



12HG7

SHARP-CUTOFF PENTODE

**RCA Dark Heater
Frame-Grid Construction**

**For Video-Output Amplifier Service
in Color-TV Receivers**

$g_m = 32000 \mu\text{mhos}$
 $P_b = 10 \text{ watts}$

RCA-12HG7 is a frame-grid type sharp-cutoff pentode in a T9 envelope utilizing a large-button neonoval 9-pin base. This type is especially useful as a video-output amplifier tube in color-TV receivers.

The 12HG7 incorporates a special large-area plate structure which, in combination with the T9 envelope, provides a dissipation capability of 10 watts. Because of this high dissipation capability, it is possible to eliminate a series plate-circuit dropping resistor and its associated bypass capacitor in new-equipment circuit designs.

The frame-grid construction of the 12HG7 provides an exceptionally high value of transconductance (32000 μmhos). This tube also features a plate current characteristic with controlled knee to provide good linearity at relatively low plate voltage.

The 12HG7 utilizes an RCA Dark Heater to provide long and dependable performance.

GENERAL DATA

Electrical:

Heater Characteristics and Ratings:

Heater-section arrangement	Series	Parallel	
Voltage (AC or DC)	12.6±1.3	6.3±0.6	volts
Current at bogey voltage	0.260	0.520	amp
Peak heater-cathode voltage:			
Heater negative with respect to cathode	200 max.		volts
Heater positive with respect to cathode	200 ^a max.		volts

Direct Interelectrode Capacitances:^b

Grid No.1 to plate	0.12 max.	pf
Input: G1 to (K,G3+IS, G2,H) . . .	14.0	pf
Output: P to (K,G3+IS, G2,H) . . .	4.4	pf

Characteristics, Class A₁ Amplifier:

Plate Supply Voltage	300	volts
Grid No.3	Connected to cathode at socket	
Grid-No.2 Supply Voltage	135	volts
Grid No.1	Connected to negative end of cathode resistor	
Cathode Resistor	47	ohms
Plate Resistance (Approx.)	60000	ohms
Transconductance	32000	μmhos
Plate Current	31	ma
Grid-No.2 Current	4.8	ma
Grid-No.1 Voltage (Approx.) for plate $\mu\text{A} = 100$	-4.5	volts

Mechanical:

Operating Position	Any
Type of Cathode	Coated Unipotential
Maximum Over-all Length	2.930"
Maximum Seated Length	2.620"
Length, Base Seat to Bulb Top (Excluding tip).	2.070" to 2.310"
Diameter	1.062" to 1.188"
Dimensional Outline	JEDEC No.9-70
Bulb	T9
Base	Large-Button Neonoval 9-Pin (JEDEC No.E9-68)

AMPLIFIER - Class A₁

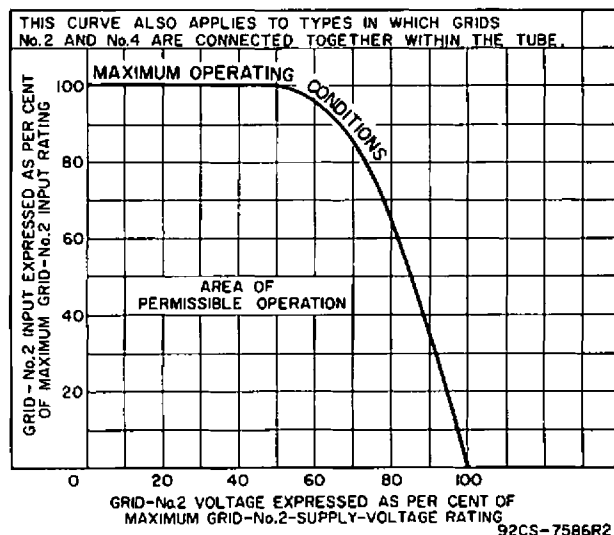
Maximum Ratings, Design-Maximum Values:

Plate Voltage	400 max.	volts
Grid-No.2 (Screen-Grid) Supply Voltage	330 max.	volts
Grid-No.2 Voltage	See GRID-No.2 INPUT RATING CHART	
Grid-No.1 (Control-Grid) Voltage:		
Positive-bias value	0 max.	volts
Plate Dissipation	10 max.	watts
Grid-No.2 Input:		
For grid-No.2 voltages up to 165 volts	1 max.	watt
For grid-No.2 voltage between 165 and 330 volts. See GRID-No.2 INPUT RATING CHART		

Maximum Circuit Values:

Grid-No.1-Circuit Resistance:		
For fixed-bias operation	0.1 max.	megohm
For cathode-bias operation	0.25 max.	megohm

