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ELECTRON TUBE DATA SHEET  
WESTERN ELECTRIC 423C ELECTRON TUBE



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DESCRIPTION

The 423C is a two-electrode inert-gas filled cold cathode tube designed primarily for use as a voltage reference tube. This tube has characteristics which are exceptionally stable with life and with variations in ambient temperature.

CHARACTERISTICS

|   |                      |
|---|----------------------|
| Cathode Current . . . . .                                       | .4 to 8 milliamperes |
| Anode Voltage Drop . . . . .                                    | 100 volts            |
| Regulation at 4 to 6 milliamperes d-c (Note 5-page 3) . . . . . | 0.75 volt            |

File: Cold Cathode Section

RATINGS, Absolute System (Note 1)

|   |            |                 |
|---|------------|-----------------|
| Cathode Current, Forward                |            |                 |
| Maximum . . . . .                       |            | 8 milliamperes  |
| Minimum . . . . .                       |            | 4 milliamperes  |
| Maximum Inverse Anode Current . . . . . |            | 0.0 milliampere |
| Ambient Temperature Limits. . . . .     | -55 to +60 | centigrade      |

ELECTRICAL DATA, Throughout Life

|  | <u>Min.</u> | <u>Bogey</u> | <u>Max.</u> |              |
|--|-------------|--------------|-------------|--------------|
| Anode Breakdown Voltage . . . . .  | -           | 135          | 160         | volts        |
| Anode Voltage Drop ( $E_{td}$ ) at 6 Milliamperes (D-C) Note 2 . . . . . | 99          | 100          | 103         | volts        |
| Regulation (4 to 6 Milliamperes, D-C) (Note 5) . . . . .                 | -           | 0.3          | 0.75        | volt         |
| Temperature Sensitivity of Anode Voltage Drop                            |             |              |             |              |
| Anode Current, 4 Milliamperes (D-C) . . . . .                            | -           | -0.01        | -           | volt/c       |
| Anode Current, 8 Milliamperes (D-C) . . . . .                            | -           | -0.02        | -           | volt/c       |
| Fluctuation (Note 3) . . . . .   | -           | 0.02         | 0.1         | volt         |
| Average Ionization Time (Note 4) . . . . .                               | -           | 4.0          | 6.0         | milliseconds |

MECHANICAL DATA

|  |                    |
|--|--------------------|
| Mounting Position . . . . .                                    | Any                |
| Net Weight, Approximate . . . . .                              | 0.3 ounce          |
| Bulb . . . . .   | T 6½               |
| Base . . . . .   | Small Button 9 pin |
| Dimensions and connections shown in outline drawing on page 4. |                    |

LIFE DATA

|  |              |
|--|--------------|
| Regulation (4 to 6 mAdc) after 1000 hours at 5 mAdc (Note 5) . . . . .     | See Figure 1 |
| Drift in Anode Voltage Drop ( $E_{td}$ ) in 1000 hours at 5 mAdc . . . . . | See Figure 2 |

HANDLING

This tube contains a small amount of krypton-85 gas which is a by-product radioactive material. The amount of krypton-85 is less than five microcuries, which is too small an amount to require any special care in use.

Atomic Energy Commission regulations require that the individual tube carton for tubes containing by-product radioactive material be appropriately marked. The marking includes the statement that tube disposal should be in approved manner.

Approved instructions for disposal of tubes containing krypton-85 are as follows;

Tubes to be disposed of should be broken or crushed in a well ventilated place releasing any resulting vapors to the outside atmosphere. The residual broken or crushed tubes should be disposed of in a normal public trash disposal system. Tubes should be disposed of at a rate of not more than 100 each week from any one location. Avoid breathing vapors from broken tubes.

Note 1: In the "Absolute System" the maximum ratings specified are limiting values above which the serviceability of the device may be impaired from the viewpoint of life and satisfactory performance. Maximum ratings, as such, do not constitute a set of operating conditions and all values may not, therefore, be attained simultaneously.

