

RCA-6LF8

HIGH-MU TRIODE— SHARP-CUTOFF PENTODE

9-Pin Miniature Type

For Video-Amplifier Service in Color-TV Receivers and
Other Applications Using Positive Triode-Grid Operation

Triode $\mu = 70$

RCA Dark Heater having Controlled Warm-Up Time

RCA-6LF8 is a multiunit tube of the 9-pin miniature type containing a high- μ triode and a sharp-cutoff pentode in the same envelope. This type is useful in those applications where operation of a triode in the positive-grid region is desirable—such as in video-amplifier stages of color-television receivers.

A primary design feature of the triode unit of the 6LF8 is a maximum positive-grid-bias-voltage rating of 4 volts and a maximum grid-current rating of 8 milliamperes. When this triode unit is operated with positive grid bias of 3 volts, it has an amplification factor of 40.

The pentode unit features a plate-current characteristic having a controlled “knee” to provide good linearity at relatively low plate voltage (75 volts), and high transconductance (11,000 micromhos).

Each unit of the 6LF8 has a separate cathode with individual base-pin terminal to provide greater flexibility of circuit connections. In addition, the basing arrangement and internal connections are designed to minimize coupling between the triode and pentode units.

The 6LF8 has a 0.600-ampere/6.3-volt heater having controlled 11-second warm-up time, and utilizes the RCA Dark Heater for long life and dependable performance.

GENERAL DATA

Electrical:

Heater Characteristics and Ratings:

Voltage (AC or DC)	6.3 ^a	6.3 ± 0.6	volts
Current	0.600 ± 0.040	0.600 ^b	amp
Warm-up time (Average).	11	-	sec

Peak heater-cathode voltage (Each unit):

Heater negative with respect to cathode.	200 max.	volts
Heater positive with respect to cathode.	200 ^c max.	volts

Direct Interelectrode Capacitances:^d

Triode Unit:

Grid to plate: G_T to P_T	2.2	pf
Input: G_T to ($K_T, K_P + G3_P + IS, H$).	3.2	pf
Output: P_T to ($K_T, K_P + G3_P + IS, H$).	1.8	pf

Pentode Unit:

Grid No.1 to plate: $G1_P$ to P_P	0.060 max.	pf
Input: $G1_P$ to ($K_P + G3_P + IS, G2_P, H$).	10	pf
Output: P_P to ($K_P + G3_P + IS, G2_P, H$).	3.6	pf
Pentode grid No.1 to triode plate: $G1_P$ to P_T	0.008 max.	pf
Pentode plate to triode plate: P_P to P_T	0.15 max.	pf

Characteristics, Class A Amplifier:

	Triode Unit		Pentode Unit		
Plate Voltage	200	40	75	100	volts
Grid-No.2 Voltage	-	-	150	150	volts
Grid-No.1 Voltage	-2	+3	0	-2.5	volts
Amplification Factor	70	40	-	-	
Plate Resistance (Approx.).	17500	10000	-	200000	ohms
Transconductance	4000	4000	-	11000	μ mhos
Plate Current	4	11	50 ^e	20	ma
Grid-No.2 Current	-	-	12 ^e	5	ma
Grid-No.1 Current	0	2.7	0	0	ma
Grid-No.1 Voltage (Approx.) for plate $\mu_a = 20$	-5	-	-	-8	volts

Mechanical:

Operating Position	Any
Type of Cathodes	Coated Unipotential
Maximum Overall Length	2-5/8"
Maximum Seated Length	2-3/8"
Length, Base Seat to Bulb Top (Excluding tip)	2" ± 3/32"
Diameter	0.750" to 0.875"
Dimensional Outline	JEDEC No.6-3
Bulb	T6-1/2
Base	Small-Button Noval 9-Pin (JEDEC No.E9-1)

AMPLIFIER—Class A^f

Maximum Ratings, Design-Maximum Values:

	Triode Unit as Class A ₁ or A ₂ Amplifier	Pentode Unit as Class A ₁ Amplifier	
Plate Voltage.	330 max.	330 max.	volts
Grid-No.2 (Screen-Grid) Supply Voltage	-	330 max.	volts
Grid-No.2 Voltage	-	See GRID-No.2-INPUT RATING CHART	



