ELECTRONIC TUBE REFERENCE

1AU3

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	3C	**BASE PINS**	7
NOMINAL HEATER	1.25 V / 200 mA	**PARALLEL HEATER**	— / —
HEATING	Direct	**SERIES OPERATION**	Not specified
CATHODE ARRANGEMENT	Separate cathodes	**SECTION CONSTRUCTION**	Similar

3C - Terminal pinout

TERMINAL	SECTION	ELEMENT	STATUS
PIN1 — Pin 1	—	—	IC
PIN2 — Pin 2	—	F — Filament	CONNECTED
PIN3 — Pin 3	—	—	IC
PIN5 — Pin 5	—	—	IC
PIN7 — Pin 7	—	F — Filament	CONNECTED
PIN8 — Pin 8	—	—	IC
CAP1 — Top cap	A	P — Plate (Anode)	CONNECTED

Section ratings

SECTION1 Rectifier	
MAXIMUM CATHODE CURRENT	0.5 mA
PEAK INVERSE VOLTAGE	30000 V
NOMINAL OUTPUT CURRENT	0.5 mA
PEAK FORWARD CURRENT	50 mA
FORWARD VOLTAGE DROP	225 V
Primary promoted rectifier values from flyback-voltage rectifier ratings.	

1AU3 — Filamentary Half-Wave Diode

The **1AU3** is a filamentary half-wave diode incorporating an electrostatic shield adjacent to the filament. It is designed primarily for use as a high-voltage rectifier in television receivers and other high-voltage rectifier applications.

Mechanical Construction and Pinout

The 1AU3 features a T-12 glass bulb envelope and is constructed with a coated filament cathode. It utilizes a short medium shell octal 7-pin base (designated as 3C) and can be mounted in any position.

Physical Dimensions

- **Maximum Diameter:** 1-9/16"
- **Maximum Overall Length:** 3-7/8"
- **Maximum Seated Height:** 3-5/16"

Pin Connections and Socket Guidelines

The electrical connections are accessed via the 7-pin base and a top cap. The bottom-view pinout is configured as follows:

Pin	Connection
Pin 1	IC (Internal Connection)
Pin 2	F (Filament)
Pin 3	IC (Internal Connection)
Pin 4	IC (Internal Connection)
Pin 5	IC (Internal Connection)
Pin 6	NC / IC (No Connection / Internal Connection)

Pin	Connection
Pin 7	F, S (Filament, Shield)
Pin 8	IC (Internal Connection)
Top Cap	P (Plate)

Specific socket wiring guidelines must be followed when integrating the 1AU3 into a circuit:

- Socket terminals 1, 3, 4, 5, 6, and 8 may be connected directly to terminal 7 or to an external corona shield that is connected to terminal 7.
- Terminals 4 and 6 are permitted for use as tie points for auxiliary components that operate at or near filament potential.

Filament and Electrical Characteristics

The 1AU3 is designed with a coated filament cathode. To ensure reliable operation, the filament supply must be carefully regulated.

Parameter	Value
Nominal (Bogey) Filament Voltage	1.25 V
Filament Voltage Tolerance	± 0.2 V
Filament Current (at 1.25 V)	0.20 A
Direct Interelectrode Capacitance (Plate to Filament and Shield)	2.0 pF
Approximate Tube Drop (at 7 mA plate current)	225 V

Filament Supply Design Guidelines

Equipment utilizing the 1AU3 must be designed so that the filament voltage is centered at the specified bogey value of 1.25 V. Circuit variations must be strictly restricted to maintain the operating voltage within the specified ± 0.2 V tolerance.

Design-Maximum Ratings and Operating Conditions

The ratings for the 1AU3 are established under the Design-Maximum System. These limits represent the maximum electrical boundaries for safe and reliable operation in flyback voltage rectifier service.

Rating Parameter	Maximum Limit
Maximum Inverse Plate Voltage (Total DC and Peak)	30,000 V

Rating Parameter	Maximum Limit
Maximum Inverse Plate Voltage (DC)	26,000 V
Maximum Peak Plate Current	50 mA
Maximum Average Plate Current	0.5 mA

Pulse Duty Cycle

When operated in a standard television scanning system (specifically a 525-line, 30-frame system), the duty cycle of the high-voltage pulse must not exceed 15% of one scanning cycle.

Safety and X-Ray Radiation Warning

When the 1AU3 is operated at potentials higher than 16,000 volts, it can produce X-ray radiation. To protect against the possible danger of personal injury from prolonged exposure at close range, the installation of an appropriate X-ray radiation shield may be necessary.

SOURCE OPERATING CONDITIONS

1961 Tung Sol

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

1961 TUNG SOL

Section 1 · Rectifier

OTHER		
PARAMETER	**PUBLISHED VALUE**	**CONDITION / NOTE**
Filament Voltage	**1.25 V**	Nominal
Filament Current	**200 mA**	Nominal
InversePlateVoltageTotalDcAndPeak	**30000 V**	FlybackVoltageRectifier
InversePlateVoltageDc	**26000 V**	FlybackVoltageRectifier
Peak Plate Current	**50 mA**	FlybackVoltageRectifier
Average Plate Current	**0.5 mA**	FlybackVoltageRectifier
FlybackPulseDutyCycle	**15 %**	525Line30FrameTV;NotToExceed

CAPACITANCE		
PARAMETER	**PUBLISHED VALUE**	**CONDITION / NOTE**
Plate To Filament And Internal Shield Capacitance	**2 pF**	—

CHARACTERISTIC		
PARAMETER	**PUBLISHED VALUE**	**CONDITION / NOTE**
Tube Voltage Drop	**225 V**	PlateCurrent=7mA;Approx

SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

1966 Tung Sol Electronic Tubes 1 of 4

SOURCE PDF

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1966 TUNG SOL ELECTRONIC TUBES 1 OF 4

Section 1 · Rectifier

OTHER		
PARAMETER	**PUBLISHED VALUE**	**CONDITION / NOTE**
Filament/heater voltage	**1.25 V**	—
Filament/heater current	**200 mA**	—
Maximum total DC-plus-peak inverse voltage	**—30000 V**	FlybackRectifier
Maximum steady-state peak plate current	**50 mA**	FlybackRectifier
Maximum DC output current	**0.5 mA**	FlybackRectifier

CAPACITANCE		
PARAMETER	**PUBLISHED VALUE**	**CONDITION / NOTE**
Plate-to-filament/heater capacitance	**2 pF**	Approximate

Tube Tinker

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