



5696

# THYRATRON

GAS-TETRODE, MINIATURE TYPE

5696

## GENERAL DATA

### Electrical:

Heater, for Unipotential Cathode:

Voltage. . . . .	6.3 . . . . .	ac or dc volts
Current. . . . .	0.150 . . . . .	amp

Cathode:

Minimum Heating Time, prior to tube conduction . . . . .	10 . . . . .	sec
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Direct Interelectrode Capacitances (Approx.):<sup>o</sup>

Grid No.1 to Anode . . . . .	0.03 . . . . .	$\mu$ mf
Input . . . . .	1.8 . . . . .	$\mu$ mf
Output . . . . .	0.54 . . . . .	$\mu$ mf

Ionization Time (Approx.):

For conditions: dc anode volts = 100; grid-No.1 square-pulse volts = +50; peak cathode amperes during conduction = 0.150 . . . . .	0.5 . . . . .	$\mu$ sec
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Deionization Time (Approx.):

For conditions: dc anode volts = 500; grid-No.1 volts = -100, grid-No.1 resistor (ohms) = 1000; dc cathode amperes = 0.025 . . . . .	25 . . . . .	$\mu$ sec
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For conditions: dc anode volts = 500; grid-No.1 volts = -13; grid-No.1 resistor (ohms) = 1000; dc cathode amperes = 0.025 . . . . .	40 . . . . .	$\mu$ sec
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Maximum Critical Grid-No.1 Current, with ac

anode-supply volts (rms) = 350, and average cathode amperes = 0.025 . . . . .	0.5 . . . . .	$\mu$ amp
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Anode Voltage Drop (Approx.) . . . . . 10 volts

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 volts = 0, grid-No.2 resistor (ohms) = 0 . . . . . 15

<sup>o</sup> Without external shield.

### Mechanical:

Mounting Position. . . . . Any

Maximum Overall Length . . . . . 1-3/4"

Maximum Seated Length. . . . . 1-1/2"

Length, Base Seat to Bulb Top (excluding tip). 1-1/8"  $\pm$  3/32"

Maximum Diameter . . . . . 3/4"

Bulb . . . . . T-5-1/2

Base . . . . . Small-Button Miniature 7-Pin

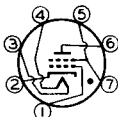
Basing Designation for BOTTOM VIEW . . . . . 7BN

Pin 1-Grid No.1 . . . . . Pin 5-Grid No.2

Pin 2-Cathode . . . . . Pin 6-Anode

Pin 3-Heater . . . . . Pin 7-Grid No.2

Pin 4-Heater . . . . .





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## RELAY and GRID-CONTROLLED RECTIFIER SERVICE

### Maximum Ratings, Absolute Values:

<b>PEAK ANODE VOLTAGE:</b>		
Forward. . . . .	500 max.	volts
Inverse. . . . .	500 max.	volts
<b>GRID-No.2 (SHIELD-GRID) VOLTAGE:</b>		
Peak, before anode conduction. . . . .	-50 max.	volts
Average, during anode conduction <sup>■</sup> . . . . .	-10 max.	volts
<b>GRID-No.1 (CONTROL-GRID) VOLTAGE:</b>		
Peak, before anode conduction. . . . .	-100 max.	volts
Average, during anode conduction <sup>■</sup> . . . . .	-10 max.	volts
<b>CATHODE CURRENT:</b>		
Peak . . . . .	0.1 max.	amp
Average <sup>■</sup> . . . . .	0.025 max.	amp
Surge, for duration of 0.1 sec. max. . . . .	2 max.	amp
<b>GRID-No.2 CURRENT:</b>		
Average <sup>■</sup> . . . . .	+0.005 max.	amp
<b>GRID-No.1 CURRENT:</b>		
Average <sup>■</sup> . . . . .	+0.005 max.	amp
<b>PEAK HEATER-CATHODE VOLTAGE:</b>		
Heater negative with respect to cathode . . . . .	100 max.	volts
Heater positive with respect to cathode . . . . .	25 max.	volts
<b>AMBIENT TEMPERATURE RANGE. . . . .</b>	-55 to +90	°C

### Typical Operating Conditions for Relay Service:

RMS Anode Voltage. . . . .	117	volts
Grid No.2. . . . .	Connected to cathode at	socket
RMS Grid-No.1 Bias Voltage <sup>□</sup> . . . . .	5	volts
Peak Grid-No.1 Signal Voltage. . . . .	5	volts
Grid-No.1-Circuit Resistance . . . . .	0.1	megohm
Anode-Circuit Resistance <sup>#</sup> . . . . .	5000	ohms

### Maximum Circuit Values:

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

<sup>□</sup> Approximately 180° out of phase with the anode voltage.

