



ELECTRONIC TUBE REFERENCE

1AD2A

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	—	BASE PINS	12
NOMINAL HEATER	1.25 V / 200 mA	PARALLEL HEATER	— / —
HEATING	Direct	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION 1 Rectifier	
MAXIMUM CATHODE CURRENT	0.8 mA
PEAK INVERSE VOLTAGE	26000 V
NOMINAL OUTPUT CURRENT	0.8 mA
PEAK FORWARD CURRENT	50 mA
FORWARD VOLTAGE DROP	225 V
<i>High-voltage flyback/pulse rectifier; X-radiation maximum and filament limits preserved as parameters.</i>	

1AD2A Half-Wave Vacuum Rectifier

The **1AD2A** is a duodecar-type half-wave vacuum rectifier designed specifically for use in the high-voltage pulse circuits of both color and black-and-white television receivers. It features a compact design requiring a specialized socket and is capable of handling the high peak inverse voltages typical of television scanning systems.

Filament and Physical Connections

The 1AD2A is constructed with a filament designed for low-voltage operation. Under standard operating conditions, the filament requires a nominal supply of **1.25 V** (either AC or DC) and draws a nominal current of **0.2 A**. To ensure reliable operation and maintain the tube's performance characteristics, the filament voltage must be kept within strict absolute limits:

- **Absolute-Maximum Filament Voltage:** 1.45 V
- **Absolute-Minimum Filament Voltage:** 1.05 V

The tube utilizes a duodecar 12-contact envelope and requires a matching 12-contact socket. The physical pin connections are arranged according to the **12GV** diagram, with the high-voltage plate connection made via a top cap. The pinout configuration is detailed below:

Pin Number	Connection Type	Description
Pin 1	F, IS	Filament, Internal Shield
Pin 2	IC	Internal Connection
Pin 3	IC	Internal Connection
Pin 4	LC	Lead Connection (suitable for tie point near filament potential)
Pin 5	IC	Internal Connection
Pin 6	F, IS	Filament, Internal Shield
Pin 7	IC	Internal Connection
Pin 8	IC	Internal Connection
Pin 9	IC	Internal Connection
Pin 10	LC	Lead Connection (suitable for tie point near filament potential)
Pin 11	IC	Internal Connection
Pin 12	F	Filament
Top Cap	P	Plate

Socket terminals 4 and 10 are designated as lead connections and are specifically suitable for use as tie points for external circuit components that operate at or near filament potential. Internal connections (IC) on pins 2, 3, 5, 7, 8, 9, and 11 should not be used for circuit connections.

Pulsed Rectifier Service and Ratings

The 1AD2A is rated for pulsed rectifier service in television receivers operating under a standard **525-line, 30-frame** system. The electrical ratings are established under the design-maximum system:

- **Peak Inverse Plate Voltage:** 26,000 max V. This rating is subject to specific pulse conditions: the pulse duration must not exceed 15% of a horizontal scanning cycle or 10 μ s, and the DC component of the voltage must not exceed 22,000 V.
- **Peak Plate Current:** 50 max mA.
- **Average Plate Current:** 0.5 max mA.

Under typical instantaneous operating conditions, the tube exhibits a voltage drop of **225 V** when conducting a plate current of **7 mA**. The direct interelectrode capacitance from the plate to the filament is approximately **1.6 pF**.

X-Radiation Characteristics

Due to the high operating voltages present in television pulse rectifier circuits, the 1AD2A has controlled X-radiation characteristics. Under standard conditions, the maximum X-radiation emitted by the tube is **0.5 mR/hr**. This is a statistical value controlled on a lot sampling basis during manufacture.

Operating the 1AD2A outside of its design-maximum ratings is highly discouraged. Exceeding these limits may result in temporary or permanent changes in the X-radiation characteristics of the tube, potentially increasing emission levels beyond the specified maximum.



SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1975 RCA RC30

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

1975 RCA RC30

Section 1 · Rectifier

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Peak Inverse Plate Voltage	26000 V	PulsedRectifier
Peak Plate Current	50 mA	—
Average Plate Current	0.8 mA	—
Filament Voltage Minimum	1.05 V	—
Filament Voltage Maximum	1.45 V	—

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Tube Voltage Drop	225 V	PlateCurrent=1mA
X-Radiation Maximum	0.5 mR/hr	LotSamplingMaximum

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate to Filament Capacitance	1.6 pF	—

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