



ELECTRONIC TUBE REFERENCE

3BW2

Rectifier - TV Line Scan Boost electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION

CONSTRUCTION

RECTIFIER

High-voltage television damper diode for horizontal-deflection circuits, combining very high inverse-voltage capability with low average current for repetitive sweep pulses.

GENERAL CHARACTERISTICS

BASE DESIGNATION	12HY	BASE PINS	12
NOMINAL HEATER	3.15 V / 480 mA	PARALLEL HEATER	– / –
HEATING	Indirect	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION 1 Rectifier	
PEAK INVERSE VOLTAGE	38000 V
NOMINAL OUTPUT CURRENT	2.2 mA
PEAK FORWARD CURRENT	110 mA
FORWARD VOLTAGE DROP	70 V
<i>Promoted from printed flyback-rectifier maximum ratings and average characteristics.</i>	

3BW2 is a DamperDiode vacuum tube documented in the RCA Receiving Tube Manual. The supplied excerpt was reviewed for heater or filament data, physical section arrangement, maximum ratings, electrical characteristics, capacitances, and stated application.



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 · Rectifier

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Peak inverse voltage, DC component	30000 V	FlybackRectifierService
Heater voltage absolute maximum	3.65 V	—
Heater voltage absolute minimum	2.65 V	—
X-radiation output maximum	25 mR/hr	At published maximum-rated operating conditions

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate to heater/cathode/internal shield capacitance	1.6 pF	—



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 · Rectifier

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Designed to minimize X-Radiation – published value 1	0	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
Designed to minimize X-Radiation – published value 2	0	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
Heater Voltage, ac or dc – published value 1	0 V	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
Heater Voltage, ac or dc – published value 2	3.15 V	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
Heater Voltage, ac or dc – published value 3	0.5 V	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
Heater Current at $E_h = 3.15$ V – published value 1	3.15 V	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
Heater Current at $E_h = 3.15$ V – published value 2	0.48 V	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
DirectInter-electrode Capacitance: a	0	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
Plate Current (i_b) = 7 mA – published value 1	7 V	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
Plate Current (i_b) = 7 mA – published value 2	70 V	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
Inverse Plate Voltage d	0 V	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
Heater Voltage (absolute min.) – published value 1	0 V	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
Heater Voltage (absolute min.) – published value 2	0 V	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater Voltage (absolute min.) – published value 3	2.65 V	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
a Measured without external shield in accordance with the current – published value 1	0	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
a Measured without external shield in accordance with the current – published value 2	0	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
b As defined in the current issue of EIA Standard RS-239A – published value 1	0	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
b As defined in the current issue of EIA Standard RS-239A – published value 2	-239	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
d This rating is applicable when the duration of the voltage pulse – published value 1	0 V	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
d This rating is applicable when the duration of the voltage pulse – published value 2	0 V	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
d This rating is applicable when the duration of the voltage pulse – published value 3	0 V	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
Measurement of Heater Voltage. It is recommended that a – published value 1	0 V	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
Measurement of Heater Voltage. It is recommended that a – published value 2	0 V	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
Measurement of Heater Voltage. It is recommended that a – published value 3	0 V	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
thermocouple rms voltmeter be used to measure heater – published value 1	0 V	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
thermocouple rms voltmeter be used to measure heater – published value 2	0 V	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
thermocouple rms voltmeter be used to measure heater – published value 3	0 V	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
voltage. The meter and its leads must be insulated to – published value 1	0	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
voltage. The meter and its leads must be insulated to – published value 2	0	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
circuit during this measurement, stray capacitances to ground – published value 1	0	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
circuit during this measurement, stray capacitances to ground – published value 2	0	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
X-Radiation Characteristic	0	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
changes in the X-radiation characteristic of the tube. Equip – published value 1	0	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
changes in the X-radiation characteristic of the tube. Equip – published value 2	0	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
X-Radiation from Receiving Tubes", and controlled in – published value 1	0	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
X-Radiation from Receiving Tubes", and controlled in – published value 2	0	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
X-Radiation from Receiving Tubes", and controlled in – published value 3	0	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
mended Practice for Quality Control of X-Radiation Emitted – published value 1	0	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
mended Practice for Quality Control of X-Radiation Emitted – published value 2	0	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
mended Practice for Quality Control of X-Radiation Emitted – published value 3	0	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
from High Voltage Rectifier and Shunt Regulator Receiving – published value 1	0 V	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
from High Voltage Rectifier and Shunt Regulator Receiving – published value 2	0 V	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
from High Voltage Rectifier and Shunt Regulator Receiving – published value 3	0 V	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
X-Radiation	0	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
The high voltages associated with the 3BW2 result in – published value 1	0 V	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
The high voltages associated with the 3BW2 result in – published value 2	3 V	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
The high voltages associated with the 3BW2 result in – published value 3	2 V	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
production of X-Radiation which may constitute a health – published value 1	0 mA	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
production of X-Radiation which may constitute a health – published value 2	0 mA	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
production of X-Radiation which may constitute a health – published value 3	0 mA	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
The high voltages at which the 3BW2 is operated can be – published value 1	3 V	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
The high voltages at which the 3BW2 is operated can be – published value 2	2 V	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
The high voltages at which the 3BW2 is operated can be – published value 3	0 V	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
adjustment of, any high voltage circuit – published value 1	0 V	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
adjustment of, any high voltage circuit – published value 2	0 V	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
voltage output terminal is properly grounded while inserting – published value 1	0	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
voltage output terminal is properly grounded while inserting – published value 2	0	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
voltage output terminal is properly grounded while inserting – published value 3	0	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
Pin 1 -Heater, Cathode, Internal Shield – published value 1	1	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
Pin 1 -Heater, Cathode, Internal Shield – published value 2	0	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
Pin 2 -Heater, Cathode, Internal Shield – published value 1	2	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
Pin 2 -Heater, Cathode, Internal Shield – published value 2	0	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
Pin 5 •Heater, Cathode, Internal Shield – published value 1	5	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
Pin 5 •Heater, Cathode, Internal Shield – published value 2	0	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
Pin 8 •Heater	8	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
Pin 9 -Heater, Cathode, Internal Shield – published value 1	9	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Pin 9 -Heater, Cathode, Internal Shield – published value 2	0	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
Pin 12 -Heater	12	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
Instantaneous tube voltage drop	70 V	Explicitly published rectifier rating/characteristic.