REGULATION AFTER 1000 HOURS  
5 mAdc LIFE

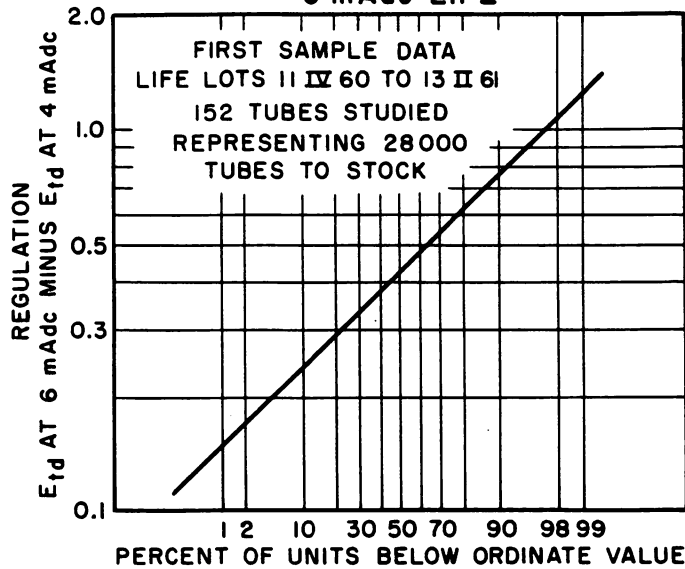


FIG. 1

DRIFT OF ANODE VOLTAGE OVER 1000 HOURS  
5 mAdc LIFE

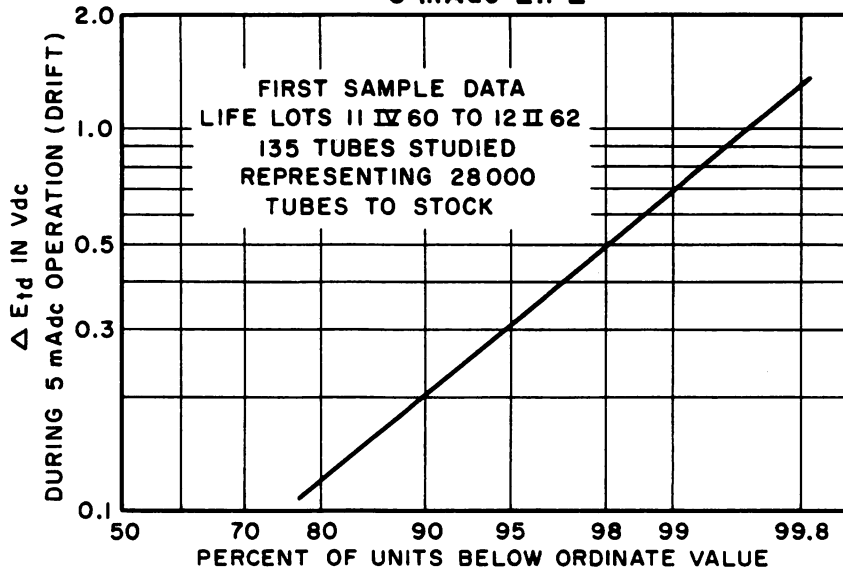


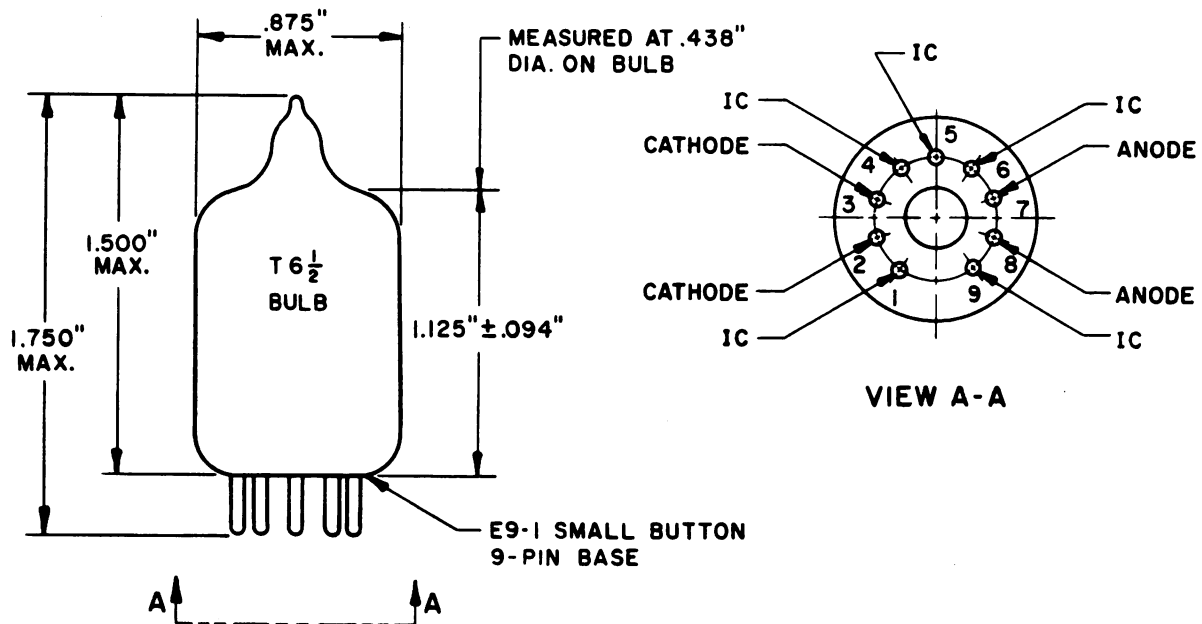
FIG. 2

Note 2: These values are for new tubes. Anode voltage drop will stabilize within 3 minutes after starting.

Note 3: The anode voltage drop variation during a short period of time (one to ten minutes), with the tube operating at one value of current and temperature within its ratings, will not exceed the above stated maximum value.

Note 4: With 15 volts overvoltage (15 volts above Anode Breakdown Voltage) with tube in total darkness. Average of 10 measurements taken at 1 second intervals.

Note 5: Regulation is defined to be Anode Voltage Drop ( $E_{td}$ ) at 6 mAdc minus Anode Voltage Drop ( $E_{td}$ ) at 4 mAdc.



NOTE: PINS MARKED IC (INTERNAL CONNECTION) SHOULD NOT BE CONNECTED TO ANY PORTION OF AN EXTERNAL CIRCUIT. FAILURE TO OBSERVE THIS PRECAUTION MAY RESULT IN IMPROPER OPERATION OF THE TUBE.

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