

ELECTRONIC TUBE REFERENCE

1AX2

Rectifier - TV Line Scan Boost electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION
CONSTRUCTION
RECTIFIER

High-voltage television flyback/EHT rectifier designed to convert horizontal-output transformer pulses into the DC accelerating supply required by the CRT.

GENERAL CHARACTERISTICS

BASE DESIGNATION	9Y	BASE PINS	—
NOMINAL HEATER	1.4 V / 650 mA	PARALLEL HEATER	— / —
HEATING	Direct	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

9Y - TERMINAL PINOUT

TERMINAL	SECTION	ELEMENT	STATUS
PIN1 — F1	—	F — Filament	CONNECTED
PIN2 — F2	—	F — Filament	CONNECTED
PIN3 — IC	—	—	IC
PIN4 — F1	—	F — Filament	CONNECTED
PIN5 — F2	—	F — Filament	CONNECTED
PIN6 — F1	—	F — Filament	CONNECTED
PIN7 — IC	—	—	IC
PIN8 — F2	—	F — Filament	CONNECTED
PIN9 — F1	—	F — Filament	CONNECTED
CAP1 — P	A	P — Plate (Anode)	CONNECTED

SECTION RATINGS

SECTION1 Rectifier	
MAXIMUM CATHODE CURRENT	0.5 mA
PEAK INVERSE VOLTAGE	20000 V
NOMINAL OUTPUT CURRENT	0.5 mA
PEAK FORWARD CURRENT	45 mA
FORWARD VOLTAGE DROP	200 V
<i>Promoted from the printed condensed-manual maximum/characteristic columns; operating-point values are retained in TUBE_SECTION_PARAMETER.</i>	

1AX2 — Half-Wave High-Voltage Rectifier

The **1AX2** is a half-wave high-voltage rectifier vacuum tube designed specifically for television flyback rectifier service. It is engineered to handle high inverse voltages and deliver rectified direct current to the high-voltage anode of a television picture tube.

Filament and Base Connections

The 1AX2 features a directly heated filament designed for low-voltage direct current (DC) operation. The physical layout utilizes a specific base configuration and outline standard.

- **Filament Voltage (DC):** 1.4 V
- **Filament Current:** 0.65 A
- **Base Connections:** 9Y
- **Outline Drawing:** 6-7

The filament is designed to operate at a nominal 1.4 V, drawing a current of 0.65 A. This low-voltage, high-current filament design is typical for rectifiers operating in high-voltage environments where isolation and efficient heating are required.

Electrical Characteristics and Tube Voltage Drop

In typical operation, the 1AX2 exhibits a characteristic internal voltage drop when conducting. This parameter is critical for determining the efficiency and heat dissipation of the tube during conduction.

- **Typical Tube Voltage Drop:** Approximately 200 V at a direct-current (d-c) flow of 7 mA.

This voltage drop represents the internal resistance of the tube under load and is a key factor in circuit design, particularly when calculating the overall efficiency of the high-voltage power supply.

TV Flyback Rectifier Ratings and Operating Conditions

The 1AX2 is primarily intended for television flyback rectifier service, where it must withstand extreme electrical stresses during the horizontal retrace period. The maximum ratings established for this service

define the safe operating envelope of the device.

Maximum Ratings

- **Maximum D-C Output Current:** 0.5 mA
- **Maximum Inverse Voltage (d-c component):** 20,000 V
- **Maximum Peak Current:** 45 mA

Pulse Duration Constraints

In flyback rectifier service, the high-voltage pulses applied to the tube are periodic. To prevent damage and ensure reliable operation, the duration of the pulse voltage must not exceed 15 percent of one scanning cycle. This duty cycle limitation is essential for preventing excessive heating and voltage breakdown within the tube structure.

Technical Summary

The **1AX2** is a specialized half-wave high-voltage rectifier tube designed for television flyback circuits. Operating with a 1.4 V, 0.65 A DC filament, the tube is housed in an envelope utilizing a 9Y base connection scheme and a 6-7 outline. It is rated to withstand a maximum direct-current component of inverse voltage up to 20,000 V, with a maximum peak current of 45 mA and a maximum continuous direct-current output of 0.5 mA. Under typical conduction conditions, it exhibits a tube voltage drop of approximately 200 V at 7 mA. Its operation in pulsed high-voltage environments is constrained by a maximum pulse duration of 15 percent of a single scanning cycle.

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

195X General Electric Essential Characteristics

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

195X GENERAL ELECTRIC ESSENTIAL CHARACTERISTICS

Section 1 · Rectifier

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Tube voltage drop	200 V	At 7 mA DC

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
DC output current maximum	0.5 mA	TV Flyback Rectifier
Inverse voltage maximum	20000 V	TV Flyback Rectifier
Peak current maximum	45 mA	TV Flyback Rectifier