



ELECTRONIC TUBE REFERENCE

4604

Power - Beam (NOT sweep) electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION

CONSTRUCTION

BEAMPOWER

Quick-heating beam-power transmitting tube designed for mobile and emergency-communications RF amplifier and oscillator service, with useful output extending well into VHF.

GENERAL CHARACTERISTICS

BASE DESIGNATION	—	BASE PINS	8
NOMINAL HEATER	6.3 V / 650 mA	PARALLEL HEATER	— / —
HEATING	Direct	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION 1 Beam Power	
TRANSCONDUCTANCE	0.006 S
AMPLIFICATION FACTOR	4
MAXIMUM PLATE VOLTAGE	750 V
MAXIMUM SCREEN VOLTAGE	250 V
MAXIMUM PLATE DISSIPATION	25 W
MAXIMUM CATHODE CURRENT	150 mA
<i>Published maximum ratings/general electrical characteristics promoted directly; pulse, RF, capacitance, cooling, and service-specific values retained in TUBE_SECTION_PARAMETER.</i>	

Quick-heating beam power tube for mobile and emergency-communications RF power-amplifier and oscillator service.

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1940 RCA

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

1940 RCA

Section 1 · Beam Power

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
HeaterVoltageNominal	6.3 V	Nominal
HeaterCurrentNominal	650 mA	Nominal
Maximum Plate Voltage	750 V	—
Maximum Screen Voltage	250 V	—
Maximum Plate Dissipation	25 W	—
Maximum Cathode Current	150 mA	—
MaximumFrequencyFullInput	60 MHz	ICAS
MaximumFrequencyReducedInput	175 MHz	ICAS

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Transconductance	6000 μ S	Typical
Amplification Factor	4	Typical
Heating Time	1 s	Quick-heating filament
RFPowerOutput	30 W	Typical amplifier operation at 175 MHz

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1971 RCA HB3 Binder 6 of 7

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

1971 RCA HB3 BINDER 6 OF 7

Section 1 · Beam Power

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum plate voltage	750 V	PromotedValue
Maximum screen-grid voltage	250 V	PromotedValue
Maximum plate dissipation	25 W	PromotedValue
Maximum cathode/plate current	150 mA	PromotedValue
Grid No.1 to plate	0.24 mA	Published datasheet value
RF POWER AMPLIFIER 6 OSCILLATOR – Class C Telegraphy~ – published value 1	6 A	ClassC
RF POWER AMPLIFIER 6 OSCILLATOR – Class C Telegraphy~ – published value 2	7 A	ClassC
DC PLATE VOLTAGE	750 mA	Published datasheet value
DC GRID-No.2 VOLTAGE	250 mA	Published datasheet value
DC GRID-No.1 VOLTAGE	-150 mA	Published datasheet value
DC PLATE CURRENT	150 mA	Published datasheet value
DC GRID-No.1 CURRENT	4 mA	Published datasheet value
PLATE INPUT	90 mA	Published datasheet value
GRID-No.2 INPUT	3 mA	Published datasheet value
PLATE DISSIPATION	25 mA	Published datasheet value
Grid-No.1~ircuit Resistance+	30 A	Published datasheet value

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Transconductance	6000 uS	PromotedValue
Mu / amplification factor	4	PromotedValue
Heater/filament voltage	6.3 V	Nominal operating value
Heater/filament current	650 mA	Nominal operating value
90 WATTS CW INPUT (ICAS) UP TO 60 Mc – published value 1	90 W	CW; ICAS
90 WATTS CW INPUT (ICAS) UP TO 60 Mc – published value 2	60 W	CW; ICAS

