

ELECTRONIC TUBE REFERENCE

CONSOLIDATED TECHNICAL DATA
1 SECTION
CONSTRUCTION
VOLTAGEREGULATOR

1B64

Voltage Regulator electronic tube

Miniature Sylvania cold-cathode voltage regulator for compact heaterless voltage stabilization and reference service.

GENERAL CHARACTERISTICS

BASE DESIGNATION	—	BASE PINS	—
NOMINAL HEATER	— / —	PARALLEL HEATER	— / —
HEATING	Indirect; cold cathode	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION1 Voltage Regulator	
MAXIMUM PLATE VOLTAGE	250 V
Physical section extracted from supplied datasheet.	

1B64 Miniature Voltage Regulator

The **1B64** is a cold-cathode, glow-discharge miniature voltage regulator designed to provide a stable direct-current voltage source in electronic circuits. Encased in a compact metal shell, this device is engineered to maintain a relatively constant voltage across its terminals despite variations in operating current within its specified limits.

Physical Construction and Base Configuration

The 1B64 features a robust physical design utilizing a T-4 envelope with a protective metal shell. It is equipped with a double-contact bayonet candelabra base, allowing for secure installation. The tube is designed to operate reliably in any mounting position.

The physical dimensions of the device are highly compact:

- **Maximum overall length:** 1.66 inches
- **Maximum shell diameter:** 0.59 inches
- **Maximum base diameter (including pins):** 0.63 inches

Electrical connection to the tube is established via two bottom pins on the double-contact base. These pins are spaced exactly 0.267 inches apart and are designated as the anode and cathode terminals.

Electrical Ratings and Regulation Performance

As a glow-discharge regulator, the 1B64 operates within strict electrical limits to ensure proper ionization and stable voltage regulation. The electrical ratings and characteristics of the device include:

- **Maximum Starting Voltage:** 225 Vdc (the minimum voltage required to initiate the glow discharge)
- **Operating Voltage Range:** 65 Vdc minimum to 75 Vdc maximum
- **Operating Current Range:** 1.0 mAdc minimum to 2.0 mAdc maximum
- **Maximum Regulation:** 3.0 Vdc

The maximum regulation of 3.0 Vdc is defined as the maximum voltage variation across the tube when the operating current fluctuates within the specified range of 1.0 to 2.0 mAdc.

Typical Operation and Circuit Requirements

In a typical application, the 1B64 is operated with an anode supply voltage of 250 Vdc. Under normal operating conditions, the tube maintains an approximate operating voltage of 70 Vdc while drawing a current between 1.0 and 2.0 mAdc.

To prevent damage to the tube and ensure safe operation, a series protective resistance must always be included in the circuit. This resistance is necessary to limit the continuous steady-state current to the maximum rating of 2.0 mAdc. Under typical operating conditions with a 250 Vdc supply, an approximate series protective resistance of 15,000 ohms is used.

Technical Summary

The 1B64 is a miniature, cold-cathode, glow-discharge voltage regulator housed in a T-4 metal shell with a double-contact bayonet candelabra base. It is capable of regulating voltage within a 65 to 75 Vdc range (typically around 70 Vdc) over an operating current range of 1.0 to 2.0 mAdc, with a maximum regulation variation of 3.0 Vdc. Safe operation requires the use of a series protective resistor, typically 15,000 ohms when operating from a 250 Vdc supply, to prevent the current from exceeding the 2.0 mAdc absolute limit.



SOURCE OPERATING CONDITIONS

SOURCE PDF

1950 Sylvania

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1950 SYLVANIA
Section 1 · Voltage Regulator

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Series Protective Resistance 15,000 ohms	15 ohms	Series Protective Resistance 15,000 ohms