



5823

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GLOW-DISCHARGE TRIODE

COLD-CATHODE, MINIATURE TYPE

GENERAL DATA**Electrical:**

Cathode Cold
 Ionization Time (Approx.):

For conditions: Instantaneous anode volts = 185;
 peak positive starter-electrode pre-firing
 volts = 70; peak positive starter-
 electrode triggering volts = 50; anode-
 circuit series resistor (ohms) = 820;
 starter-electrode series resistor
 (ohms) = 100000

20 μ sec

Deionization Time (Approx.):

For conditions: (Same as for *Ionization Time*)

500 μ sec

Anode Voltage Drop. 62 volts

Starter-Electrode Voltage Drop. 61 volts

Anode Breakdown Voltage 290 volts

Starter-Electrode Breakdown Voltage 80 volts

Required Transfer Current (DC or
 Instantaneous AC) for transition of
 discharge to anode at 140 volts peak 50 μ amp

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" $\pm$ 3/32"

Maximum Diameter. 3/4"

Bulb. T-5-1/2

Base. Small-Button Miniature 7-Pin

Basing Designation for BOTTOM VIEW 4CK

Pin 1 - Anode

Pin 5 - Internal

Pin 2 - Internal

Connection-
Do Not Use

Connection-
Do Not Use

Pin 6 - Internal

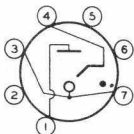
Pin 3 - Cathode

Connection-
Do Not Use

Pin 4 - Starter

Electrode

Pin 7 - Cathode

**Maximum Ratings[▲], Absolute Values:**

For First-Quadrant Operation Only

PEAK ANODE AND STARTER-ELECTRODE VOLTAGE:

Inverse 200 max. volts

Forward 200 max. volts

[▲] These ratings apply to the 5823 when it is operated from a power supply having a frequency of 60 cycles per second. If a contemplated application involves higher supply frequencies, please write, stating the proposed operating frequency, to the attention of Commercial Engineering, RCA, Harrison, New Jersey for information as to required changes in maximum ratings and characteristics.

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CATHODE CURRENT:

Peak	100 max.	ma
Average*	25 max.	ma

PEAK STARTER-ELECTRODE CURRENT:

With starter-electrode voltage positive	100 max.	ma
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AMBIENT TEMPERATURE	-60 to +75	°C
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Typical Operating Conditions:

For Relay Service with 60-Cycle AC Supply

AC Anode Supply Voltage (RMS)	117	volts
AC Starter-Electrode Voltage:		
Max. Peak Positive Pre-Firing Voltage	70	volts
Min. Peak Positive Triggering Voltage	35	volts
Min. Firing Voltage (Sum of In-Phase Instantaneous Pre-Firing Voltage and Instantaneous Triggering Voltage)	105	volts

CHARACTERISTICS RANGE VALUES FOR EQUIPMENT DESIGN

For First-Quadrant Operation Only

	Note	Min.	Max.	
Anode Breakdown Voltage	1	200	-	volts
Starter-Electrode Breakdown Voltage	2	73	105 [□]	volts
Required Transfer Current (DC or Instantaneous AC) for transition of discharge to anode at 140 volts peak	3	-	400 [□]	μamp
Anode Voltage Drop	4	-	85 [□]	volts
Starter-Electrode Voltage Drop	5	-	75 [□]	volts

Note 1: With a variable dc anode voltage, dc starter-electrode voltage of 0 volts, anode-circuit series resistance of 3000 ohms, and starter-electrode series resistance of 50000 ohms.

Note 2: With dc anode voltage of 0 volts, variable dc starter-electrode voltage, anode-circuit series resistance of 3000 ohms, and starter-electrode series resistance of 50000 ohms.

Note 3: With a variable dc starter-electrode voltage, anode-circuit series resistance of 3000 ohms, and starter-electrode series resistance of 2 megohms.

Note 4: With dc anode voltage of 230 volts, dc starter-electrode voltage of 91 volts, dc cathode current of 50 milliamperes, anode-circuit series resistance of 3000 ohms, and starter-electrode series resistance of 50000 ohms.

Note 5: With dc anode voltage of 0 volts, variable dc starter-electrode voltage, dc starter-electrode current of 10 milliamperes, and starter-electrode series resistance of 3000 ohms.

* Averaged over any interval of 15 seconds maximum.

□ Maximum individual tube values during life.



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OPERATING NOTES

RCA-5823 is recommended for operation only in that part of the breakdown characteristic designated by Quadrant I. Operation in Quadrant II is satisfactory but changes in tube ratings are necessary. Operation in Quadrants III and IV is not recommended, because the anode and starter electrode are not designed for efficient cathode operation; their use in this manner will result in unstable operation and shorter tube life. The information given for Quadrants III and IV is of value to the equipment designer in that it indicates the need for precautions to be taken in order that the peak inverse voltage rating is not exceeded.

