



ELECTRONIC TUBE REFERENCE

8462

Power - Beam (NOT sweep) electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION

CONSTRUCTION

BEAMPOWER

Fast-warm-up ceramic-metal beam-power tube for low-voltage mobile RF equipment, providing useful output from VHF through UHF frequencies approaching 500 MHz.

GENERAL CHARACTERISTICS

BASE DESIGNATION	—	BASE PINS	11
NOMINAL HEATER	2.9 V / 4.6 A	PARALLEL HEATER	— / —
HEATING	Direct	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION 1 Beam Power	
AMPLIFICATION FACTOR	11
MAXIMUM PLATE VOLTAGE	2200 V
MAXIMUM SCREEN VOLTAGE	400 V
MAXIMUM PLATE DISSIPATION	100 W
MAXIMUM SCREEN DISSIPATION	8 W
MAXIMUM CATHODE CURRENT	450 mA
<i>Published screen-to-control-grid mu factor promoted.</i>	

8462 is its Capacitor .

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
Coaxial-Electrode Structure Less Than	2.26 s	Coaxial-Electrode Structure Less Than 1-Second Warm-Up 2.26" Max. Length
Ceramic-Metal Seals For Use in Low-Voltage Mobile	1.44 V	Ceramic-Metal Seals For Use in Low-Voltage Mobile 1.44"
Mesh Filament Equipment Up to	500 MHz	Mesh Filament Equipment Up to 500 Mc Conduction Cooled
In CW operation with a Voltage (ACor DC}	2.9 V	In CW operation with a Voltage (ACor DC}. 2.9 volts
plate voltage of only	4.6 V	plate voltage of only 700 Current at 2.9 volts. 4.6 amp
volts, the	1 V	volts, the 8462 can provide Minimum heating time. . .less than 1@ sec
110 watts at 50 Mc, 105 See further information on Filament	105 W	110 watts at 50 Mc, 105 See further information on Filament
watts at	85 W	watts at 175 Mc, and 85 under Electrical Considerations.
No.1 for plate volts =	250 V	No.1 for plate volts = 250,
Less than one-sec- grid-No	200 s	Less than one-sec- grid-No.2 volts = 200, and
ond is required from plate amperes =	11 A	ond is required from plate amperes = 1.2 . . . , . . . 11
fast warm-up eiiminates stand-by filament power Grid No.1 to plate	0.13 pF	fast warm-up eiiminates stand-by filament power Grid No.1 to plate. . . 0.13 max. pf
in "push-to-talk" emergency equipment. Grid No.1 to cathode	16 pF	in "push-to-talk" emergency equipment. Grid No.1 to cathode. 16 pf
Plate to cathode	0.03 pF	Plate to cathode. 0.03 max. pf

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
The heating time of the mesh filament, however, Grid No.1 to grid No	22 pF	The heating time of the mesh filament, however, Grid No.1 to grid No.2. 22 pf
Is a function of filament voltage and the impedance Grid No.2 to plate	7 V	Is a function of filament voltage and the impedance Grid No.2 to plate. 7 pf
of the filament power supply. To achieve the Grid No	3 pF	of the filament power supply. To achieve the Grid No.2 to cathode. 3 pf
less than	2.26 s	less than 100 milliseconds, is also possible by the Maximum Overall Length. 2.26"
and lower filament-voltage gradient than con- (All Terminals)	250 V	and lower filament-voltage gradient than con- (All Terminals). . . . 250 max. C
Single-Sideband Suppressed-Carrier Service In Grid=Drive Circuit at	50 MHz	Single-Sideband Suppressed-Carrier Service In Grid=Drive Circuit at 50 Mc
Peak envelope conditions for a signal havin DC Plate Voltage. « « « + « . «	700 V	Peak envelope conditions for a signal havin DC Plate Voltage. « « « + « . « 300 700 volts
a minimum peak-to-average power ratio of DC Grid-No	175 V	a minimum peak-to-average power ratio of DC Grid-No.2 Voltage. 160 175 volts
Maximum CCS Ratings,	-10 V	Maximum CCS Ratings, 4bsolute-Maximum Values: DC Grid-No.1 Voltage. -10 -10 volts
DC Plate Current	300 mA	DC Plate Current. 300 300 ma
Up to	500 MHz	Up to 500 Mc
DC Grid-No	25 mA	DC Grid-No.2 Current. 25 25 ma
DC PLATE VOLTAGE	2200 V	DC PLATE VOLTAGE. 2200 max. volts
DC Grid-No.1 Current	50 mA	DC Grid-No.1 Current. 50 50 ma
DC GRID-No	400 V	DC GRID-No.2 VOLTAGE. 400 max. volts
Driver Power Output (Approx.)™	1.2 W	Driver Power Output (Approx.)™. . . . 1.2, 1.2, watts
DC GRID-No.1 VOLTAGE	-100 V	DC GRID-No.1 VOLTAGE. -100 max. volts
Useful Power Output	110 W	Useful Power Output 854 110 watts
OF ENVELOPE	450 mA	OF ENVELOPE 450 max. ma
In Grid-Drive Circuit at	175 MHz	In Grid-Drive Circuit at 175 Mc
DC GRID-No	100 mA	DC GRID-No.11 CURRENT. 100 . max. ma

