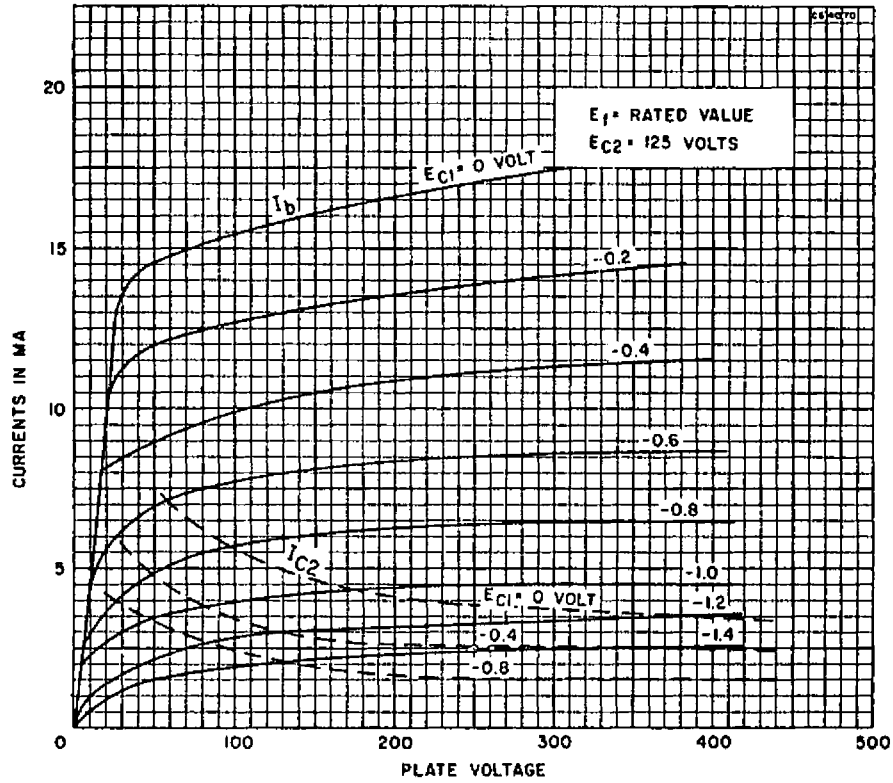
NOTES: (Cont'd)

- (6) Heater warm-up time is defined as the time required for the voltage across the heater to reach 80% of the rated heater voltage after applying four (4) times rated heater voltage to a circuit consisting of the heater in series with a resistance equal to three (3) times the rated heater voltage divided by the bogey heater current.
- (7) "Each tube section measured separately and with cathode bias resistor indicated. Section not under test is floating."

