



6JU6, 22JU6

BEAM POWER TUBES

T12 Novar Types

Controlled Heater Warm-Up
Time (22JU6)

For Horizontal-Deflection-Amplifier
Service in Low-B+, Black-and-
White TV Receivers

RCA Dark Heater

RCA-6JU6* and 22JU6 are high-perveance beam power tubes of the novar type having a T12 envelope. These types are particularly useful as horizontal-deflection amplifier tubes in black-and-white television receivers operating at low B+ voltages.

A major feature of the 6JU6 and 22JU6 is a special plate structure designed to minimize secondary-electron emission from the plate. This structure provides a high ratio of plate current to grid-No.2 current and a high zero-bias plate current at low plate voltage and low grid-No.2 input. The low-voltage knee characteristic of the 6JU6 and 22JU6 permits the development of the high voltage required for the picture tube and a reserve of horizontal scan at low-B+ supply voltages. These tubes require a relatively low value of grid-No.1 bias voltage for plate current cutoff under high pulse voltage conditions. This feature makes possible efficient operation in receivers with low grid-No.1 driving voltage.

A separate base-pin terminal is provided for grid No.3 to permit the application of a positive voltage to this grid to minimize possible interference from "snivets". Two base-pin terminals are provided for grid No.2 to increase grid dissipation capability and to provide added flexibility in circuit design.

The 22JU6 has a 0.450-A/22.0-V heater having a controlled 11-second warm-up time for use in series heater-string arrangements. Both the 6JU6 and 22JU6 utilize the RCA Dark Heater for long life and dependable performance.

* Formerly Developmental Type A40523A.

ELECTRICAL CHARACTERISTICS -- Bogey Values

	6JU6	22JU6	
Heater Voltage, ac or dc E_h	6.3	22.0	V
Heater Current I_h	1.6	0.450	A
Heater Warm-up Time t_h	-	11	s
Direct Interelectrode Capacitances: ^a			
Grid No.1 to plate c_{g1-p}	1.2		pF
Input: G1 to (K,G3,G2,H) c_i	22		pF
Output: P to (K,G3,G2,H) c_o	9.0		pF

For the following characteristics, see Conditions below:

Amplification Factor
(Triode Connection)^b μ - - - 4.7

Plate Resistance (Approx.) r_p	-	-	-	18	$k\Omega$
Transconductance g_m	-	-	-	7000	μmho
DC Plate Current I_b	-	470 ^c	-	45	mA
DC Grid-No.2 Current I_{c2}	-	32 ^c	-	1.5	mA
Cutoff DC Grid-No.1 Voltage for $I_b = 1$ mA $E_{c1(co)}$	-75	-	-	-32	V

Conditions:

Heater Voltage E_h	Bogey value	V
Peak Positive-Pulse Plate Voltage ^d e_{bm}	6500	- - - V
DC Plate Voltage E_b	-	50 125 130 V
Grid No.3 -	Connected to cathode at socket	
DC Grid-No.2 Voltage E_{c2}	125	125 125 125 v
DC Grid-No.1 Voltage E_{c1}	-	0 -20 -20 V

MECHANICAL CHARACTERISTICS

Maximum Overall Length	3.550 in
Maximum Seated Length	3.170 in.
Maximum Diameter	1.562 in
Envelope	JEDEC Designation T12
Top Cap ^e	Skirted Miniature (JEDEC Designation C1-2 or C1-3)
Bases ^f (Alternatives)	Large-Button Novar 9-Pin with Exhaust Tip (JEDEC Designation E9-88) or Large-Button Novar 9-Pin (JEDEC Designation E9-76)
Terminal Connections (See TERMINAL DIAGRAM)	JEDEC Designation 9QL
Type of Cathode	Coated Unipotential
Operating Position	Any

MAXIMUM RATINGS -- Design Maximum Values^g

For operation as a Horizontal-Deflection-Amplifier
Tube in a 525-line, 30-frame system

