



3D22

3D22 THYRATRON

GAS TETRODE

GENERAL DATA**Electrical:**

Heater, for Unipotential Cathode:	<u>Min.</u>	<u>Avg.</u>	<u>Max.</u>	
Voltage (AC or DC)	5.7	6.3	6.9	volts
Current, with heater volts = 6.3	2.35	2.60	2.85	amp

Cathode:

Heating Time, prior to tube conduction	30	-	-	sec
Outage Time, without reheating	-	-	3	sec

Direct Interelectrode Capacitances (Approx.):*

Grid No.1 to Anode	0.1	μf
Input	7	μf
Output	3.6	μf

* Without external shield, and with base shell floating.

Ionization Time (Approx.):

For conditions: dc anode volts = 100; grid-No.1 square-pulse volts = +100; and peak anode amp. during conduction = 8	0.5	μsec
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Deionization Time (Approx.):

For conditions: dc anode volts = 125; grid-No.1 volts = -200, grid-No.1 resistor (ohms) = 1000; and dc anode amp. = 0.8.	150	μsec
For conditions: dc anode volts = 125, grid-No.1 volts = -14.8; grid-No.1 resistor (ohms) = 1000; and dc anode amp. = 0.8.	400	μsec

**Maximum Critical Grid Current, with ac anode-supply
volts (rms) = 460, and average anode amp.
= 0.8**

0.8 μamp
10 volts

Anode Voltage Drop (Approx.)

**Grid-No.1 Control Ratio (Approx.) with grid-No.1
resistor (megohms) = 0 to 0.1; grid-No.2 re-
sistor (megohms) = 0; and grid-No.2 volts = 0**

150

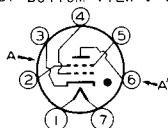
**Grid-No.2 Control Ratio (Approx.) with grid-No.1
resistor (megohms) = 0; grid-No.2 resistor
(megohms) = 0 to 0.1; and grid-No.1 volts
= -3**

650

Mechanical:

Mounting Position	Any
Maximum Overall Length	4-5/8"
Maximum Seated Length	4"
Maximum Diameter	2-3/8"
Bulb	T-16
Base	Medium-Metal-Shell Giant 7-Pin, Bayonet
Basing Designation for BOTTOM VIEW	78V

Pin 1-Heater
Pin 2-Grid No.2
Pin 3-Cathode
Pin 4-Grid No.1



Pin 5-Grid No.2
Pin 6-Anode
Pin 7-Heater

A-A' = PLANE OF ELECTRODES

← Indicates a change.

JUNE 15, 1948

TUBE DEPARTMENT
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

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RELAY and GRID-CONTROLLED RECTIFIER SERVICE

Maximum Ratings, Absolute Values:

PEAK ANODE VOLTAGE:		
Forward.	650 max.	volts
→ Inverse.	1500 max.	volts
GRID-No.2 (SHIELD-GRID) VOLTAGE:		
Peak, before anode conduction.	-100 max.	volts
→ Average, during anode conduction [■]	-10 max.	volts
GRID-No.1 (CONTROL-GRID) VOLTAGE:		
Peak, before anode conduction.	-200 max.	volts
→ Average, during anode conduction [■]	-10 max.	volts
→ CATHODE CURRENT:		
Peak	8 max.	amp
Average [■]	0.8 max.	amp
Surge, for duration of 0.1 sec. max. . .	30 max.	amp
GRID-No.2 CURRENT:		
→ Average [■]	+0.1 max.	amp
GRID-No.1 CURRENT:		
→ Average [■]	+0.05 max.	amp
PEAK HEATER-CATHODE VOLTAGE:		
Heater negative with respect to cathode.	100 max.	volts
Heater positive with respect to cathode.	25 max.	volts
AMBIENT TEMPERATURE RANGE.	-75 to +90	°C

Maximum Circuit Values:

Grid-No.1-Circuit Resistance	2 max.	megohms
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■ Averaged over any interval of 30 sec. max.

NOTE: Sufficient anode-circuit resistance, including tube load, must be used under all conditions of operation to prevent exceeding the current ratings of the tube.

→ indicates a change.

