



2D21

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THYRATRON

GAS TETRODE, MINIATURE TYPE

GENERAL DATA

Electrical:

Heater, for Unipotential Cathode:	Min.	Av.	Max.	
Voltage (AC or DC)	5.7	6.3	6.9	volts
Current, with heater volts = 6.3	0.54	0.60	0.66	amp

Cathode:

Heating Time, prior to tube conduction.	10	-	-	sec
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Direct Interelectrode Capacitances (Approx.):⁰

Grid No.1 to Anode.	0.026	μuf
Input	2.4	μuf
Output.	1.6	μuf

Ionization Time (Approx.):

For conditions: dc anode volts = 100; grid-No.1 square-pulse volts = 50; peak anode amp. during conduction = 0.5	0.5	μsec
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Deionization Time (Approx.):

For conditions: dc anode volts = 125; grid-No.1 volts = -100; grid-No.1 resistor (ohms) = 1000; dc anode amp. = 0.1	35	μsec
For conditions: dc anode volts = 125; grid-No.1 volts = -10; grid-No.1 resistor (ohms) = 1000; dc anode amp. = 0.1	75	μsec

Maximum Critical Grid Current, with ac anode-supply volts (rms) = 460, and average anode amp. = 0.1

0.5 μamp
8 volts

Anode Voltage Drop (Approx.).

Grid-No.1 Control Ratio (Approx.) with grid-No.1 resistor (megohms) = 0; grid-No.2 volts = 0

250

Grid-No.2 Control Ratio (Approx.) with grid-No.1 resistor (megohms) = 0; grid-No.2 resistor (megohms) = 0; grid-No.1 volts = 0

1000

⁰ Without external shield.

Mechanical:

Mounting Position Any

Maximum Overall Length 2-1/8"

Maximum Seated Length 1-7/8"

Length, Base Seat to Bulb Top (excluding tip). . . 1-1/2" ± 3/32"

Maximum Diameter. 3/4"

Bulb. T-5-1/2

Base. Small-Button Miniature 7-Pin

Basing Designation for BOTTOM VIEW. 7BN

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



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

← Indicates a change.

JUNE 15, 1948

TUBE DEPARTMENT

RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

DATA



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RELAY and GRID-CONTROLLED RECTIFIER SERVICE**Maximum Ratings, Absolute Values:****PEAK ANODE VOLTAGE:**

Forward	650 max.	volts
Inverse	1300 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	-100 max.	volts
Average, during anode conduction [■]	-10 max.	volts

CATHODE CURRENT:

Peak	0.5 max.	amp
Average [■]	0.1 max.	amp
Surge, for duration of 0.1 sec. max.	10 max.	amp

GRID-No.2 CURRENT:

Average [■]	+0.01 max.	amp
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GRID-No.1 CURRENT:

Average [■]	+0.01 max.	amp
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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
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Typical Operating Conditions for Relay Service:

RMS Anode Voltage	117	400	volts
Grid-No.2 Voltage	0	0	volts
RMS Grid-No.1 Bias Voltage [□]	5	-	volts
DC Grid-No.1 Bias Voltage	-	-6	volts
Peak Grid-No.1 Signal Voltage	5	6	volts
Grid-No.1-Circuit Resistance	1.0	1.0	megohm
Anode-Circuit Resistance [#]	1200	2000	ohms

Maximum Circuit Values:

Grid-No.1-Circuit Resistance	10 max.	megohms
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■ Averaged over any interval of 30 sec. max.

□ Approximately 180° out of phase with the anode voltage.

Sufficient resistance, including the tube load, must be used under any conditions of operation to prevent exceeding the current ratings.