DC Plate Supply Voltage E_{bb}	770	V
Peak Positive-Pulse Plate Voltage ^h e_{bm}	6500	V
Peak Negative-Pulse Plate Voltage $-e_{bm}$	1500	V
DC Grid-No.3 Voltage ^k E_{c3}	75	V
DC Grid-No.2 (Screen-Grid) Voltage E_{c2}	220	V
DC Grid-No.1 (Control-Grid) Voltage:		
Negative-bias value $-E_{c1}$	55	V
Peak Negative-Pulse Grid-No.1 Voltage $-e_{c1m}$	330	V

6JU6, 22JU6, 12-65



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Heater-Cathode Voltage:

Peak	e_{hkm}	± 200	V
Average	$E_{hk(av)}$	100	V

Heater Voltage, ac or dc

(6JU6)	E_h	5.7 to 6.9	V
Heater Current (22JU6)	I_h	0.420 to 0.480	A

Cathode Current:

Peak	i_{kkm}	950	mA
Average	$I_{k(av)}$	275	mA

Grid-No.2 Input.	P_{g2}	3.5	W
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Plate Dissipation ^m	P_b	17	W
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Envelope Temperature (at hottest point on envelope surface)	T_E	240	$^{\circ}\text{C}$
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MAXIMUM CIRCUIT VALUES

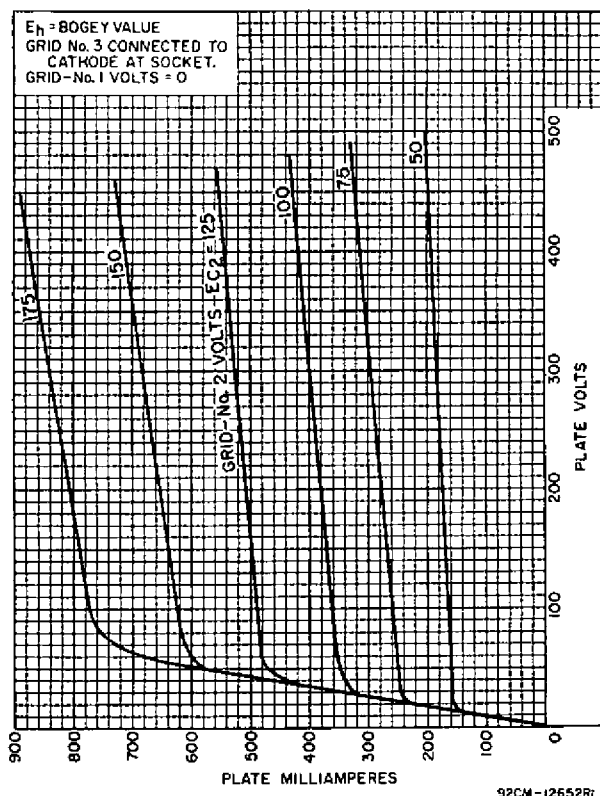
Grid-No.1-Circuit Resistance: $R_{g1(ckt)}$

