

ELECTRONIC TUBE REFERENCE

6BF11

Power - Beam (NOT sweep) electronic tube

CONSOLIDATED TECHNICAL DATA
2 SECTIONS
CONSTRUCTION
BEAMPOWER-PENTODE

Compactron combining a beam-power audio-output pentode with a sharp-cutoff dual-control pentode for television FM detection and audio-frequency output amplification.

GENERAL CHARACTERISTICS

BASE DESIGNATION	12EZ	BASE PINS	12
NOMINAL HEATER	6.3 V / 1.2 A	PARALLEL HEATER	– / –
HEATING	Indirect	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Dissimilar

12EZ - TERMINAL PINOUT

TERMINAL	SECTION	ELEMENT	STATUS
PIN1 – Pin 1	–	H – Heater	CONNECTED • verified
PIN2 – Pin 2	B	K – Cathode	CONNECTED • verified
PIN2 – Pin 2	B	SH – Internal Shield	CONNECTED • verified
PIN2	–	IS – Internal Screen	CONNECTED
PIN3 – Pin 3	B	G1 – Control Grid	CONNECTED • verified
PIN4 – Pin 4	–	–	NC • verified
PIN5 – Pin 5	B	G3 – Suppressor Grid	CONNECTED • verified
PIN6 – Pin 6	B	G2 – Screen Grid	CONNECTED • verified

TERMINAL	SECTION	ELEMENT	STATUS
PIN7 – Pin 7	B	P – Plate (Anode)	CONNECTED · verified
PIN8 – Pin 8	A	G1 – Control Grid	CONNECTED · verified
PIN9 – Pin 9	A	BP – Beam-Forming Plate	CONNECTED · verified
PIN9	A	G3 – Suppressor Grid	CONNECTED
PIN9 – Pin 9	A	K – Cathode	CONNECTED · verified
PIN10 – Pin 10	A	G2 – Screen Grid	CONNECTED · verified
PIN11 – Pin 11	A	P – Plate (Anode)	CONNECTED · verified
PIN12 – Pin 12	–	H – Heater	CONNECTED · verified

SECTION RATINGS

SECTION1 Beam Power	
PLATE RESISTANCE	30000 Ω
TRANSCONDUCTANCE	0.0086 S
MAXIMUM PLATE VOLTAGE	165 V
MAXIMUM SCREEN VOLTAGE	150 V
MAXIMUM PLATE DISSIPATION	6.5 W
MAXIMUM SCREEN DISSIPATION	1.8 W
MAXIMUM CATHODE CURRENT	65 mA
<i>BeamPower section; ratings and characteristics retained in parameter rows where not safely promotable.</i>	

SECTION2 Pentode	
PLATE RESISTANCE	150000 Ω
TRANSCONDUCTANCE	0.001 S
MAXIMUM PLATE VOLTAGE	330 V
MAXIMUM SCREEN VOLTAGE	330 V
MAXIMUM PLATE DISSIPATION	1.7 W
MAXIMUM SCREEN DISSIPATION	1.1 W
<i>Pentode section; ratings and characteristics retained in parameter rows where not safely promotable.</i>	

Combined beam-power and dual-control sharp-cutoff pentode for FM detection and audio-frequency output amplification in television receivers. It is an explicit heater variant/co-designation in 24BF11.pdf.

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 · Beam Power

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Voltage	145 V	ClassA
Screen Voltage	110 V	ClassA
Grid1 Voltage	-6 V	ClassA
Peak AF Grid1 Voltage	6 V	ClassA
Zero Signal Plate Current	36 mA	ClassA
Maximum Signal Plate Current	40 mA	ClassA
Zero Signal Screen Current	3 mA	ClassA
Maximum Signal Screen Current	9 mA	ClassA
Load Resistance	3000 ohm	ClassA
Total Harmonic Distortion	10 %	ClassA
Maximum Signal Power Output	2.4 W	ClassA

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid1 To Plate Capacitance	0.24 pF	—
Input Capacitance	13 pF	—
Output Capacitance	10 pF	—
Plate To Plate Coupling Capacitance	0.13 pF	Section1ToSection2

1968 GENERAL ELECTRIC CO

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Suppressor Voltage	28 V	—
Screen Supply Voltage	330 V	—

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Voltage	150 V	AverageCharacteristics
Suppressor Voltage	0 V	AverageCharacteristics
Screen Voltage	100 V	AverageCharacteristics
Cathode Bias Resistance	560 ohm	AverageCharacteristics
Grid1Transconductance	1000 uS	AverageCharacteristics
Grid3 Transconductance	400 uS	AverageCharacteristics
Plate Current	1.3 mA	AverageCharacteristics
Screen Current	2 mA	AverageCharacteristics
Grid1VoltageAtPlateCurrent10uA	-4.5 V	AverageCharacteristics
Grid3VoltageAtPlateCurrent10uA	-4.5 V	AverageCharacteristics

