



ELECTRONIC TUBE REFERENCE

1803

Rectifier - Half Wave electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION

CONSTRUCTION

RECTIFIER

Philips directly heated half-wave high-vacuum rectifier for low-current early radio and electronic supplies, providing approximately 30 mA rectified DC output.

GENERAL CHARACTERISTICS

BASE DESIGNATION	—	BASE PINS	—
NOMINAL HEATER	4 V / 600 mA	PARALLEL HEATER	— / —
HEATING	Direct	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION 1 Rectifier	
MAXIMUM PLATE VOLTAGE	500 V
NOMINAL OUTPUT CURRENT	30 mA
<i>Directly heated half-wave high-vacuum rectifier.</i>	

1803 — Half-Wave High-Vacuum Rectifier

The **1803** is a directly heated, half-wave high-vacuum rectifier tube designed primarily for use in A.C. mains receivers. It provides rectification of alternating current to supply high-voltage direct current for radio receivers and similar electronic equipment.

Mechanical and Base Specifications

The 1803 is constructed with a glass envelope having a maximum overall length of 100 mm and a maximum diameter of 52 mm, excluding the base pins.

Depending on the specific manufacturing variant, the tube is available with different basing configurations:

- **Base H 35:** Utilizes connection reference 14 or base connection S V.
- **Base A 35:** Utilizes base connection S III.

Filament and Heating Data

The tube features a directly heated filament designed for low-voltage AC operation. The filament characteristics are as follows:

Parameter	Value
Heating Type	Direct
Filament Voltage	4.0 V
Filament Current	Approx. 0.6 A

Maximum Ratings

To ensure reliable operation and prevent damage to the tube, the operating conditions must be kept within the specified maximum limits:

- **Maximum A.C. Anode Voltage (No-Load Voltage):** 500 V_{RMS}
- **Maximum Rectified D.C. Current:** 30 mA

Rectification Characteristics and Load Curves

The output performance of the 1803 varies depending on the applied A.C. input voltage (V_{eff}) and the current drawn by the load. The relationship between the rectified output voltage (V_a) and the load current (I_a) across its operating range of 0 to 30 mA is characterized by the following performance points:

- **At $V_{eff} = 300$ V:** The output voltage is approximately 410 V under no-load conditions (0 mA) and drops to approximately 310 V at the maximum rated current of 30 mA.
- **At $V_{eff} = 400$ V:** The output voltage is approximately 560 V at 0 mA and drops to approximately 440 V at 30 mA.
- **At $V_{eff} = 500$ V:** The output voltage is approximately 710 V at 0 mA and drops to approximately 570 V at 30 mA.

These values illustrate the internal resistance and voltage regulation of the rectifier under typical operating conditions up to its maximum current limit.

Technical Summary

The 1803 is a compact, half-wave high-vacuum rectifier tube designed for A.C. mains receivers. Operating with a directly heated 4.0 V, 0.6 A filament, it is capable of handling a maximum A.C. anode voltage of 500 V and delivering up to 30 mA of rectified D.C. current. Its physical dimensions of 100 mm by 52 mm and compatibility with H35 or A35 bases make it a standard component for low-power high-voltage rectification.



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	500 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	600 mA	Nominal
A.C. anode voltage	500 V	Maximum
Rectified current	30 mA	Maximum

TUBE TINKER

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