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
MAXIMUM RATINGSb –High Voltage Rectifier	0 V	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
Heater Voltage (absolute max.) – published value 1	0 V	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
Heater Voltage (absolute max.) – published value 2	0 V	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
Heater Voltage (absolute max.) – published value 3	3.65 V	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
X-Radiation, Maximum – published value 1	0 mA	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
X-Radiation, Maximum – published value 2	25 mA	Published datasheet value; multiple numbers on a row represent separate source limits or conditions.
Peak inverse plate voltage	38000 V	Explicitly published rectifier rating/characteristic.
Peak plate current	110 mA	Explicitly published rectifier rating/characteristic.
Average plate current	2.2 mA	Explicitly published rectifier rating/characteristic.



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
Heater Voltage (ac/dc)	3.15 V	Heater Voltage (ac/dc) 3.15 volts
Heater Current	480 mA	Heater Current 0.48 ampere
Peak Plate Current	110 mA	Peak Plate Current 110 mA
Average Plate Current	2.2 mA	Average Plate Current 2.2 mA
Tube Voltage Drop (Approx.), for plate current of	7 mA	Tube Voltage Drop (Approx.), for plate current of 7 mA 70 volts
Heater Voltage (ac)	3.6 V	Heater Voltage (ac) 3.6 volts
Heater Current	225 mA	Heater Current 0.225 ampere
Peak Plate Current	100 mA	Peak Plate Current 100 mA
Average Plate Current	2 mA	Average Plate Current 2 mA
Tube Voltage Drop for plate current of	11 mA	Tube Voltage Drop for plate current of 11 mA 60 volts
Peak inverse plate voltage	38000 V	Published rectifier rating
Average output/plate current	2.2 mA	Published rectifier operating/rating value

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater voltage	3.15 V	Rated heater/filament condition
Tube voltage drop	70 V	Published instantaneous characteristic