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	Triode Unit as Class A ₁ or A ₂ Amplifier	Pentode Unit as Class A ₁ Amplifier	
Grid-No.1 (Control-Grid) Voltage:			
Negative-bias value	55 max.	55 max.	volts
Positive-bias value	4 max.	0 max.	volts
Grid-No.1 Current .	8 max.	0 max.	ma
Grid-No.2 Input:			
For grid-No.2 voltages up to 165 volts. . .	-	1.1 max.	watts
For grid-No.2 voltages between 165 and 330 volts. . .	-	See GRID-No.2-INPUT RATING CHART	
Plate Dissipation .	1.1 max.	3.75 max.	watts

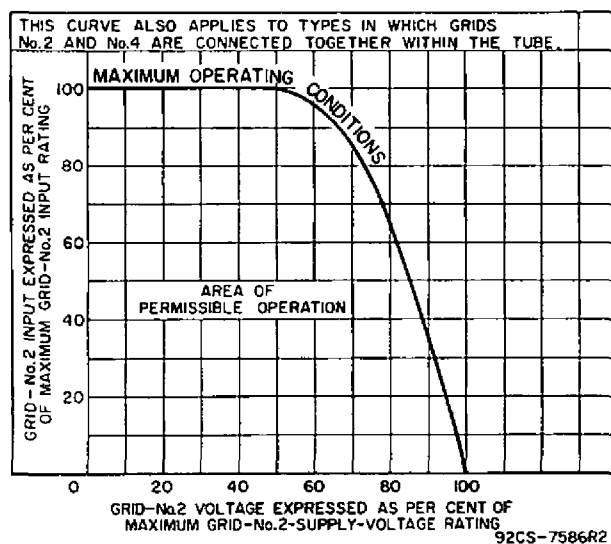
Maximum Circuit Values:

Grid-No.1-Circuit Resistance:

	Triode Unit	Pentode Unit
For fixed-bias operation . .	0.5 max.	0.25 max. megohm
For cathode-bias operation .	1 max.	1 max. megohm

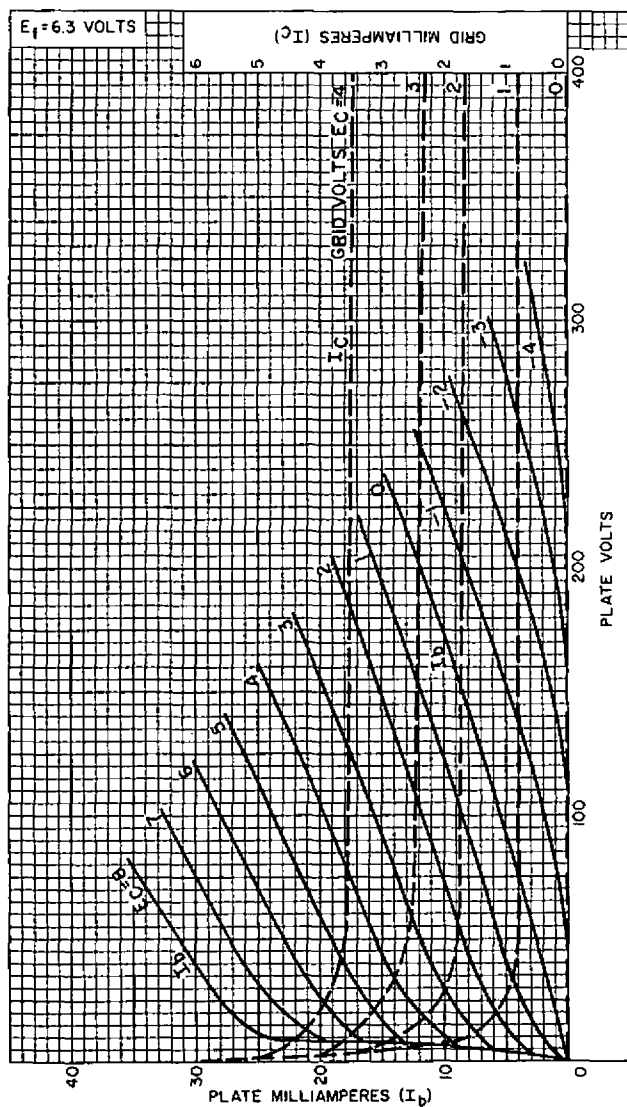
- a At heater amperes = 0.600.
b At heater volts = 6.3.
c The dc component must not exceed 100 volts.
d Without external shield.
e This value can be measured by a method involving a recurrent wave form such that the maximum ratings of the tube will not be exceeded.
f A *Class A Amplifier* is an amplifier in which the grid bias and varying grid voltages are such that plate current flows at all times. The subscript 1 added to the class letter denotes that *grid current* does not flow during any part of the input cycle. The subscript 2 denotes that *grid current* flows during some part of the cycle.