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
60 WATTS CW INPUT (ICAS) AT 175 Mc – published value 1	60 W	CW; ICAS
60 WATTS CW INPUT (ICAS) AT 175 Mc – published value 2	175 W	CW; ICAS
Voltage (AC or DC) – published value 1	6 V	Published datasheet value
Voltage (AC or DC) – published value 2	3 V	Published datasheet value
Voltage (AC or DC) – published value 3	10 V	Published datasheet value
Current at 6.3 volts – published value 1	6.3 A	Published datasheet value
Current at 6.3 volts – published value 2	650 mA	Published datasheet value
Heating time	1	Published datasheet value
Transconductance, for plate volts = 200, '	200 V	Published datasheet value
grid-No.2 volts = 200, and plate	200 V	Published datasheet value
plate volts = 200, grid-No.2 volts	200 V	Published datasheet value
= 200, and plate ma. = 100 – published value 1	200 mA	Published datasheet value
= 200, and plate ma. = 100 – published value 2	100 mA	Published datasheet value
= 200, and plate ma. = 100 – published value 3	4 mA	Published datasheet value
Pin 1 -Filament Tap, – published value 1	1	Published datasheet value
Pin 1 -Filament Tap, – published value 2	4	Published datasheet value
Pin 1 -Filament Tap, – published value 3	1	Published datasheet value
Grid No.3,	5	Published datasheet value
Shield	7	Published datasheet value
Pin 3 -Grid No.2	3	Published datasheet value
DC Plate Voltage	400 V	Published datasheet value
DC Grid-No.2 Voltage*	190 V	Published datasheet value

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
DC Grid-No.1 Voltages	-60 V	Published datasheet value
DC Plate Current	150 mA	Published datasheet value
DC Grid-No.2 Current	11 mA	Published datasheet value
DC Grid-No.1 Current (Approx)	2 mA	Published datasheet value
Driving Power (Approx.)	4.5 W	Published datasheet value
Power Output (Approx)	30 W	Published datasheet value
the audio-frequency envelope does not exceed 115 per cent of the	115	Published datasheet value
grid-No.2 resistor Should De s tl only when the 4604 i	4604	Published datasheet value
Fi lament Current at 6.3 volts ac – published value 1	6.3 A	Published datasheet value
Fi lament Current at 6.3 volts ac – published value 2	590 mA	Published datasheet value
Fi lament Current at 6.3 volts ac – published value 3	710 mA	Published datasheet value
Grid No.1 to plate	0.24	Published datasheet value
Plate Currents – published value 1	46 mA	Published datasheet value
Plate Currents – published value 2	94 mA	Published datasheet value
Grid-No.2 Currents	5.5 mA	Published datasheet value
Useful Power Outputf	47 W	Published datasheet value
~ With 6.3 volts ac on filament, do plate voltage of 300 volts, do grid – published value 1	6.3 V	Published datasheet value
~ With 6.3 volts ac on filament, do plate voltage of 300 volts, do grid – published value 2	300 V	Published datasheet value
xo.2 voltage of 200 volts, and do grid-No.i voltage of -29 volts. + – published value 1	200 V	Published datasheet value

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
xo.2 voltage of 200 volts, and do grid-No.i voltage of -29 volts. + – published value 2	-29 V	Published datasheet value
ac on filament, do plate voltage oP 600 volts, do grid-x o-.2 voltage	600 V	Published datasheet value
of 200 volts, grid-N o.i resist or of 30,000 t 10% ohms, do plate current – published value 1	200 ohm	Published datasheet value
of 200 volts, grid-N o.i resist or of 30,000 t 10% ohms, do plate current – published value 2	30000 ohm	Published datasheet value
of 200 volts, grid-N o.i resist or of 30,000 t 10% ohms, do plate current – published value 3	10 ohm	Published datasheet value
of 100 to 112 ma., do grid-N o.l current of 2 to 2.5 ma., and frequency – published value 1	100 mA	Published datasheet value
of 100 to 112 ma., do grid-N o.l current of 2 to 2.5 ma., and frequency – published value 2	112 mA	Published datasheet value
of 100 to 112 ma., do grid-N o.l current of 2 to 2.5 ma., and frequency – published value 3	2 mA	Published datasheet value
of 100 to 112 ma., do grid-N o.l current of 2 to 2.5 ma., and frequency – published value 4	2.5 mA	Published datasheet value