GRID-No.2-INPUT RATING CHART

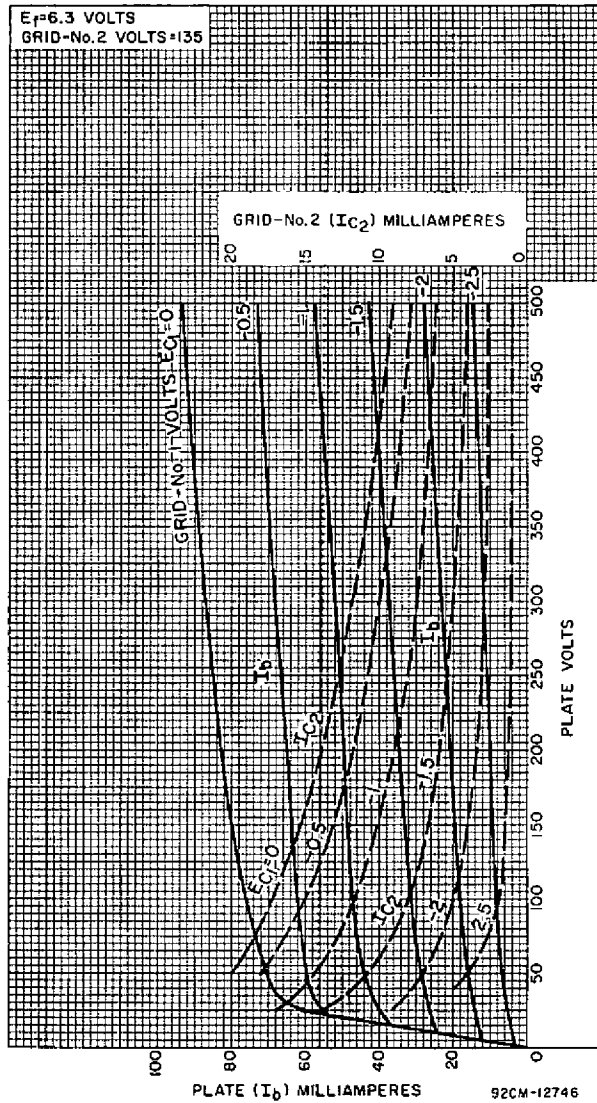


^a The dc component must not exceed 100 volts.

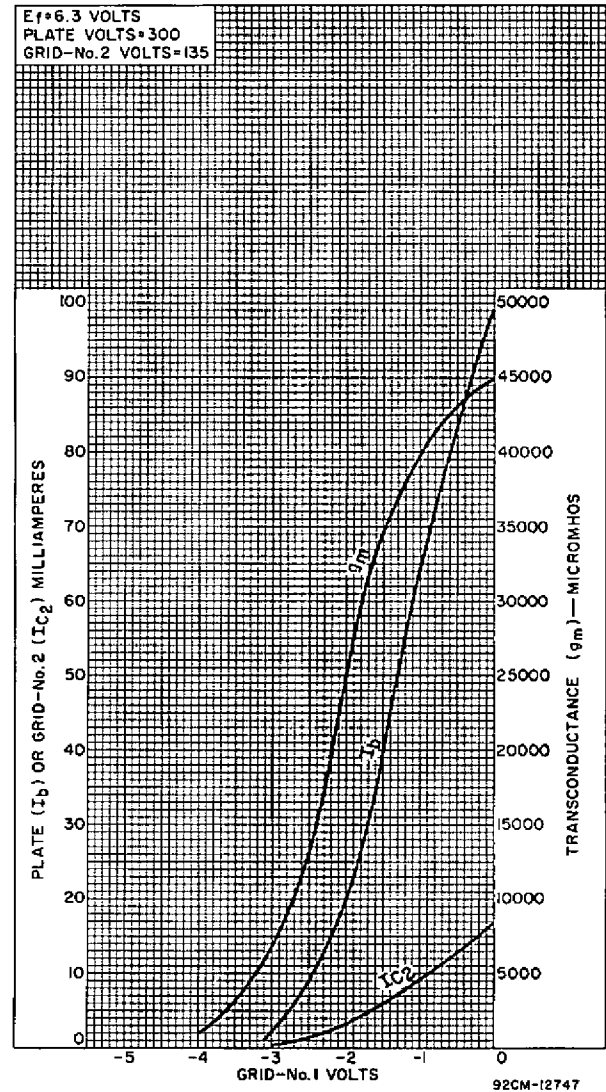
^b Without external shield.



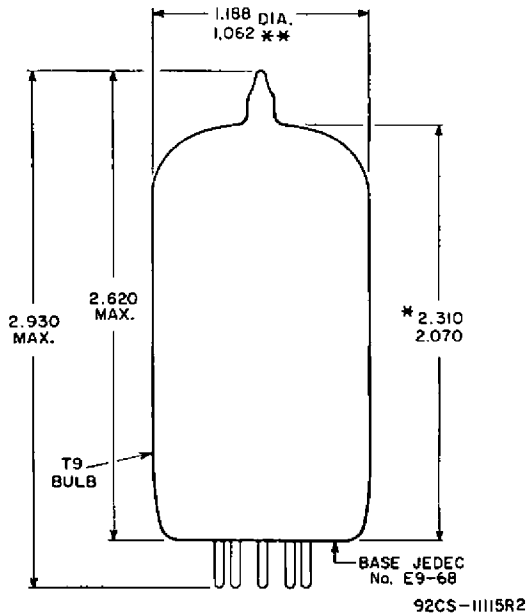
AVERAGE CHARACTERISTICS



AVERAGE CHARACTERISTICS



DIMENSIONAL OUTLINE JEDEC No. 9-70

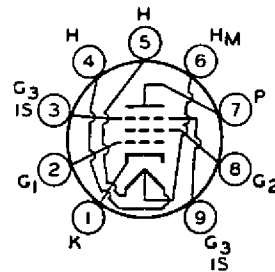


Dimensions in Inches

* MEASURED FROM BASE SEAT TO BULB-TOP LINE AS DETERMINED BY A RING GAUGE OF 0.600" I.D.

** APPLIES IN ZONE STARTING 0.375" FROM BASE SEAT.

TERMINAL DIAGRAM Bottom View



JEDEC 9BF

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

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