



ELECTRONIC TUBE REFERENCE

1802

Rectifier - Half Wave electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION
CONSTRUCTION
RECTIFIER

Philips directly heated half-wave high-vacuum rectifier for low-current early receiving-equipment power supplies, providing approximately 30 mA rectified DC output.

GENERAL CHARACTERISTICS

BASE DESIGNATION	—	BASE PINS	—
NOMINAL HEATER	4 V / 400 mA	PARALLEL HEATER	— / —
HEATING	Direct	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION 1 Rectifier	
MAXIMUM PLATE VOLTAGE	250 V
NOMINAL OUTPUT CURRENT	30 mA
<i>Directly heated half-wave high-vacuum rectifier.</i>	

1802 — Half-Wave High-Vacuum Rectifier

Overview

The **1802** is a half-wave high-vacuum rectifier valve designed primarily for use in alternating current (A.C.) mains receivers. It features a directly heated filament and is housed in a glass envelope with an H32 base. The device is engineered to provide rectified high-voltage direct current (D.C.) from an A.C. supply, supporting a maximum A.C. anode voltage of 250 V and delivering up to 30 mA of rectified output current.

Construction, Filament, and Base

The 1802 is constructed as a single-plate (monoplaque) high-vacuum diode. It utilizes a directly heated filament, which operates at a nominal voltage of **4.0 V**. Depending on the manufacturing variant, the filament current is approximately **0.4 A** or **0.5 A**.

The physical dimensions of the valve are characterized by a maximum overall length of **92 mm** (specified in some contexts as excluding pins) and a maximum diameter of **46 mm** to **47 mm**. The tube is fitted with an **H32** base, with connections designated as **S V** or reference **14**.

Parameter	Value
Heating method	Direct
Filament voltage	4.0 V
Filament current	Approx. 0.4 A to 0.5 A
Maximum overall length	92 mm
Maximum diameter	46 mm to 47 mm
Base type	H32

Maximum Ratings

To ensure reliable operation and prevent damage to the valve, the operating conditions must be kept within the specified maximum limits. The absolute maximum ratings for the 1802 rectifier are:

- **Maximum A.C. Anode Voltage ($V_a \text{ max}$):** 250 V (also specified as 250 V_{RMS} no-load)
- **Maximum Rectified D.C. Current ($I_a \text{ max}$):** 30 mA

These limits define the boundary conditions for safe operation in typical A.C. mains receiver power supplies.

Rectification Characteristics and Performance Curves

The performance of the 1802 under load is defined by the relationship between the rectified output voltage (V_d) and the rectified output current (I_a) across various effective A.C. input voltages (V_{eff}).

As the current load increases, the internal resistance of the high-vacuum diode causes a drop in the rectified output voltage. The typical output characteristics at three distinct effective input voltages are:

Effective Input Voltage (V_{eff})	Rectified Current (I_a)	Rectified Output Voltage (V_d)
250 V	0 mA (No-load)	~355 V
	16 mA	~255 V

Effective Input Voltage (Veff)	Rectified Current (Ia)	Rectified Output Voltage (Vd)
	30 mA (Full-load)	~210 V
200 V	0 mA (No-load)	~280 V
	30 mA (Full-load)	~155 V
150 V	0 mA (No-load)	~210 V
	30 mA (Full-load)	~90 V

These values demonstrate the regulation behavior of the rectifier. For instance, at an input of 250 V, drawing the maximum rated current of 30 mA results in a rectified D.C. voltage of approximately 210 V.

Technical Summary

The **1802** is a directly heated half-wave high-vacuum rectifier designed for A.C. mains receivers. Operating with a 4.0 V filament supply drawing 0.4 A to 0.5 A, it provides a reliable rectified D.C. output of up to 30 mA from an A.C. anode supply of up to 250 V. Housed in an H32-based envelope with a maximum length of 92 mm, the 1802 offers predictable voltage regulation characteristics across its operating range, making it a standard component for low-power high-voltage rectification in historical receiver designs.

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1938 Philips Miniwatt Vacuum Tube Catalog

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

1938 PHILIPS MINIWATT VACUUM TUBE CATALOG

Section 1 · Rectifier

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum AC no-load voltage per plate	250 V	HalfWave
Maximum DC output current	30 mA	HalfWave

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1999 Philips 0-D

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

1999 PHILIPS 0-D

Section 1 · Rectifier

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater voltage	40 V	Nominal
Heater current	400 mA	Nominal
A.C. anode voltage	250 V	Maximum
Rectified current	30 mA	Maximum