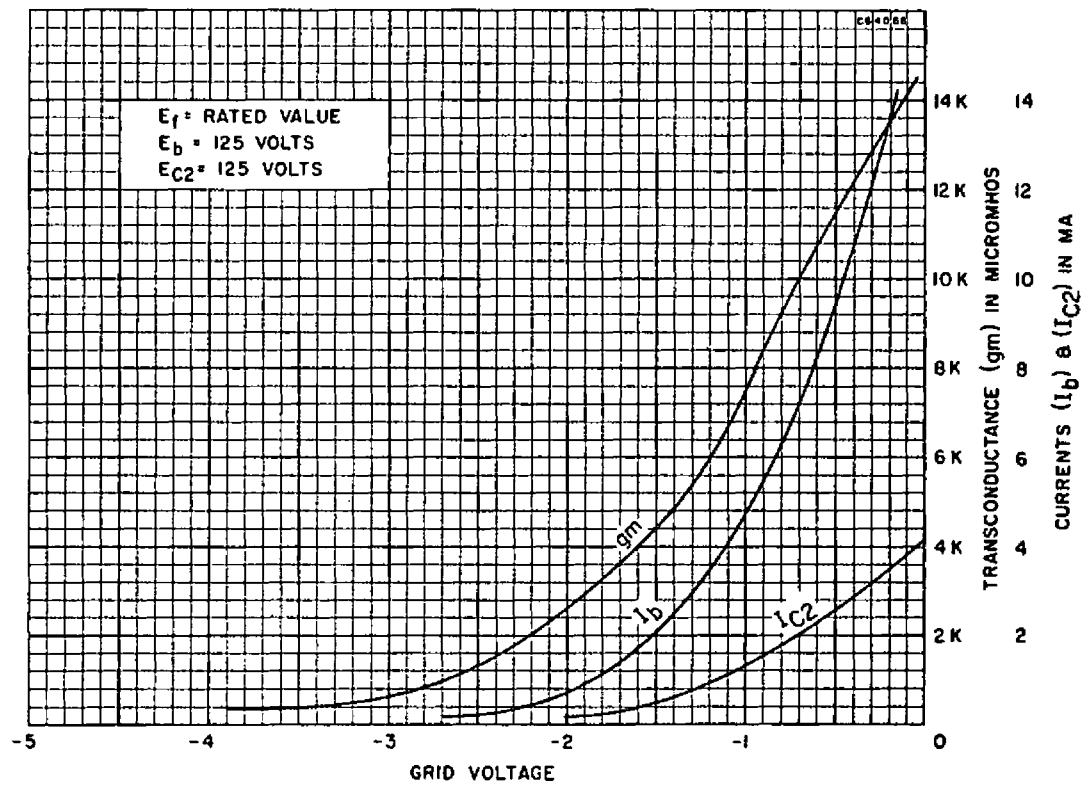
RATING CHART



AVERAGE PLATE CHARACTERISTICS  
(Pentode Section)

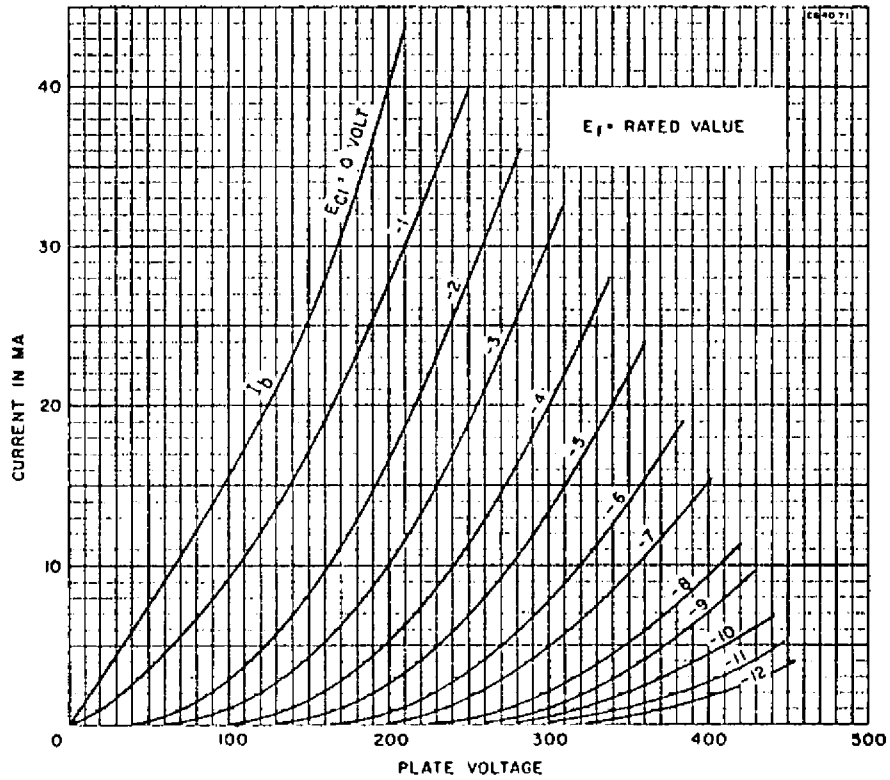


AVERAGE TRANSFER CHARACTERISTICS  
(Pentode Section)



6LJ8  
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AVERAGE PLATE CHARACTERISTICS  
(Triode Section)



AVERAGE TRANSFER CHARACTERISTICS  
(Triode Section)

