

ELECTRONIC TUBE REFERENCE

6EN4

Triode - HV Shunt Regulator electronic tube

CONSOLIDATED TECHNICAL DATA
1 SECTION
CONSTRUCTION
TRIODE

Sharp-cutoff beam triode used as a shunt high-voltage regulator in color-television power supplies, with explicit X-radiation operating limits.

GENERAL CHARACTERISTICS

BASE DESIGNATION	8NJ	BASE PINS	8
NOMINAL HEATER	6.3 V / 200 mA	PARALLEL HEATER	– / –
HEATING	Indirect	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION1 Triode	
TRANSCONDUCTANCE	0.0002 S
AMPLIFICATION FACTOR	2000
MAXIMUM PLATE VOLTAGE	30000 V
MAXIMUM PLATE DISSIPATION	40 W
High-voltage beam triode shunt-regulator section; absolute maximum DC plate current 1.6 mA preserved as parameter.	

Sharp-cutoff beam triode used as a shunt high-voltage regulator in color-television power supplies, with explicit X-radiation limits.



SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1968 General Electric Co

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

1968 GENERAL ELECTRIC CO

Section 1 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
DC Plate Current	1.6 mA	AbsoluteMaximum
Regulated DC Output Voltage	25000 V	ZeroLoad
Regulated DC Output Voltage	24500 V	LoadCurrent=1mA
X-radiation Maximum	0.5 mR/hr	—

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Effective Grid-Plate Transconductance	200 uS	ShuntRegulator



SOURCE OPERATING CONDITIONS

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1971 RCA HB3 Binder 4 of 7

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

1971 RCA HB3 BINDER 4 OF 7

Section 1 · Triode

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Amplification factor	2000	ClassA
Heater Voltage, ac or dc	6.3 V	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater Current	0.2	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Input: G to IK,HI	2.6 pF	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Output: P to (K,H)	1 pF	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Amplification Factor (Approx.)	2000 A	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Unregulated DC Supply Voltage	60000 V	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
warm-up period	440	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Heater negative with respect to cathode	450	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Heater Voltage (absolute minimum)	5.7 V	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Grid-Circuit Resistance	3	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
DC Voltage	36000 V	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Equivalent resistance	11	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Equivalent resistance	1000	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Transconductance	200	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
For load current of 0 ma – published value 1	0 mA	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
For load current of 0 ma – published value 2	1000 mA	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
For load current of 1 ma – published value 1	1 mA	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
For load current of 1 ma – published value 2	45 mA	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
For load current of 0 ma – published value 1	0 mA	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
For load current of 0 ma – published value 2	25000 mA	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
For load current of 1 ma – published value 1	1 mA	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
For load current of 1 ma – published value 2	24500 mA	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
As defined in the current issue of EIA Standard RS-239A	239	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Grid Voltage 11► – published value 1	11 V	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Grid Voltage 11► – published value 2	1 V	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Grid Voltage 11► – published value 3	-7 V	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Grid Voltage 12► – published value 1	12 V	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Grid Voltage 12► – published value 2	2 V	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Grid Voltage 12► – published value 3	-40 V	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid Voltage Change – published value 1	3 V	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Grid Voltage Change – published value 2	9 V	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Note 1: With do plate voltage of 30000 V and do plate cur – published value 1	1 V	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Note 1: With do plate voltage of 30000 V and do plate cur – published value 2	30000 V	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Note 2: With do plate voltage of 30000 V and do plate cur – published value 1	2 V	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Note 2: With do plate voltage of 30000 V and do plate cur – published value 2	30000 V	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Note 3: Difference between grid voltage (1) and grid voltage – published value 1	3 V	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Note 3: Difference between grid voltage (1) and grid voltage – published value 2	1 V	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
The high voltage associated with the 6EN4 result in	6 V	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
,,~ The high voltages at which the 6EN4 is operated can be	6 V	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Pin 1: Cathode, Internal Shield	1	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Pin 2: Heater	2	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Pin 6: Grid	6	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Pin 7: Heater	7	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum plate voltage	30000 V	—
Maximum plate dissipation	40 W	—
DC Plate Voltage (absolute maximum)	30000 V	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Plate Dissipation (absolute maximum)	40 mA	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.
Heater Voltage (absolute maximum)	6.9 V	Published datasheet value; multiple numbers on one source row represent separate limits or operating conditions.



