

ELECTRON TUBE TYPE 6627

The 6627 is a two electrode inert gas filled cold cathode tube for use in voltage regulator and voltage reference applications where dependable performance under conditions of shock, vibration, high ambient temperatures and absence of external radiation is essential.

Mechanical Data

Cathode-----Cold
 Max. overall length-----2 5/8 inches
 Max. seated length-----2 3/8 inches
 Max. diameter-----3/4 inches
 Mounting position-----Any
 Envelope-----T5 $\frac{1}{2}$ (6-5)
 Base-----Miniature glass button 7 pin E7-1

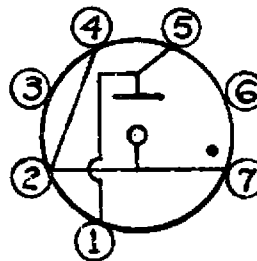
Basing Diagram

Pin 1: Anode

Pin 2: Cathode

Pin 3: Internal Connection
 Do not use

Pin 4: Cathode



Pin 5: Anode

Pin 6: Internal Connection.
 Do not use

Pin 7: Cathode

5B0

Electrical Data

For Voltage Regulator Applications:

Maximum ratings, absolute values;

Average starting current (Note 8).....	75	ma
D.C. cathode current.....	30 max. 5 min.	ma
Ambient temperature, minimum.....	-55	°C
Bulb temperature, maximum (Note 9).....	+150	°C
Altitude.....	120,000	Ft.
Frequency.....	0	C.P.S.

from JETEC release #1433, March 14, 1955, with changes
 from JETEC release #1433A, Sept. 12, 1955 inserted.
 sponsor: CBS-Hytron

CHARACTERISTIC RANGE FOR EQUIPMENT DESIGN

Voltage Regulator Service	Min.	Avg.	Max.	
Anode supply voltage (d-c) ⁽³⁾	130			volts
Anode breakdown voltage (total darkness)		125	130	volts
Anode breakdown voltage (normal ambient light) ⁽⁴⁾		120	130	volts
Anode voltage drop	105	108	111	volts
Regulation (5-30 ma) ⁽⁵⁾		1.5	2.5	volts
Avg. change anode voltage drop during lifetime		2	4	%

For Voltage Reference Applications:

Maximum ratings, absolute values;

D.C. cathode current.....	10 max.	ma
	6 min.	ma
Ambient temperature limits.....	-55° to +150	°C
Altitude.....	120,000	Ft.

CHARACTERISTIC RANGE FOR EQUIPMENT DESIGN

Voltage Reference Service	Min.	Avg.	Max.	
Anode supply voltage (d-c) ⁽³⁾	130			volts
Anode breakdown voltage (total darkness)		125	130	volts
Anode breakdown voltage (normal ambient light)		120	130	volts
Voltage repeatability ⁽⁸⁾		0.05	0.4	volt

Typical Operating Characteristics:

Anode voltage drop (Note 2).....	107	volts
Regulation (6-10 ma) (Note 2).....	0.2	volts
Stability (Note 6).....	0.2	volts
Temperature sensitivity, anode voltage drop...±	0.005	v/°C
Voltage jumps (Note 7).....	0.05	volts

Special Ratings and Performance Data:

Shock rating;

Impact acceleration.....450 max. g

Reference MIL-E-IB specification
paragraph 4.9.20.5

Fatigue rating;

Vibrational acceleration.....5.0 max. g

Reference MIL-E-IB specification
paragraph 4.9.20.6

Elevated bulb temperature rating

Maximum bulb operation temperature.....+150° C

Tubes are tested under intermittent
life test conditions at a minimum
bulb temperature of 150° C for 1000
hours. Reference MIL-E-IB paragraph
4.11.5.

Shelf stability of electrical characteristics

Tubes are tested for release after
undergoing a minimum 1000 hour non-
operating holding period.

Notes

- Note 1: The D.C. anode supply voltage is the minimum value necessary to assure ionization in the tube throughout life under conditions of either total darkness or normal illumination.
- Note 2: Maximum, minimum and average tube values during life.
- Note 3: If this value of shunt capacitance is exceeded in the associated circuit the tube may oscillate resulting in unstable performance.
- Note 4. Five to fifty foot candles of ambient light.

- Note 5: Defined as the maximum shift in tube voltage drop between successive firings of the tube operating at one value of current and temperature within its ratings.
- Note 6: Defined as the average shift in tube voltage drop over an 8 hour period when the tube is operated at one value of current and temperature within its ratings.
- Note 7: Defined as the instantaneous change in tube anode voltage drop as the tube current is varied slowly within the specified operating current range.
- Note 8: When equipment utilizing this tube is placed in operation a starting current in the tube in excess of the average operating current is permissible as indicated under maximum ratings. This current should not be allowed to continue for more than 5 seconds. When the tube is subjected to such high starting currents some time may be required for the tube to stabilize at its normal operating voltage. This "memory characteristic" is typical of glow discharge voltage regulator tubes. Similarly when a tube is operated for extended periods at a given current point within its operating range and then switched to a different operating current some time may be required for the tube to stabilize at the new point.
- Note 9: The maximum bulb temperature will vary both with ambient temperature and tube operating current. In an attached appendix sheet is shown the correlation between $+150^{\circ}\text{C}$ maximum bulb temperature, ambient temperature and tube operating current.
- Note 10: Regulation is defined as the maximum allowable difference in tube voltage drop measured between any two current points within the specified current rating range (5-30 mA dc). The two current points are to be selected which indicate the largest value of regulation.

CONVERSION CURVE - AMBIENT TEMPERATURE VS TUBE OPERATION CURRENT
TO PRODUCE MAXIMUM BULB OPERATING TEMPERATURE OF 150°C.

