

ELECTRONIC TUBE REFERENCE

1B34

Specialized - Switching Tube electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION

CONSTRUCTION

SPARKGAPPULSESWITCH

Gas-filled series spark-gap pulse switch rated for approximately 6.5 kV initial breakdown and 120 A peak current.

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 SparkGapPulseSwitch	
MAXIMUM CATHODE CURRENT	120 mA
STARTING VOLTAGE	6500 V
MAINTAINING VOLTAGE	80 V
Published electrical limits promoted from the source. Passive microwave reference cavities have their electrical frequency/Q values in TUBE_SECTION_PARAMETER because no applicable promoted frequency field exists in the fixed section schema.	

1B34 — Series Spark Gap

The **1B34** is a gas-filled, two-electrode series spark gap designed for high-power switching and protective applications. Utilizing an ionizable gaseous medium, the device is engineered to handle high peak currents and peak power levels under low duty cycle conditions across a specified operating frequency range.

Construction and Physical Dimensions

The 1B34 features an asymmetrical physical construction with distinct top and bottom terminals. The mechanical specifications of the device are as follows:

- **Cathode Terminal (Top):** Located at the top of the device, with a diameter of 0.890 inches (+0.025" / -0.015") and a length ranging from 5/8 inches minimum to 11/16 inches maximum.
- **Anode Terminal (Bottom):** Located at the bottom of the device, with a diameter of 0.566 inches (± 0.007 ") and a length ranging from 17/32 inches minimum to 19/32 inches maximum.
- **Body Dimensions:** The maximum body diameter is 1-3/8 inches, and the overall length ranges from a minimum of 4-11/16 inches to a maximum of 4-15/16 inches.

To ensure proper operation and thermal stability, the mounting position is restricted. The 1B34 must be mounted with the cathode end up and oriented within 60° of the vertical axis.

Electrical Characteristics

The electrical behavior of the 1B34 is defined by its breakdown thresholds, post-breakdown conduction characteristics, and internal capacitance:

- **Frequency Range:** The device is rated for operation from 120 to 2000 Cycles/Second.
- **Instantaneous Breakdown Voltage:** To initiate conduction, the initial peak breakdown voltage is 6.5 Kilovolts. Once recurrent operation is established, the recurrent peak breakdown voltage is 6.0 Kilovolts.
- **Voltage Drop:** Following the initiation of the spark, the voltage across the gap drops rapidly. The voltage drop is 80 Volts, measured 0.5 microseconds after breakdown.
- **Interelectrode Capacitance:** The capacitance between the two electrodes is 6 micro-microfarads (6 pF).

Maximum Ratings

The 1B34 is designed for pulsed service, as reflected in its maximum ratings and duty cycle limitations. Operating outside these limits may cause permanent damage or failure of the ionizable medium.

Parameter	Rating
Peak Power Dissipation	25 Kilowatts
Peak Current	120 Amperes
Average Power Dissipation	25 Watts
Average Current	120 Milliamperes
Maximum Frequency	2000 Cycles/Second
Ambient Temperature Range	-50 to +100°C

Parameter	Rating
Duty Cycle	0.001

The relationship between the peak and average ratings is strictly governed by the duty cycle. For example, a calculation of average power based on peak power and duty cycle yields:

$$\text{Average Power} = \text{Peak Power} \times \text{Duty Cycle} = 25,000 \text{ W} \times 0.001 = 25 \text{ W}$$

Similarly, a calculation of average current from peak current yields:

$$\text{Average Current} = \text{Peak Current} \times \text{Duty Cycle} = 120 \text{ A} \times 0.001 = 0.12 \text{ A} = 120 \text{ mA}$$

These calculations demonstrate that the average ratings represent the absolute continuous limits under the maximum rated duty cycle of 0.001.

Technical Summary

The **1B34** is a series spark gap featuring a two-electrode, gas-filled construction. It is engineered for high-voltage, high-peak-power switching applications within a frequency range of 120 to 2000 Cycles/Second. With an initial peak breakdown voltage of 6.5 Kilovolts and a post-breakdown voltage drop of 80 Volts (at 0.5 microseconds), it provides rapid transition to a conducting state. The device supports peak currents up to 120 Amperes and peak power up to 25 Kilowatts, constrained by a strict 0.001 duty cycle that limits average power dissipation to 25 Watts and average current to 120 Milliampere. It must be operated within an ambient temperature range of -50 to +100°C and mounted within 60° of vertical with the cathode end up.

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1947 Westinghouse

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

1947 WESTINGHOUSE

Section 1 · SparkGapPulseSwitch

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
MaximumCurrent	120 mA	—
BreakdownOrStartingVoltage	6500 V	—
PeakPowerDissipation	25000 W	Pulse
Duty Cycle Maximum	0.001	Pulse
FrequencyMaximum	2000 Hz	—

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
MaintainingOrVoltageDrop	80 V	—
RecurrentBreakdownVoltage	6000 V	—

TUBE TINKER

An independent reference for electronic tubes, vacuum tubes,
and their source documents.

[Catalog](#) [Tube types](#) [Full books](#) [Blog](#) [Feedback & corrections](#)

© 2026 Tube Tinker