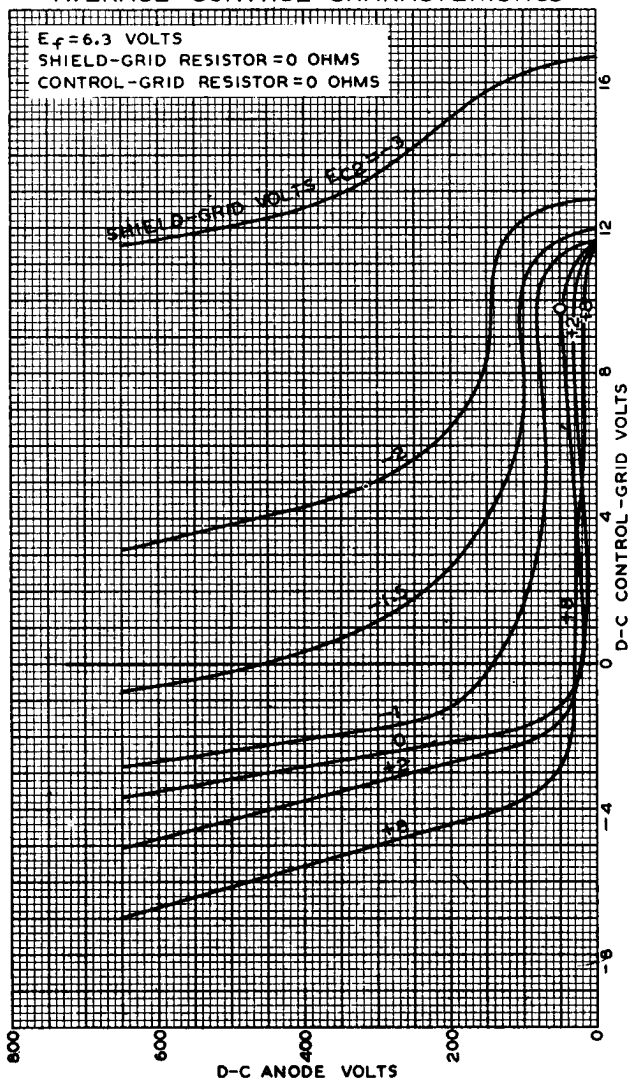
→ Indicates a change.



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AVERAGE CONTROL CHARACTERISTICS



MAY 2, 1944

D-C ANODE VOLTS

RCA VICTOR DIVISION

RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

92CM-6531R1

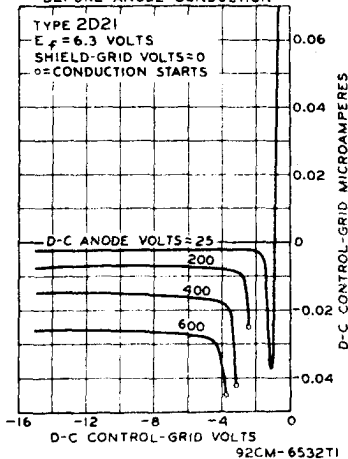
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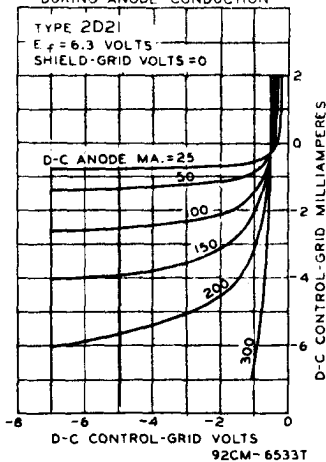
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THYRATRON

AVERAGE GRID CHARACTERISTICS
BEFORE ANODE CONDUCTION



AVERAGE GRID CHARACTERISTICS
DURING ANODE CONDUCTION





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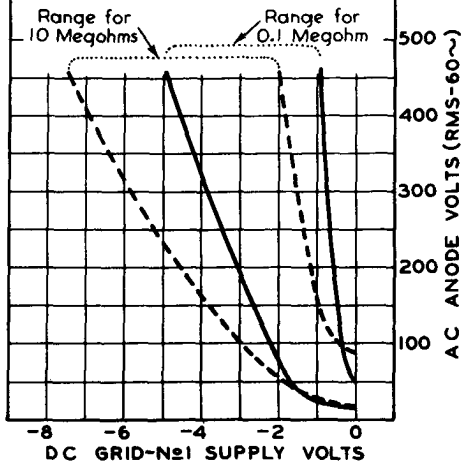
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OPERATIONAL RANGE
OF CRITICAL GRID VOLTAGE

TYPE 2D21 SHIELD-GRID VOLTS=0

RANGES SHOWN ARE FOR TWO VALUES
OF GRID RESISTOR - 0.1 MEG. AND 10
MEG. - AND TAKE INTO ACCOUNT INITIAL
DIFFERENCES BETWEEN INDIVIDUAL
TUBES & SUBSEQUENT DIFFERENCES
DURING TUBE LIFE, FOR A HEATER-
VOLTAGE RANGE OF 5.7 TO 6.9 VOLTS



92CM-6534T2