SOURCE DATA APPENDIX

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 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater Voltage (ac/dc)	6.3 V	Published in approved 6EN4 target entry; Section1
Heater Current	200 mA	Published in approved 6EN4 target entry; Section1
longed short-circuit conditions to	450 mA	Published in approved 6EN4 target entry; Section1
DC Plate Voltage	30000 V	Published in approved 6EN4 target entry; Section1
Unregulated DC Supply Voltage	60000 V	Published in approved 6EN4 target entry; Section1

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Peak Grid Voltage*	-440 mA	Published in approved 6EN4 target entry; Section1
Average Plate Current	1.6 mA	Published in approved 6EN4 target entry; Section1
Unregulated DC Supply Voltage	36000 V	Published in approved 6EN4 target entry; Section1
Equivalent Resistance of Unregulated Supply	11 MΩ	Published in approved 6EN4 target entry; Section1
Ri (	5 W	Published in approved 6EN4 target entry; Section1
Ri (5 watts)	220 MΩ	Published in approved 6EN4 target entry; Section1
Hi (	2 W	Published in approved 6EN4 target entry; Section1
Hi (2 watts)	1 MΩ	Published in approved 6EN4 target entry; Section1
U.i (	0.5 W	Published in approved 6EN4 target entry; Section1
U.i (0.5 watt)	0.82 MΩ	Published in approved 6EN4 target entry; Section1
DC Reference Voltage Supply	200 V	Published in approved 6EN4 target entry; Section1
Equivalent Resistance of Reference Voltage	1000 Ω	Published in approved 6EN4 target entry; Section1
DC Plate Current for Load Current of	0 mA	Published in approved 6EN4 target entry; Section1
DC Plate Current for Load Current of	1 mA	Published in approved 6EN4 target entry; Section1
Regulated DC Output Voltage for Load Current of	0 mA	Published in approved 6EN4 target entry; Section1
Regulated DC Output Voltage for Load Current of 0 mA	25000 V	Published in approved 6EN4 target entry; Section1
Regulated DC Output Voltage for Load Current of	1 mA	Published in approved 6EN4 target entry; Section1
Regulated DC Output Voltage for Load Current of 1 mA	24500 V	Published in approved 6EN4 target entry; Section1
Grid-Circuit Resistance	3 MΩ	Published in approved 6EN4 target entry; Section1
For interval of	20 seconds	Published in approved 6EN4 target entry; Section1

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid Voltage (2) –	-40 V	Published in approved 6EN4 target entry; Section1
Grid-Voltage Change	9 V	Published in approved 6EN4 target entry; Section1
Note 1 With dc plate voltage of	30000 V	Published in approved 6EN4 target entry; Section1
Note 1 With dc plate voltage of 30000 volts and dc plate current of	1 mA	Published in approved 6EN4 target entry; Section1

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid to Plate	1 pF	Published in approved 6EN4 target entry; Section1
Plate to Cathode and Heater	2.6 pF	Published in approved 6EN4 target entry; Section1
Grid to Cathode and Heater	1 pF	Published in approved 6EN4 target entry; Section1

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Note 2: With dc plate voltage of	30000 V	Published in approved 6EN4 target entry; Section1
Note 2: With dc plate voltage of 30000 volts and dc plate current of	0.1 mA	Published in approved 6EN4 target entry; Section1
Statistical value controlled on a lot sampling basis	0.5 mR/hr	Published in approved 6EN4 target entry; Section1