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
PLATE DISSIPATION	700 W	PLATE DISSIPATION . 1009 max. watts DC Plate Voltage. 500 700 volts
GRID No	200 W	GRID No.2 INPUT . 8 max. watts DC Grid-No.2 Voltage. 200 200 wvolts
DC Grid-No.1 Voltage.,	-30 V	DC Grid-No.1 Voltage., -30 -30 volts
Typical CCS Operation with "Two-Tone Modulation": DC Plate Current	300 mA	Typical CCS Operation with "Two-Tone Modulation": DC Plate Current. 300 300 ma
At 30 Mc DC Grid-No.2 Current. & 30 20 ma	20 MHz	At 30 Mc DC Grid-No.2 Current. & 30 20 ma
DC Plate Voltage	40 V	DC Plate Voltage. 700 volts DC Grid-No.1 Current. 40 40 ma
DC Grid-No	3 V	DC Grid-No.2 Voltage 250 volts Driver Power Output {Approx.}™. . . 3, 3. watts
DC Grid-No.1 Voltage	1050 V	DC Grid-No.1 Voltage . -20 volts Useful Power Output 704 1050 watts
Zero-Signal DC Plate Current	100 mA	Zero-Signal DC Plate Current. 100 ma
DC Plate Current at Peak DC Plate Voltage	700 V	DC Plate Current at Peak DC Plate Voltage. 700 volts
of Envelope	200 V	of Envelope . . 205 DC Grid-No.2 Voltage. 200 wvolts
Average DC Plate Current	-30 V	Average DC Plate Current 150 DC Grid-No.1 Voltage. -30 volts
DC Grid-No	300 mA	DC Grid-No.2 Current at DC Plate Current. « « « « v &« v o « « « & 300 ma
DC Grid-No	10 mA	DC Grid-No.2 Current. . « « « « « & + & 10 ma
DC Grid-No.1 Current. . . e e e e	20 mA	DC Grid-No.1 Current. . . e e e e 20 ma
Driver Power Output (Approx.)m	5 W	Driver Power Output (Approx.)m 5. watts
Output (Approx.) PN	0.3 W	Output (Approx.) PN . 0.3 watt
Useful Power Output	85 W	Useful Power Output 85 watts
With fixed bias. . . . PN	25000 ohm	With fixed bias. . . . PN 25,000 max. ohms
Useful Power Output (Approx) . Grid-No	10000 ohm	Useful Power Output (Approx) . Grid-No.2 Circuit Impedance e 10,000 max. ohms
Average	404 W	Average . 404 watts
Peak envelope	80 W	Peak envelope . 80J watts