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid1 To Plate Capacitance	0.036 pF	—
Grid3 To Plate Capacitance	3.2 pF	—
Grid1ToAllExceptPlateCapacitance	6.5 pF	—
Grid3ToAllCapacitance	8 pF	—
Grid1 To Grid3 Capacitance	0.11 pF	—



SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

SOURCE PDF

1971 RCA HB3 Binder 4 of 7

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

Section 1 · Beam Power

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid No. to plate cgl _ p	1 pF	Section2;PublishedColumn1
Grid No. to plate cgl _ p	0.036 pF	Section2;PublishedColumn2
Grid No. to plate c	3 pF	Section2;PublishedColumn1
Grid No. to plate c	3.2 pF	Section2;PublishedColumn2
ci p	6.5 pF	Section2
G ,H) cg -all B	3 pF	Section2;PublishedColumn1
G ,H) cg -all B	0 pF	Section2;PublishedColumn2
Grid No. to Grid No cg t_g	1 pF	Section2;PublishedColumn1
Grid No. to plate cg l_ p	1 pF	Section2;PublishedColumn1
Grid No. to plate cg l_ p	0.24 pF	Section2;PublishedColumn2
Input: G to (K,G ,G , IS,H) ci	2 pF	Section2;PublishedColumn1
Input: G to (K,G ,G , IS,H) ci	13 pF	Section2;PublishedColumn2
Output: Pto (K,G ,G , IS,H) co	2 pF	Section2;PublishedColumn1
Output: Pto (K,G ,G , IS,H) co	10 pF	Section2;PublishedColumn2
Pertode plateto beam –power plate cp_p	0 pF	Section2;PublishedColumn1
Pertode plateto beam –power plate cp_p	13 pF	Section2;PublishedColumn2

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Current Ibo	1.3 mA	Section2;PublishedColumn1
Current Ibo	36 mA	Section2;PublishedColumn2
Max-Signal Plate Current Ih	40 mA	Section2
Current Ic	2 mA	Section2;PublishedColumn1
Current Ic	3 mA	Section2;PublishedColumn2
Current Ic	9 mA	Section2;PublishedColumn2
DC GRID–No. CURRENT (Ic)–	2 mA	Section2;PublishedColumn1
DC GRID–No. CURRENT (Ze) –	2 mA	Section2;PublishedColumn1

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Average Cathode Current $I_{k(av)}$	65 mA	Section2

1971 RCA HB3 BINDER 4 OF 7

Section 2 · Pentode

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid No. to plate c_{gl_p}	1 pF	Section1;PublishedColumn1
Grid No. to plate c_{gl_p}	0.036 pF	Section1;PublishedColumn2
Grid No. to plate c	3 pF	Section1;PublishedColumn1
Grid No. to plate c	3.2 pF	Section1;PublishedColumn2
c_{i_p}	6.5 pF	Section1
G ,H) $c_{g_all\ B}$	3 pF	Section1;PublishedColumn1
G ,H) $c_{g_all\ B}$	0 pF	Section1;PublishedColumn2
Grid No. to Grid No $c_{g_t_g}$	1 pF	Section1;PublishedColumn1
Grid No. to plate $c_{g_l_p}$	1 pF	Section1;PublishedColumn1
Grid No. to plate $c_{g_l_p}$	0.24 pF	Section1;PublishedColumn2
Input: G to (K,G ,G , IS,H) c_i	2 pF	Section1;PublishedColumn1
Input: G to (K,G ,G , IS,H) c_i	13 pF	Section1;PublishedColumn2
Output: Pto (K,G ,G , IS,H) c_o	2 pF	Section1;PublishedColumn1
Output: Pto (K,G ,G , IS,H) c_o	10 pF	Section1;PublishedColumn2
Pertode plateto beam –power plate c_{p_p}	0 pF	Section1;PublishedColumn1
Pertode plateto beam –power plate c_{p_p}	13 pF	Section1;PublishedColumn2

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Current I_{bo}	1.3 mA	Section1;PublishedColumn1
Current I_{bo}	36 mA	Section1;PublishedColumn2
Max-Signal Plate Current I_h	40 mA	Section1

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Current Ic	2 mA	Section1;PublishedColumn1
Current Ic	3 mA	Section1;PublishedColumn2
Current Ic	9 mA	Section1;PublishedColumn2
DC GRID-No. CURRENT (Ic)–	2 mA	Section1;PublishedColumn1
DC GRID-No. CURRENT (Ze) –	2 mA	Section1;PublishedColumn1

