

# RCA-6JT6, 12JT6, 17JT6 BEAM POWER TUBES

## NOVAR TYPES

**T12 Bulb  
RCA Dark Heater**

**For Horizontal-Deflection-Amplifier Service  
in Black-and-White TV Receivers**

**Controlled Heater  
Warm-Up Time**

RCA-6JT6, 12JT6, and 17JT6 are single-ended, high-perveance beam power tubes of the novar type having a T12 bulb. These types are useful in high-efficiency horizontal-deflection-amplifier circuits of black-and-white television receivers.

These tubes have exceptionally good knee-current characteristics, permitting them to draw a plate current of 390 milliamperes with zero grid-No.1 bias and only 60 volts on the plate. The 6JT6, 12JT6, and 17JT6 also have a high ratio of plate current to grid-No.2 current. These features, in addition to high voltage ratings and high dissipation ratings, permit the design of horizontal-deflection-amplifier circuits capable of providing full deflection for systems employing wide-angle or high-voltage picture tubes.

A separate base-pin terminal is provided to permit the application of a positive voltage to grid No.3 to minimize interference from "snivets" which may occur in both vhf and uhf television receivers.

Two base-pin terminals are provided for grid No.2 to increase the grid-No.2-dissipation capability and to provide added flexibility in circuit design.

The 6JT6, 12JT6, and 17JT6 utilize the RCA Dark Heater for long life and dependable performance.

The 6JT6 has a 6.3-volt/1.200-ampere heater. The 12JT6 and 17JT6 are identical to the 6JT6 except that the 12JT6 has a 0.600-ampere/12.6-volt heater and the 17JT6 has a 0.450-ampere/16.8-volt heater. The heaters of the 12JT6 and the 17JT6 have a controlled 11-second warm-up time for use in series heater-string arrangements.

### GENERAL DATA

**Electrical:**

**Heater Ratings and Characteristics:**

	<i>6JT6</i>	<i>12JT6</i>	<i>17JT6</i>	
Voltage (AC or DC) . . . . .	6.3 ± 0.6 <sup>a</sup>	12.6	16.8	volts
Current at bogey voltage . . . . .	1.200	0.600 <sup>b</sup>	0.450 <sup>b</sup>	amp
Warm-up time (Average) . . . . .	-	11	11	sec
Peak heater-cathode voltage:				
Heater negative with respect to cathode . . . . .		200		max. volts
Heater positive with respect to cathode . . . . .		200 <sup>c</sup>		max. volts
Direct Interelectrode Capacitances (Approx.): <sup>d</sup>				
Grid No.1 to plate: . . . . .		0.26		pf
Input: G1 to (K,G3,G2,H) . . . . .		15.0		pf
Output: P to (K,G3,G2,H) . . . . .		6.5		pf

**Characteristics, Class A<sub>1</sub> Amplifier:**

	<i>Triode Connection<sup>e</sup></i>			
Plate Voltage . . . . .	150	60	250	volts
Grid No.3 . . . . .	-	<i>Connected to cathode at socket</i>		
Grid-No.2 Voltage . . . . .	150	150	150	volts
Grid-No.1 Voltage . . . . .	-22.5	0	-22.5	volts
Amplification Factor . . . . .	4.4	-	-	
Plate Resistance (Approx.) . . . . .	-	-	15000	ohms
Transconductance . . . . .	-	-	7100	μmhos
Plate Current . . . . .	-	390 <sup>f</sup>	70	ma
Grid-No.2 Current . . . . .	-	32 <sup>f</sup>	2.1	ma
Grid-No.1 Voltage (Approx.) for plate ma = 1. . . . .	-	-	-42	volts

- <sup>a</sup> For operation of the heater of this tube in parallel with the heaters of other tubes.
- <sup>b</sup> When the heater of this tube is operated in series with the heaters of other tubes, the heater current of the 12JT6 must be limited to 0.600 ± 0.040 ampere; that of the 17JT6 to 0.450 ± 0.030 ampere.
- <sup>c</sup> The dc component must not exceed 100 volts.
- <sup>d</sup> Without external shield.
- <sup>e</sup> With grid No.2 connected to plate at socket.



**HORIZONTAL-DEFLECTION AMPLIFIER**

**Maximum Ratings, Design-Maximum Values:**

For operation in a 525-line, 30-frame system<sup>g</sup>

DC Plate Supply Voltage . . . . .	770 max.	volts
Peak Positive-Pulse Plate Voltage <sup>h</sup> .	6500 max.	volts
Peak Negative-Pulse Plate Voltage .	1500 max.	volts
DC Grid-No.3 (Suppressor-Grid) Voltage <sup>j</sup> .	70 max.	volts
DC Grid-No.2 (Screen-Grid) Voltage.	220 max.	volts
DC Grid-No.1 (Control-Grid) Voltage:		
Negative-bias value . . . . .	55 max.	volts
Peak Negative-Pulse Grid-No.1 Voltage . . . . .	330 max.	volts
Cathode Current:		
Peak . . . . .	550 max.	ma
Average . . . . .	175 max.	ma
Grid-No.2 Input . . . . .	3.5 max.	watts
Plate Dissipation <sup>k</sup> . . . . .	17.5 max.	watts
Bulb Temperature (At hottest point on bulb surface). . . . .	240 max.	°C

**Maximum Circuit Values:**

Grid-No.1-Circuit Resistance:  
For grid-resistor-bias operation. 1 max. megohm

<sup>f</sup> 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.