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

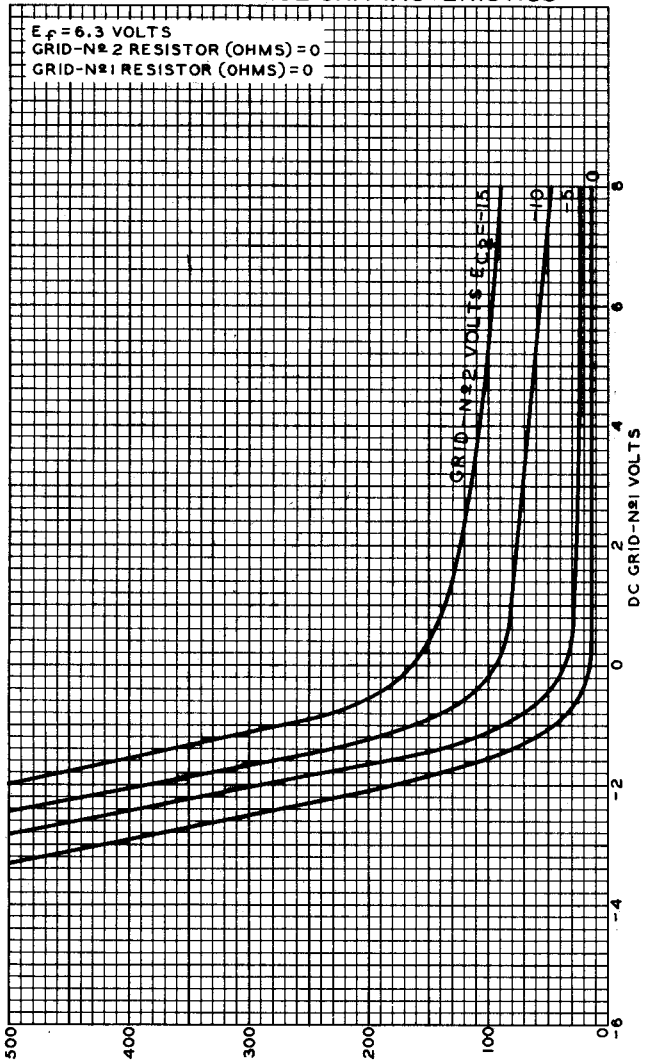


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### AVERAGE CONTROL CHARACTERISTICS

$E_f = 6.3$  VOLTS  
GRID-N<sub>2</sub> RESISTOR (OHMS) = 0  
GRID-N<sub>1</sub> RESISTOR (OHMS) = 0



AUG. 6, 1948

DC ANODE VOLTS  
TUBE DEPARTMENT

RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

92CM-7044

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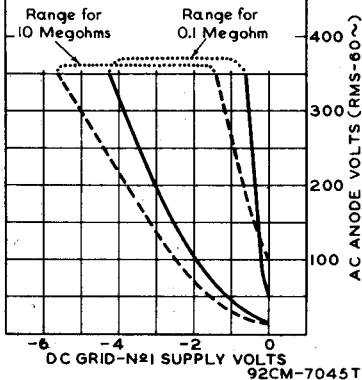
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## OPERATIONAL RANGE OF CRITICAL GRID VOLTAGE

### TYPE 5696

GRID-N#2 (SHIELD) 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  
 AND FOR AN AMBIENT TEMPERATURE  
 RANGE OF -55 TO +90 °C



FEB. 1, 1949

TUBE DEPARTMENT  
 RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

CE-7045T



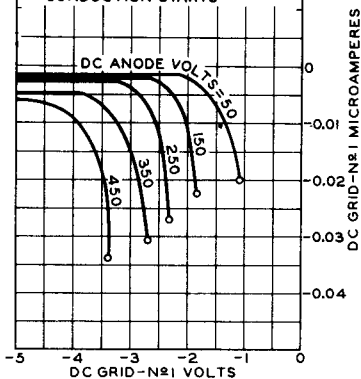
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# THYRATRON

## AVERAGE CHARACTERISTICS BEFORE ANODE CONDUCTION

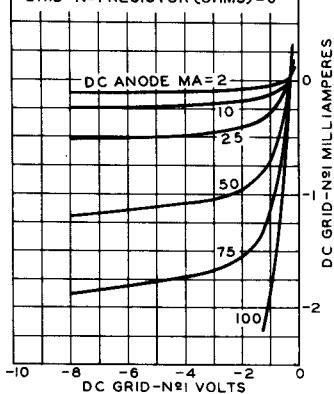
TYPE 5696  
 $E_f = 6.3$  VOLTS  
GRID-N#2 (SHIELD) VOLTS = 0  
GRID-N#1 RESISTOR (OHMS) = 0  
o = CONDUCTION STARTS



92CM-7047T

## AVERAGE CHARACTERISTICS DURING ANODE CONDUCTION

TYPE 5696  
 $E_f = 6.3$  VOLTS  
GRID-N#2 (SHIELD) VOLTS = 0  
GRID-N#1 RESISTOR (OHMS) = 0



92CM-7052T

FEB. 1, 1949

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CE-7047T - 7052T