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Average Cathode Currenta Ik(av)	65 mA	Section1



SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

1975 RCA RC30

SOURCE PDF

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

1975 RCA RC30

Section 1 · Beam Power

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater Warm-up Time (Average)	11 s	Other;PublishedValue1
Heater Warm-up Time (Average)	11 s	Other;PublishedValue2
Heater Warm-up Time (Average)	11 s	Other;PublishedValue3
Peak value	200 V	Other;PublishedValue1
Peak value	200 V	Other;PublishedValue2
Peak value	200 V	Other;PublishedValue3
Peak value	0 V	Other;PublishedValue4
Average value	100 V	Other;PublishedValue1
Average value	100 V	Other;PublishedValue2
Average value	100 V	Other;PublishedValue3
Average value	100 V	Other;PublishedValue4

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Voltage	165 V	MaximumRating
Grid-No	2 V	MaximumRating;PublishedValue1
Grid-No	150 V	MaximumRating;PublishedValue2
Average Cathode Current	65 mA	MaximumRating
Plate Dissipation	6.5 W	MaximumRating
Grid-No	2 W	MaximumRating;PublishedValue1
Grid-No	1.8 W	MaximumRating;PublishedValue2
Plate Voltage	145 V	TypicalOperation
Grid-No	2 V	TypicalOperation;PublishedValue1
Grid-No	110 V	TypicalOperation;PublishedValue2
Grid-No	1 V	TypicalOperation;PublishedValue1
Grid-No	-6 V	TypicalOperation;PublishedValue2
Peak AF Grid-No.1 Voltage	6 V	TypicalOperation
Zero-Signal Plate Current	36 mA	TypicalOperation
Maximum-Signal Plate Current	40 mA	TypicalOperation
Zero-Signal Grid No	2 mA	TypicalOperation;PublishedValue1
Zero-Signal Grid No	3 mA	TypicalOperation;PublishedValue2
Maximum-Signal Grid-No	2 mA	TypicalOperation;PublishedValue1
Maximum-Signal Grid-No	9 mA	TypicalOperation;PublishedValue2
Plate Resistance (Approx.)	0.03 megohm	TypicalOperation
Transconductance	8600 uS	TypicalOperation
PLATE	92 V	TypicalOperation;PublishedValue1
PLATE	742 V	TypicalOperation;PublishedValue2
Load Resistance	3000 ohm	TypicalOperation
Total Harmonic Distortion	10 %	TypicalOperation
Maximum-Signal Power Output	2.4 W	TypicalOperation
For fixed-bias operation	0.25 megohm	MaximumCircuitValue
For cathode-bias operation	0.5 megohm	MaximumCircuitValue

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid No.1 to Plate	0.36 pF	Capacitance
Grid No	3 pF	Capacitance;PublishedValue1

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid No	3.2 pF	Capacitance;PublishedValue2
and Internal Shield	8 pF	Capacitance
Grid No.1 to Grid No	3 pF	Capacitance;PublishedValue1
Grid No.1 to Grid No	0.11 pF	Capacitance;PublishedValue2
Grid No.1 to Plate	0.24 pF	Capacitance
and Internal Shield	13 pF	Capacitance
and Internal Shield	10 pF	Capacitance

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Supply Voltage	150 V	Characteristic
Grid-No	2 V	Characteristic;PublishedValue1
Grid-No	100 V	Characteristic;PublishedValue2
Cathode-Bias Resistor	560 ohm	Characteristic
Plate Resistance (Approx.)	0.15 megohm	Characteristic
Transconductance, Grid No.1 to Plate	1000 uS	Characteristic
Plate Current	1.3 mA	Characteristic
Grid-No	2 mA	Characteristic;PublishedValue1
Grid-No	2 mA	Characteristic;PublishedValue2
Grid-No.1 Voltage (Approx.) for plate current of	10 V	Characteristic;PublishedValue1
Grid-No.1 Voltage (Approx.) for plate current of	-4.5 V	Characteristic;PublishedValue2
Grid-No	3 V	Characteristic;PublishedValue1

1975 RCA RC30

Section 2 · Pentode

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Pentode Plate to Beam Power Plate	0.13 pF	Capacitance

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum Plate Voltage	330 V	Section2;Promoted

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum Screen Voltage	330 V	Section2;Promoted
Maximum Plate Dissipation	1.7 W	Section2;Promoted
Maximum Screen Dissipation	1.1 W	Section2;Promoted

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Resistance	150000 ohm	Section2;Promoted
Transconductance	1000 uS	Section2;Promoted

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