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
With fixed bias	5.6 ohm	With fixed bias . . . 25,000 max. ohms 1. Filament Current, 1 3.6 5.6 amp
With cathode bias . . Not recommended Grid No.1 to plate	0.13 pF	With cathode bias . . Not recommended Grid No.1 to plate. . 2 - 0.13 pf
Grid-No	18.5 ohm	Grid-No.2 Circuit Impedance . 10,000 ohms Grid No.1 to cathode . 2 14 18.5 pf
Plate Circuit Impedance . See Note k Plate to cathode. o	0.03 pF	Plate Circuit Impedance . See Note k Plate to cathode. o . 2 - 0.03 'pf
Grid No.1 togrid No	24 pF	Grid No.1 togrid No.2 . 2 18 24 pf
Grid No	8 pF	Grid No.2 to plate. . 2 5.7 8.0 pf
Grid No	4 pF	Grid No.2 to cathode . . 2 2.0 4.0 pf
3. Grid-No.1 Voltage 1,3 -6 -24 volts	-24 V	3. Grid-No.1 Voltage 1,3 -6 -24 volts
4. Grid-No.2 Current 1,3 -7 +8 ma	8 mA	4. Grid-No.2 Current 1,3 -7 +8 ma
RF POWER AMPLIFIER –Class C FM Telephony Note	2.9 A	RF POWER AMPLIFIER —Class C FM Telephony Note 1: With 2.9 volts (AC or DC) on filament.
Note	700 V	Note 3: With dc plate voltage of 700 volts, dc grid-
Up to	250 MHz	Up to 500 Mc No.2 voltage of 250 volts, and dc grid-No.1
DC PLATE VOLTAGE	2200 V	DC PLATE VOLTAGE. 2200 max. volts {g%tage adjusted to give adc plate current of
DC PLATE CURRENT	300 mA	DC PLATE CURRENT. . . 300 max. ma @ The heating time required for adequate cathode
DC GRID-No	1 mA	DC GRID-No.1 CURRENT. 100 max. ma emission 1s a function of the filament voltage and
8 max. the impedance of the filament-voltage supply. It may	8 V	8 max. the impedance of the filament-voltage supply. It may
GRID-No	2 W	GRID-No.2 INPUT . watts
PLATE DISSIPATION	1009 W	PLATE DISSIPATION . 1009 max. watts signed overvoltage control circuit.
in "Single-Tone operation, is	300 mA	in "Single-Tone operation, is 300 ma. During short as Tempilaq. The latter is made by the Tempil

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
maximum plate dissipation may be as high as	300 W	maximum plate dissipation may be as high as 300 watts.
surge conditions to	2 A	surge conditions to 15 amperes. GRID No.2
tor;	1 A	tor; 1t may not be clamped, nor form a portion of
regulation of the filament supply voltage is,	1 V	regulation of the filament supply voltage is, 1in
is used, a maximum impedance of	10000 ohm	is used, a maximum impedance of 10,000 ohms and a
Grid No.1 of the	40 mA	Grid No.1 of the 8462 in uhf service is sub-minimum divider current of 40 milliamperes are
current, but also by radiation from the cathode ohms between the grid-No	2 ohm	current, but also by radiation from the cathode ohms between the grid-No.2 and ground
At a Constant Grid-No	400 V	At a Constant Grid-No.2 Voltage of 400 Volts At a Constant Grid-No.2 Voltage of 400 Volts

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
watts at	2 W	watts at 470 Mc. Mu-Factor, Grid No.2 to Grid
Effective RF Load Resistance	470 ohm	Effective RF Load Resistance. 1420 ohms In Grid-Drive Circuit at 470 Mc



SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

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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
Heater/filament voltage	2.9 V	—
Heater/filament current	4.6 A	—
Minimum heating time	18 s	LessThan
Maximum plate voltage	2200 V	—

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum screen voltage	400 V	—
Peak-envelope plate current	450 mA	LinearRF
Plate dissipation	100 W	—
Typical plate voltage	700 V	90MHz
Typical screen voltage	250 V	90MHz
Useful power output	110 W	RF

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid No.2 to grid No.1 mu factor	11	Plate250V;Grid2=200V;PlateCurrent1.2A

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid No.1-to-plate capacitance	0.13 pF	Maximum
Grid No.1-to-cathode capacitance	16 pF	—
Grid No.2-to-plate capacitance	7 pF	—

TUBE TINKER

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