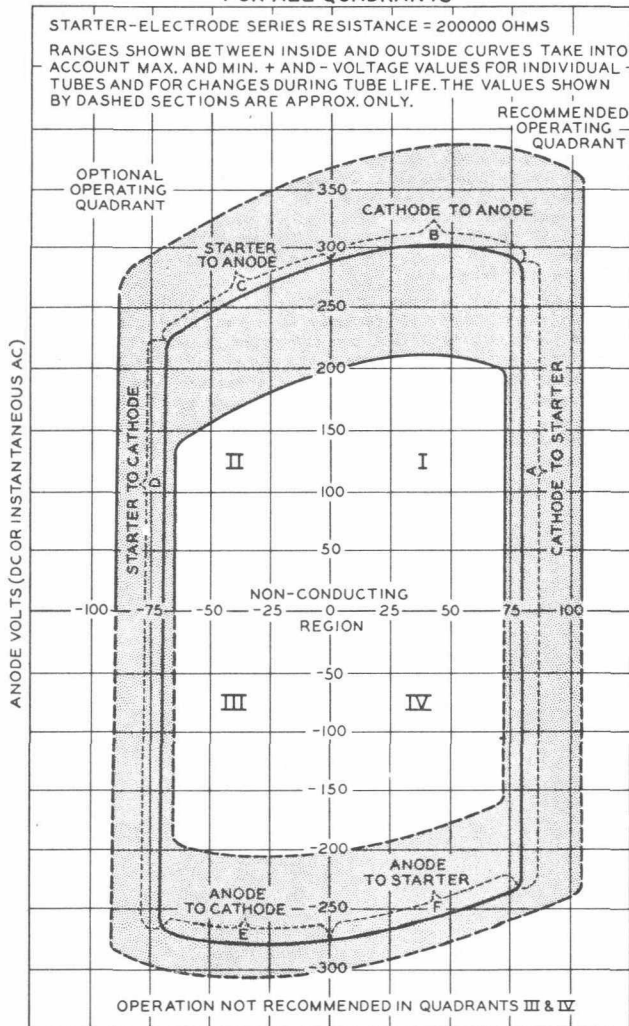
Because of the asymmetrical shape of its anode characteristic the 5823 can be used as a rectifier. When so used (with starter electrode connected through 50000-ohm resistor to anode), the 5823 has a maximum peak inverse anode voltage rating of 200 volts, a maximum peak cathode current of 100 milliamperes, and a maximum dc cathode current of 25 milliamperes. Operation at values of dc cathode current less than 8 milliamperes is not recommended because of resulting instability.

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BREAKDOWN CHARACTERISTICS FOR ALL QUADRANTS



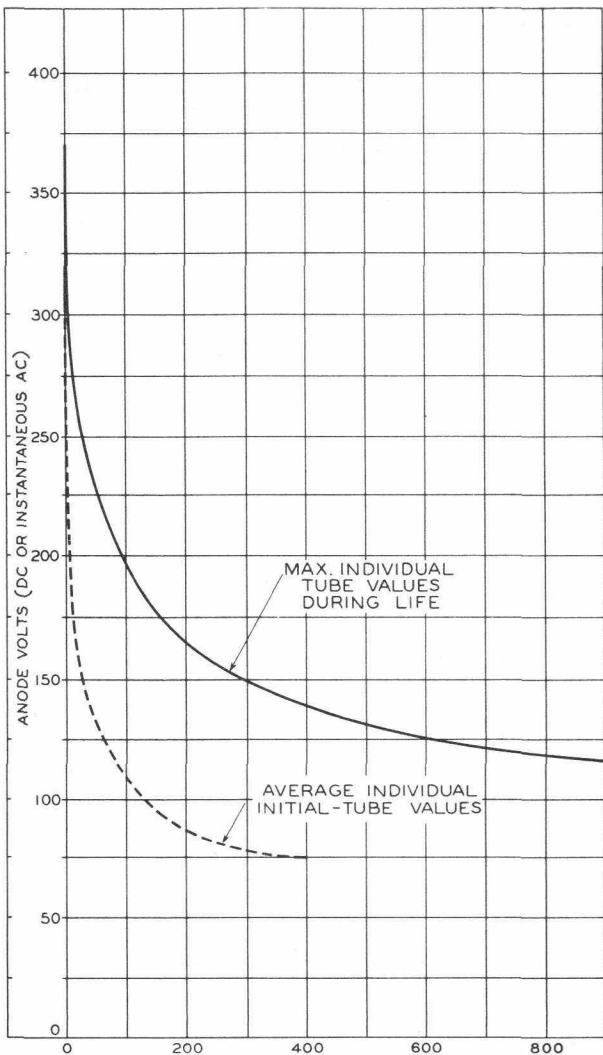
STARTER-ELECTRODE VOLTS (DC OR INSTANTANEOUS AC)



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TRANSITION CHARACTERISTIC



STARTER-ELECTRODE MICROAMPERES (DC OR INSTANTANEOUS AC)

MAY 16, 1949

TUBE DEPARTMENT

92CM-7282

RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

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GLOW-DISCHARGE TRIODE

AVERAGE ANODE CHARACTERISTIC