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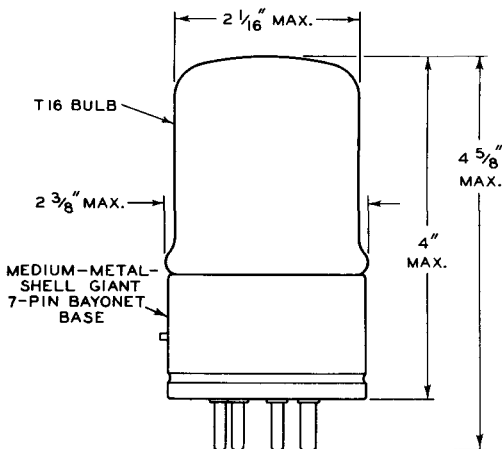
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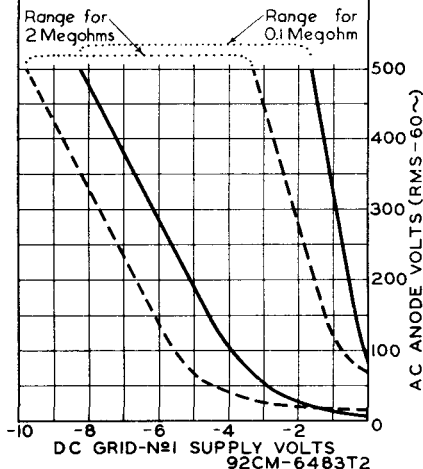
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OPERATIONAL RANGE OF CRITICAL GRID VOLTAGE

TYPE 3D22

GRID-N^o2 (SHIELD) VOLTS = 0

RANGES SHOWN ARE FOR TWO VALUES OF GRID RESISTOR—0.1 MEG. AND 2 MEG.—AND TAKE INTO ACCOUNT INITIAL DIFFERENCES BETWEEN INDIVIDUAL TUBES AND SUBSEQUENT DIFFERENCES DURING TUBE LIFE, FOR HEATER-VOLTAGE RANGE OF 5.7 TO 6.9 VOLTS, AND FOR AN AMBIENT TEMPERATURE RANGE OF -40 TO +90 °C.



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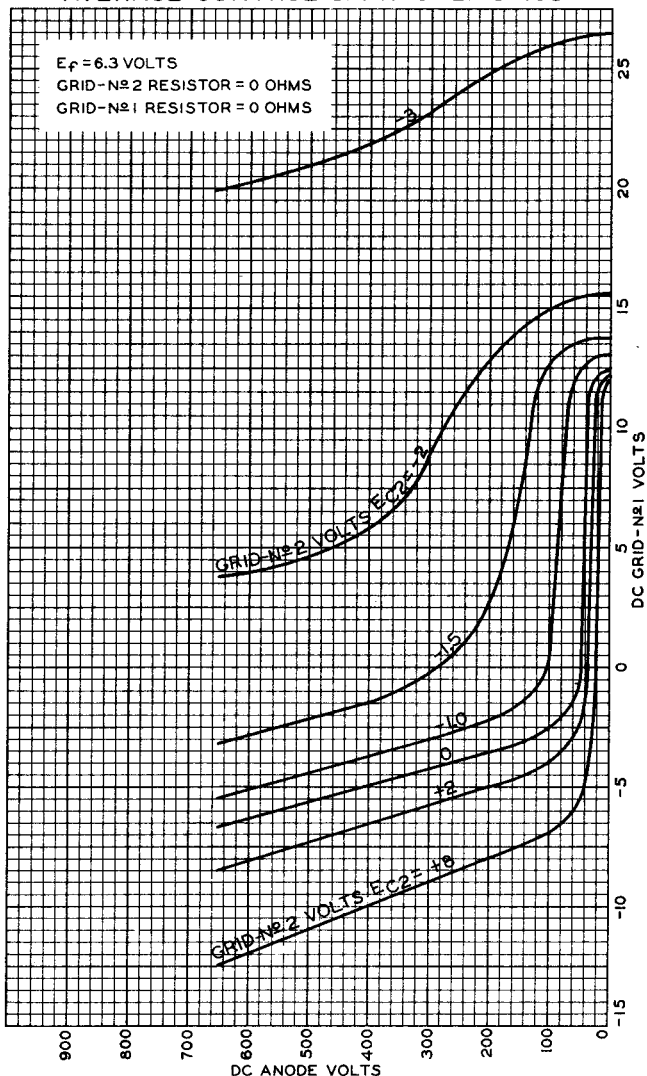
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AVERAGE CONTROL CHARACTERISTICS



JAN. 22, 1947

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92CM-6831

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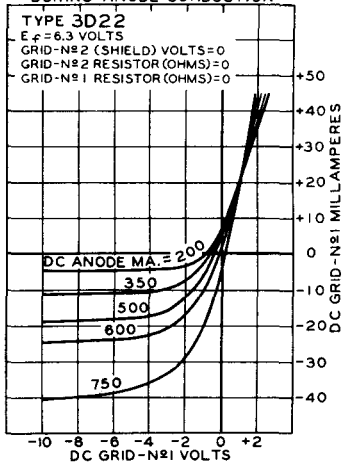
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AVERAGE GRID CHARACTERISTICS DURING ANODE CONDUCTION



AVERAGE GRID CHARACTERISTICS BEFORE ANODE CONDUCTION

