

ELECTRONIC TUBE REFERENCE

CONSOLIDATED TECHNICAL DATA

1945

1 SECTION
CONSTRUCTION
BALLAST

Specialized - Ballast electronic tube

Philips current-regulator ballast tube designed to maintain approximately 275 mA over an 80-120 V operating range.

GENERAL CHARACTERISTICS

BASE DESIGNATION	—	BASE PINS	—
NOMINAL HEATER	1 V / 70 mA	PARALLEL HEATER	— / —
HEATING	Indirect	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION1 Ballast	
MINIMUM REGULATOR CURRENT	263 mA
MAXIMUM REGULATOR CURRENT	283 mA
MAINTAINING VOLTAGE	100 V
Published maximum ratings and device-specific characteristics are promoted where schema-compatible; remaining switching/gauge/regulator electrical data is retained in section parameters.	

1945 — Current Regulator Tube

The **1945** is a current regulator and resistance tube, also referred to as a *tube de résistance*, *Widerstandsröhre*, *régulateur de courant*, or *Stromregler*. It is designed to maintain a stable current of approximately **0.275 A** across a control voltage range of **80 V to 120 V**.

Physical Specifications and Base Configurations

The 1945 is constructed with a tubular glass bulb envelope. Its physical dimensions include a maximum diameter of **38 mm** and a maximum overall height of **115 mm** (with some specifications noting this length excludes the pins).

Depending on the manufacturer and production variant, the 1945 is available with two distinct base configurations:

9-Pin "P." Type Base

In this configuration, the tube features a 9-pin "P." type base. The pins are arranged as follows:

- **Pins 1 through 7:** Auxiliary pins.
- **'f' Pins:** Two separate filament pins between which the active resistance/regulating element is connected.

8-Pin Octal Base

Alternatively, the tube is available with a standard 8-pin octal base configuration. The pinout for this variant is defined as:

- **Pins 1 and 8:** Connected to the filament / regulating element (f).
- **Pins 2, 3, 4, 5, 6, and 7:** Interconnected internally.

Electrical Characteristics and Regulation Performance

The primary function of the 1945 is current regulation. It operates over a specified voltage window, absorbing voltage fluctuations to maintain a relatively steady current through its series-connected load.

Parameter	Value
Nominal Regulated Current	0.275 A (275 mA)
Regulating Voltage Range	80 V to 120 V
Mean Operating Voltage	100 V
Minimum Tube-to-Tube Current Tolerance	263 mA
Maximum Tube-to-Tube Current Tolerance	283 mA

The tube-to-tube current tolerances indicate that at the nominal operating point, individual specimens of the 1945 will exhibit a regulated current within a tight window of **263 mA to 283 mA**.

Characteristic Curve Analysis

The current-voltage (I/V) characteristic curve of the 1945 illustrates its behavior across the regulating range of 80 V to 120 V. The current-voltage characteristic curve is nearly linear and shows a steadily

rising current over this range:

- **At 80 V:** The current is approximately **0.225 A**.
- **At 100 V (Mean Voltage):** The current is approximately **0.27 A to 0.275 A**.
- **At 120 V:** The current is approximately **0.32 A to 0.325 A**.

This nearly linear relationship demonstrates that while the tube acts as a current-limiting resistance element, the current does rise gradually as the voltage across the device increases from the lower to the upper limit of its control range.

Technical Summary

The **1945** is a specialized current regulator tube designed to operate with a nominal current of **0.275 A** over an active voltage range of **80 V to 120 V**. Housed in a **38 mm** diameter tubular glass bulb with a height of **115 mm**, it is found with either a 9-pin "P." type base or an 8-pin octal base. Its electrical characteristics are defined by a mean operating voltage of **100 V** and a controlled current tolerance between **263 mA and 283 mA**, making it a reliable series resistance element for stabilizing electrical circuits.



SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1957 Philips Receiving and Amplifying Tubes

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

1957 PHILIPS RECEIVING AND AMPLIFYING TUBES

Section 1 · Ballast

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Nominal Regulating Current	275 mA	—
Operating Voltage Minimum	80 V	—
Operating Voltage Maximum	120 V	—
Current-Tolerance Test Voltage	100 V	—
Current Tolerance Minimum	263 mA	From tube to tube
Current Tolerance Maximum	283 mA	From tube to tube



SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1971 RCA HB3 Binder 2 of 7

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

1971 RCA HB3 BINDER 2 OF 7

Section 1 · Ballast

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
•^'1 – published value 1	1 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
•^'1 – published value 2	1 V	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Current – published value 1	0 mA	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
Current – published value 2	70 A	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
Resistance of Thermocouple	5 ohm	Published datasheet value; multiple values on one row represent separate limits, service ratings, or operating conditions.
Heater or filament voltage nominal	1 V	Nominal value from supplied datasheet.
Heater or filament current nominal	70 mA	Nominal or average value from supplied datasheet.