GRID-No.2-INPUT RATING CHART



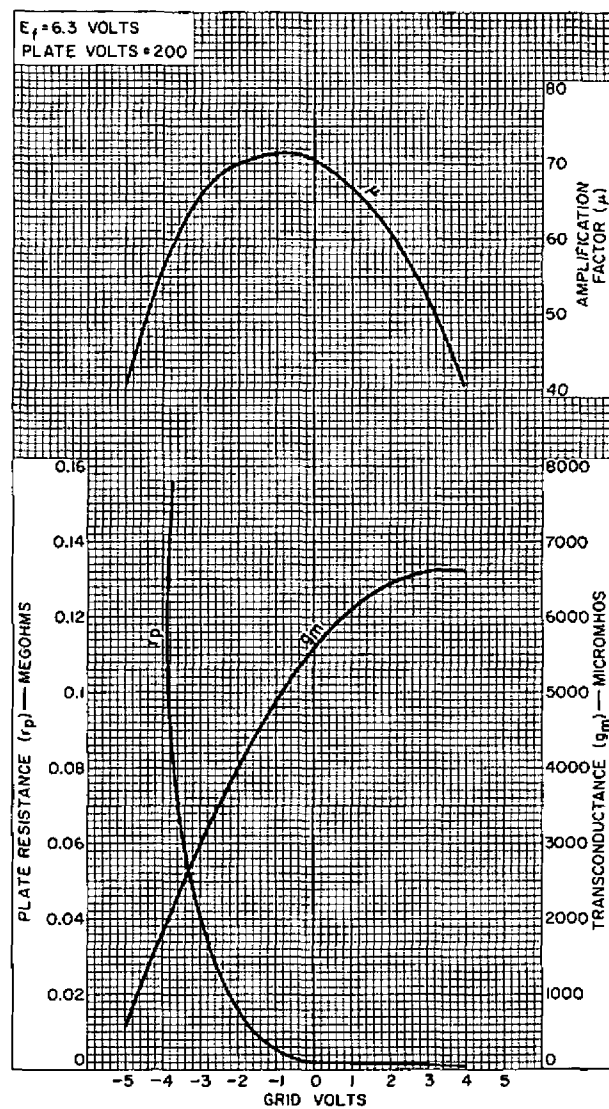
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AVERAGE CHARACTERISTICS
Triode Unit



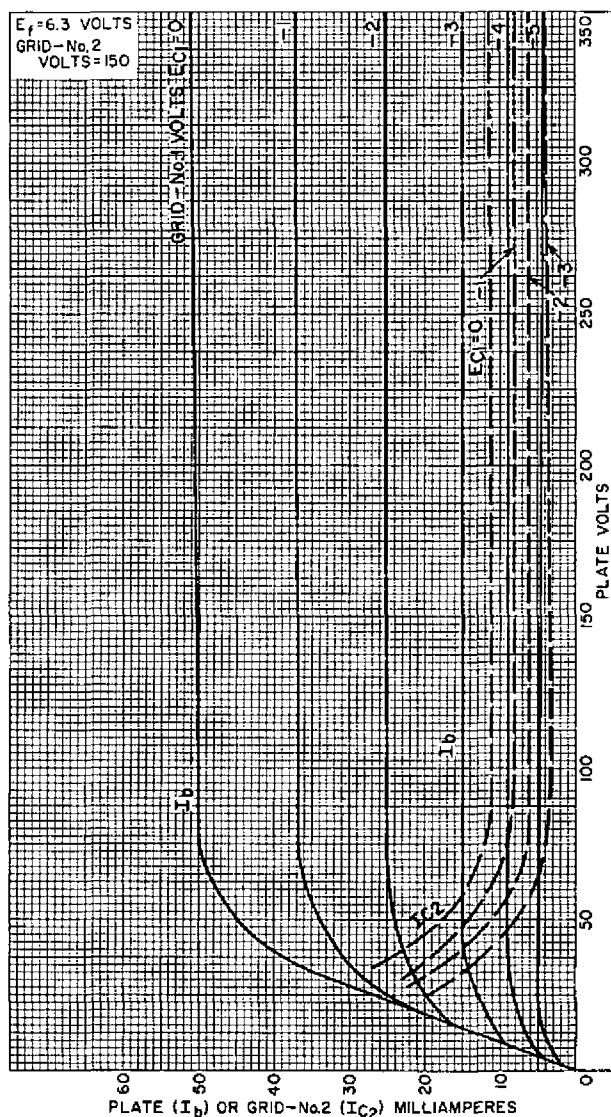
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AVERAGE CHARACTERISTICS
Triode Unit

