

High-perveance beam-power tube for fixed and mobile RF power amplification and oscillator service, also usable as an audio power amplifier and modulator.

GENERAL CHARACTERISTICS

BASE DESIGNATION	—	BASE PINS	7
NOMINAL HEATER	6.3 V / 2.85 A	PARALLEL HEATER	— / —
HEATING	Indirect	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION 1 Beam Power	
MAXIMUM PLATE VOLTAGE	1500 V
MAXIMUM SCREEN VOLTAGE	400 V
MAXIMUM PLATE DISSIPATION	100 W
MAXIMUM CATHODE CURRENT	350 mA
Published ratings/characteristics promoted from supplied datasheet.	

7094 BEAM POWER TUBE 500 Watts CW Input (ICAS) Up to 60 Mc High Power Gain 5" Max. Length 335 Watts CW Input (ICAS) at 175 Mc Sturdy Structure . Cooled at Max. Ratings Forced-Air : .56" Max. D Diameter 2.56 TENTATIVE DATA RCA-7094 is a high—perveance beam power tube Grid No.2 & internal shield . ; with high power gain. It is useful in fixed and toplate® . . .ovoe e w e s R . . Grid No.2 & internal shjeld mobile equipment as an rf power amplifier and to cathode and heater® . 2.8 uuf oscillator, as well! as Plate to cathode and heater® . . 1.8 upf an af power amplifier and P P Mechanical: modulator. . L . Operating Position . . . ¢ . . « . « v « v o« . . . Any The 7094 has a maxi— Maximum Overall Length. . . +v o v« « « « « « « . 5" mum plate dissipation of Seated Length. y.uu"£ 0.08" 125 watts under

|CAS Maximum Diameter . . . Coe e e e s © e . . 2.56" conditions in modulator Base Jumbo—
Button Septar 7-Pin (JETEC No.E7- 46) service and incwservice.

SOURCE OPERATING CONDITIONS

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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
500 Watts CW Input (ICAS) Up to	60 W	500 Watts CW Input (ICAS) Up to 60 Mc
335 Watts CW Input (ICAS) at	175 W	335 Watts CW Input (ICAS) at 175 Mc
mobile equipment as an rf power amplifier and to cathode and heater®	2.8 pF	mobile equipment as an rf power amplifier and to cathode and heater® . 2.8 uuf
125 watts under CAS Maximum Diameter . . . Coe e e e e s © e	2.56 W	125 watts under CAS Maximum Diameter . . . Coe e e e e s © e . . 2.56"
input to 60 Mc and with qU red Under operating conditions at maximum	60 MHz	input to 60 Mc and with qU red Under operating conditions at maximum
reduced input to 175 Mc. froma small fan to prevent exceeding the speci	175 MHz	reduced input to 175 Mc. froma small fan to prevent exceeding the speci-
tively low plate voltage ces®	1045 V	tively low plate voltage ces® 1045*®
put with small driving DC PLATE VOLTAGE 1500 max. 2000 max. volts	2000 V	put with small driving DC PLATE VOLTAGE 1500 max. 2000 max. volts
VOLTAGE. . . . 400 max. 400 max. volts	400 V	VOLTAGE. . . . 400 max. 400 max. volts
for its power-outputcapa- CURRENTO 350 max. 350 max. ma	350 mA	for its power-outputcapa- CURRENTO 350 max. 350 max. ma
bility, the 7094 has a MAX.—SGNAL PLATE heuto 300 max. %00 max. watts	0 W	bility, the 7094 has a MAX.—SGNAL PLATE heuto 300 max. %00 max. watts
iNPUTG L L L L 20 max. 20 max. watts	20 W	iNPUTG L L L L 20 max. 20 max. watts

