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5728/FG-67

# MERCURY-VAPOR THYRATRON

NEGATIVE/POSITIVE-CONTROL TRIODE TYPE

## GENERAL DATA

### Electrical:

Heater, for Unipotential Cathode:

	Min.	Av.	Max.	
Voltage (AC or DC) . . . . .	4.75	5.0	5.25	volts
Current at 5.0 volts . . . . .	-	4.5	4.9	amp

Cathode:

Minimum Heating Time, prior to tube conduction . . . . .	5	minutes
Maximum Outage Time, without reheating . . . . .	See Curves	

Direct Interelectrode Capacitances

(Approx., without external shield):

Grid to Anode . . . . .	3.25	$\mu\text{f}$
Grid to Cathode . . . . .	8.9	$\mu\text{f}$

Maximum Critical Grid Current

with ac anode volts (rms) = 220 . . . . .	10	$\mu\text{amp}$
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Anode Voltage Drop (Approx.) . . . . . 16 volts

Ionization Time (Approx.):

For conditions: dc anode-supply volts = 100, peak grid volts = +35, and peak anode amperes = 15 . . . . .	15	$\mu\text{sec}$
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Deionization Time (Approx.):

For conditions: dc anode volts = 120, dc grid-supply volts = -500, grid resistor (ohms) = 1000, and dc anode amperes = 2.5 . . . . .	5	$\mu\text{sec}$
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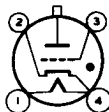
For conditions: dc anode volts = 120, dc grid-supply volts = 0, grid resistor (ohms) = 1000, and dc anode amperes = 2.5 . . . . .	850	$\mu\text{sec}$
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### Mechanical:

Mounting Position . . . . .	Vertical, base down
Maximum Overall Length . . . . .	7"
Seated Length . . . . .	6-1/8" $\pm$ 1/4"
Maximum Diameter . . . . .	3"
Bulb . . . . .	ST-23
Cap . . . . .	Medium (JETEC No.C1-5)
Base . . . . .	Medium-Shell Small 4-Pin, Bayonet (JETEC No.A4-10)

### BOTTOM VIEW

Pin 1: Heater  
Pin 2: Cathode  
(Grid & Anode  
Return)



Pin 3: Grid  
Pin 4: Heater,  
Cathode

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## MERCURY-VAPOR THYRATRON

### Temperature Control:

**Heating**—When the ambient temperature is so low that the normal rise of condensed-mercury temperature above the ambient temperature will not bring the condensed-mercury temperature up to the minimum value of the operating range specified under *Maximum Ratings*, some form of heat-conserving enclosure or auxiliary heater will be required.

**Cooling**—When the operating conditions are such that the maximum value of the operating condensed-mercury temperature is exceeded, provision should be made for forced-air cooling sufficient to prevent exceeding the maximum value.

### Temperature Rise of Condensed Mercury to Equilibrium Above Ambient Temperature

(Approx.):\*

No Load . . . . .	25	°C
Full Load . . . . .	31	°C

### INVERTER SERVICE

#### Maximum Ratings, Absolute Values:

#### PEAK ANODE VOLTAGE:

Forward . . . . .	1000 max.	volts
Inverse . . . . .	1000 max.	volts

#### GRID VOLTAGE:

Peak, before anode conduction . . . . .	-500 max.	volts
Average <sup>•</sup> , during anode conduction . . . . .	-5 max.	volts

#### CATHODE CURRENT:

Peak . . . . .	15 max.	amp
Average <sup>••</sup> . . . . .	2.5 max.	amp
Fault, for duration of 0.1 sec. max. . . . .	200 max.	amp

#### GRID CURRENT:

Average <sup>•</sup> . . . . .	+0.3 max.	amp
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CONDENSED-MERCURY TEMPERATURE RANGE . . . +40 to +80 °C

\* with heater voltage = 4.75 volts and no heat-conserving enclosure.

• Averaged over one conducting cycle.

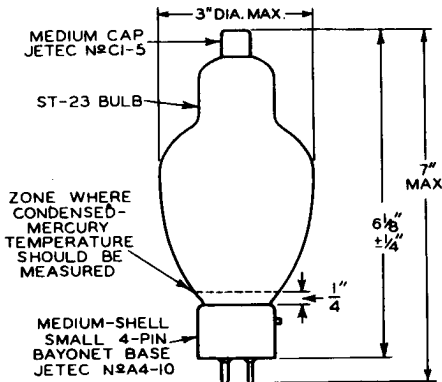
•• Averaged over any interval of 15 seconds maximum.



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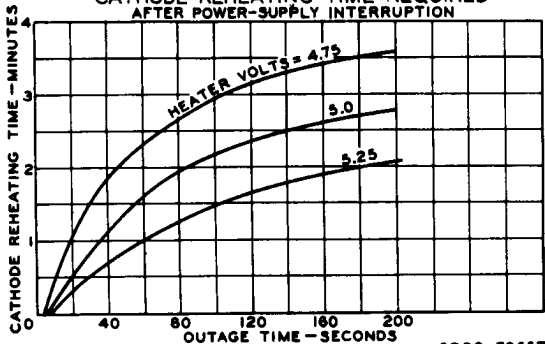
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# MERCURY-VAPOR THYRATRON



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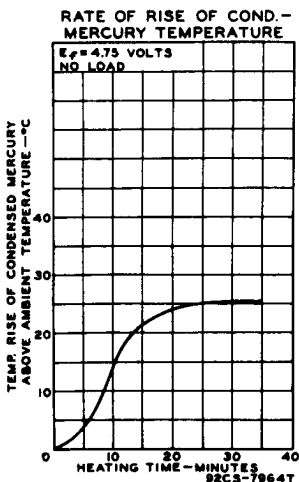
### CATHODE REHEATING TIME REQUIRED AFTER POWER-SUPPLY INTERRUPTION



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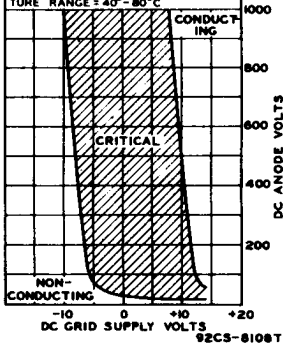


# 5728/FG-67 CHARACTERISTIC CURVES



## OPERATIONAL RANGE OF CRITICAL GRID VOLTAGE

RANGE IS FOR CONDITIONS WHERE:  
 $E_f = 5.0$  VOLTS AC  $\pm 5\%$ ; CIRCUIT  
 RETURNS TO PIN #2. THE RANGE  
 INCLUDES INITIAL AND LIFE VARI-  
 ATIONS OF INDIVIDUAL TUBES, AS  
 WELL AS CHANGE IN CHARACTER-  
 ISTICS DUE TO HEATER PHASING.  
 GRID RESISTOR (OHMS)=0.  
 CONDENSED-MERCURY TEMPERA-  
 TURE RANGE =  $40^\circ - 80^\circ\text{C}$





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# CHARACTERISTIC CURVES