For grid-No.1-resistor-bias operation	-	0.47	$M\Omega$
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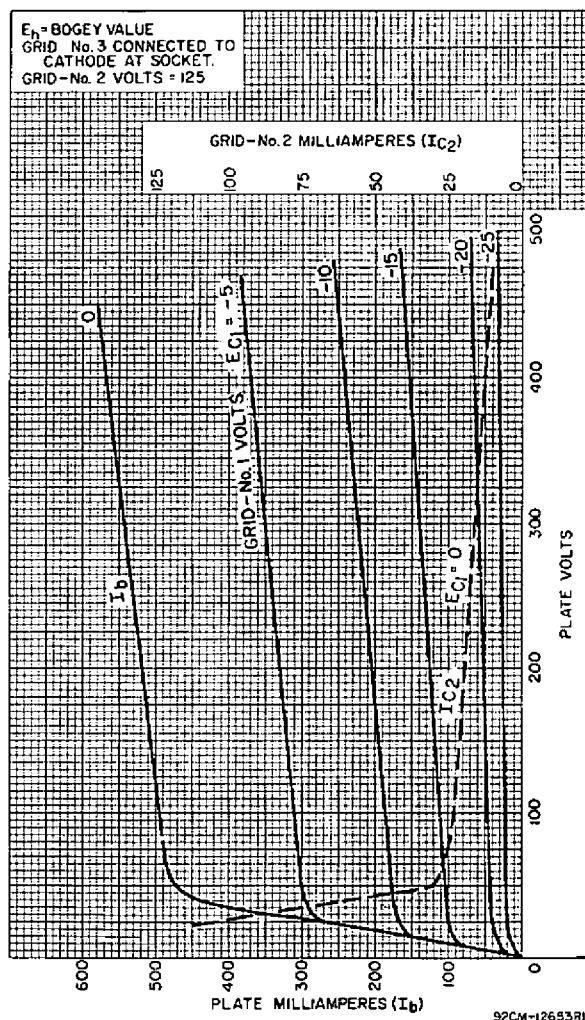
For plate-pulsed operation (horizontal-deflection circuits only)	-	10	$M\Omega$
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- a Measured without external shield in accordance with the current issue of EIA Standard RS-191.
- b With grid No.2 connected to plate at socket.
- c This value can be measured by a method involving a re-current waveform such that the Maximum Ratings of the tube will not be exceeded.
- d Under pulse-duration condition specified in Footnote h.
- e Designed to mate with "1/4-inch" Connector generally available from your local RCA Distributor.
- f Designed to mate with "Novar 9-Contact" Socket generally available from your local RCA Distributor.
- g As defined in the current issue of EIA Standard RS-239.
- h This rating is applicable where the duration of the voltage pulse does not exceed 15% of one horizontal scanning cycle. In a 525-line, 30-frame system, 15% of one horizontal scanning cycle is 10 μs .
- k In horizontal-deflection-amplifier service, a positive voltage may be applied to grid No.3 to reduce interference from "snivets" which may occur in both vhf and uhf television receivers. A typical operating value for this voltage is 30 V.
- m An adequate bias resistor or other means is required to protect the tube in the absence of excitation.

TYPICAL PLATE CHARACTERISTICS

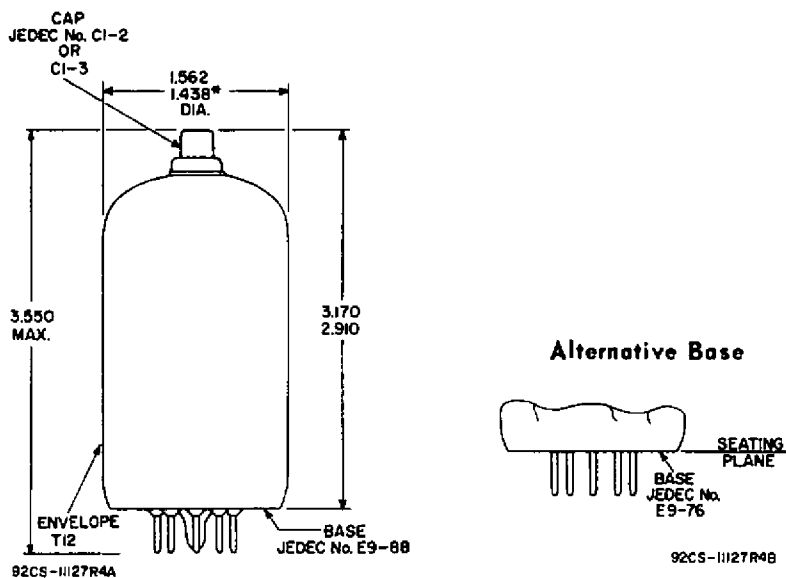


TYPICAL CHARACTERISTICS



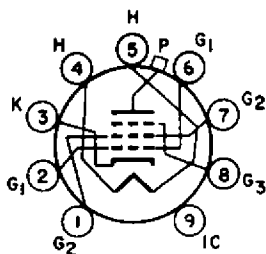
DIMENSIONAL OUTLINE

Dimensions in Inches



* Applies to the minimum diameter except in the area of the seal.

TERMINAL DIAGRAM (Bottom View)



JEDEC 9QL

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

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