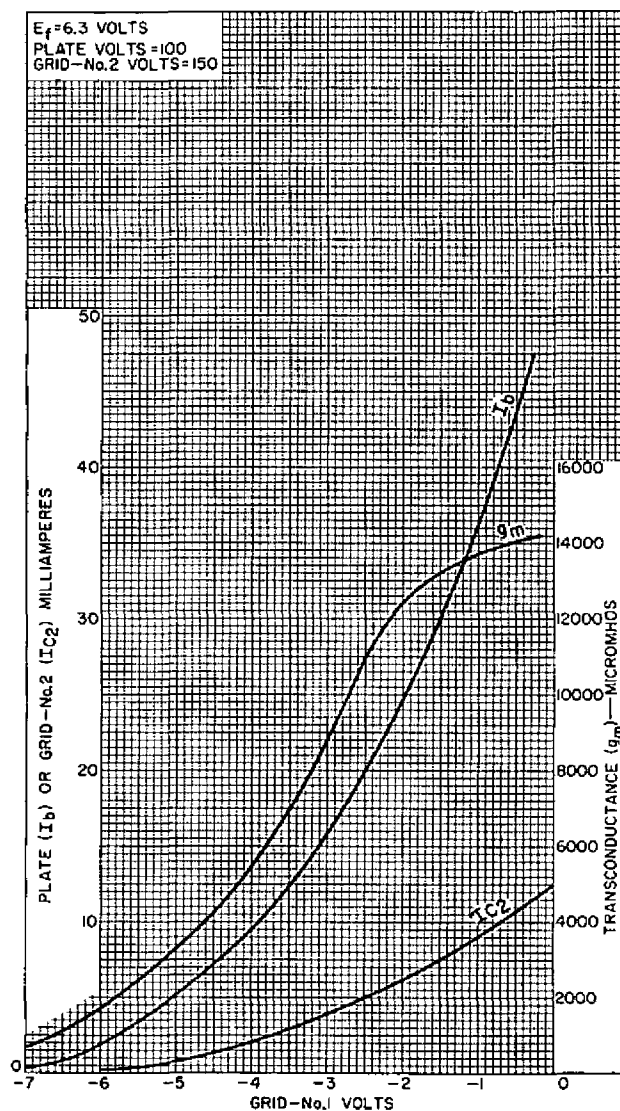


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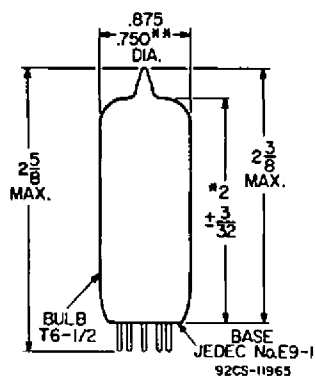
AVERAGE CHARACTERISTICS Pentode Unit



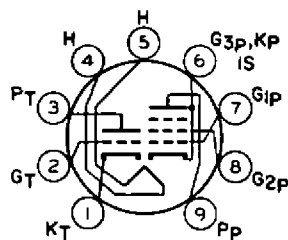
AVERAGE CHARACTERISTICS Pentode Unit



DIMENSIONAL OUTLINE JEDEC No. 6-3 Dimensions in Inches



TERMINAL DIAGRAM Bottom View



JEDEC 9DX

- | | | |
|------------------------|--|----------------------------|
| Pin 1 - Triode Cathode | Pin 4 - Heater | Pin 7 - Pentode Grid No. 1 |
| Pin 2 - Triode Grid | Pin 5 - Heater | Pin 8 - Pentode Grid No. 2 |
| Pin 3 - Triode Plate | Pin 6 - Pentode Cathode, Grid No. 3, Internal Shield | Pin 9 - Pentode Plate |

* Measured from base seat to bulb-top line as determined by ring gauge of 7/16" inside diameter.

** Applies in zone starting 0.375" from base seat.