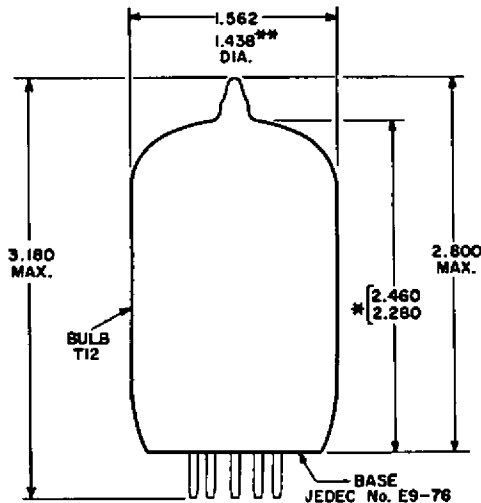
<sup>g</sup> As described in "Standards of Good Engineering Practice Concerning Television Broadcast Stations", Federal Communications Commission.

<sup>h</sup> This rating is applicable where the duration of the voltage pulse does not exceed 15 per cent of one horizontal scanning cycle. In a 525-line, 30-frame system, 15 per cent of one horizontal scanning cycle is 10 microseconds.

<sup>j</sup> A positive voltage may be applied to grid No.3 to reduce interference from "snivets" which may occur in television receivers. A typical value for this voltage is 30 volts.

<sup>k</sup> An adequate bias resistor or other means is required to protect the tube in the absence of excitation.

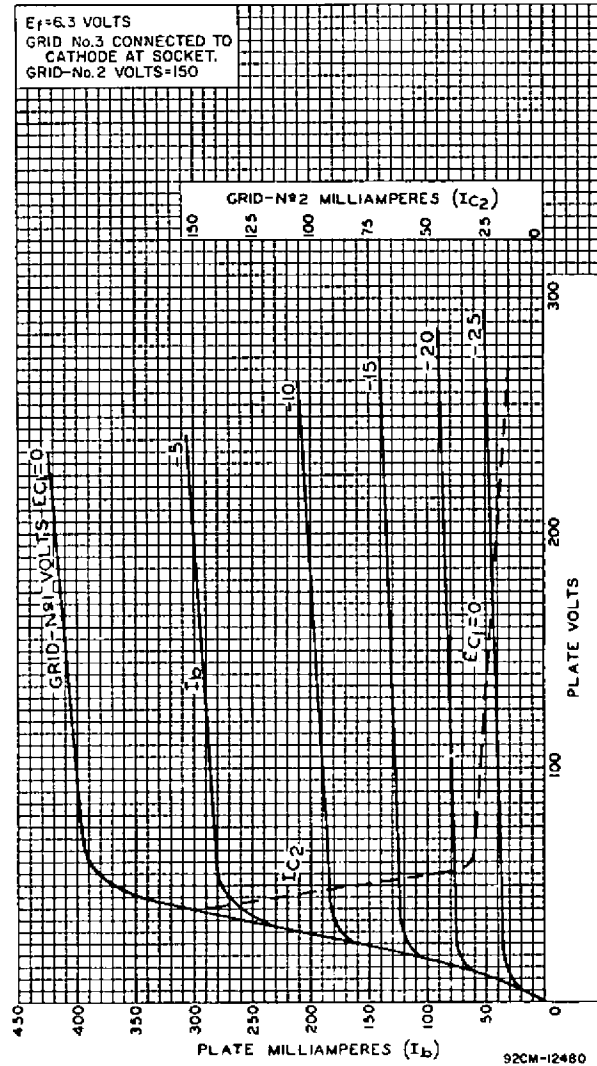
**DIMENSIONAL OUTLINE**  
Dimensions in Inches



92CS-12479

\* Measured from base seat to bulb-top line as determined by a ring gauge of 0.600" inside diameter.  
\*\* The minimum applies in the zone starting 0.375" from the base seat.

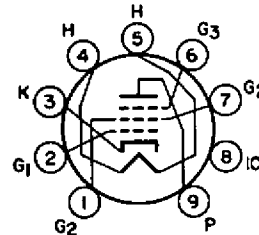
**AVERAGE CHARACTERISTICS**



For Type 6JT6, and for Types 12JT6 (E<sub>f</sub> = 12.6 V) and 17JT6 (E<sub>f</sub> = 16.8 V).

**TERMINAL DIAGRAM**

Bottom View



JEDEC 9QU

- |                   |                    |
|-------------------|--------------------|
| Pin 1 - Grid No.2 | Pin 6 - Grid No.3  |
| Pin 2 - Grid No.1 | Pin 7 - Grid No.2  |
| Pin 3 - Cathode   | Pin 8 - Do Not Use |
| Pin 4 - Heater    | Pin 9 - Plate      |
| Pin 5 - Heater    |                    |

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