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
PLATE DISSIPATION . 100 max. 125 max. watts	125 W	PLATE DISSIPATION . 100 max. 125 max. watts
grid No.2 to permit effective rf grounding, plate VOLTAGE	2 V	grid No.2 to permit effective rf grounding, plate VOLTAGE:
respect to cathode . . 135 max. 135 max. volts	135 V	respect to cathode . . 135 max. 135 max. volts
additional sturdiness to the electrode structure. respect to cathode . 135 max. 135 max. volts	135 V	additional sturdiness to the electrode structure. respect to cathode . 135 max. 135 max. volts
tion of input and output circuits. DC Plate voltage 1500	2000 V	tion of input and output circuits. DC Plate voltage 1500 2000 volts
DC Grid-No.2 voltage§. . 400	400 V	DC Grid-No.2 voltage§. . 400 400 volts
Grid) voltage®™. . . . -50 —	50 V	Grid) voltage®™. . . . -50 —50 volts
Heater, for Unipotential Cathode: Grid-No.1 Vvoltage. . . . 88	88 V	Heater, for Unipotential Cathode: Grid-No.1 Vvoltage. . . 88 88 volts
voltage (AC or DC) « + « + « . . 6.3 t 10% volts Zero-Signal DC Plate	10 V	voltage (AC or DC) « + « + « . . 6.3 t 10% volts Zero-Signal DC Plate
Current at 6.3 volts 3.2 amperes Current. 60	60 V	Current at 6.3 volts 3.2 amperes Current. 60 60 ma
plate volts = 300, grid-No.2 Current. . . 400	400 mA	plate volts = 300, grid-No.2 Current. . . 400 400 ma
volts = 300, and plate ma= 250 . 10000 pmhos Max.-Signal DC GrldNo	2 V	volts = 300, and plate ma= 250 . 10000 pmhos Max.-Signal DC GrldNo 2
Current. « « . . 70	70 mA	Current. « « . . 70 70 ma
voits = 300, and plate ma = 250. 7 (Plate to plate) . . . 8700	12000 mA	voits = 300, and plate ma = 250. 7 (Plate to plate) . . . 8700 12000 ohms
with no external shield): Power (Approx.). . . . 0	0 W	with no external shield): Power (Approx.). . . . 0 0 watts
(APPFroX.)s v v v v & o . 410	560 W	(APPFroX.)s v v v v & o . 410 560 watts
Grid No.1 to cathode and heater eB 9 puf * National Company, Inc., 61 Sherman Street, Malden, Mass	61 pF	Grid No.1 to cathode and heater eB 9 puf * National Company, Inc., 61 Sherman Street, Malden, Mass.

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
LINEAR RF POWER AMPLIFIER Class ABI Typical Operation at {	75 MHz	LINEAR RF POWER AMPLIFIER Class ABI Typical Operation at {75 Mc:
Single-Sideband Suppressed- Carrier Service DC Plate voltage . 700	820 V	Single-Sideband Suppressed-Carrier Service DC Plate voltage . 700 820 volts
DC Grid—No.2 voltage®. 400) volts	400 V	DC Grid—No.2 voltage®. 400) volts
ccs® 045%® DC Grid-No.1 voltage*. -130	-130 V	ccs® 045%® DC Grid-No.1 voltage*. -130 -130 volts
Maximum Ratings, Absolute DC Plate current 250	275 mA	Maximum Ratings, Absolute DC Plate current 250 275 ma
Values up to	60 MHz	Values up to 60 Mc:
DC Grid-No.2 Current 8	8 mA	DC Grid-No.2 Current 8 8 ma
DC PLATE VOLTAGE 1500 max. 2000 max. volts DC Grid-No	1 V	DC PLATE VOLTAGE 1500 max. 2000 max. volts DC Grid-No.1 current
DC GRID-No.2 (SCREEN) (Approx.)e « + v v v . . . 6	6 mA	DC GRID-No.2 (SCREEN) (Approx.)e « + v v v . . . 6 6 ma
VOLTAGE. . . . - 400 max. 400 max. volts	400 V	VOLTAGE. . . . - 400 max. 400 max. volts
MAX.=SIGNAL DC PLATE (Approx.) E' . 8	8 W	MAX.=SIGNAL DC PLATE (Approx.) E' . 8 8 watts
CURRENT . . . - 350 max. 350 max. ma Output— circuit Efficiency	350 mA	CURRENT . . . - 350 max. 350 max. ma Output— circuit Efficiency
MAX.—SIGNAL PLATE INPUT 300 max. 400 max. watts (Approx.). . . 85	3 W	MAX.—SIGNAL PLATE INPUT 300 max. 400 max. watts (Approx.). . . 85 85 3
MAX.—SIGNAL GRID-No.2 INPUT 20 max. 20 max. watts Useful Power Output)	20 W	MAX.—SIGNAL GRID-No.2 INPUT 20 max. 20 max. watts Useful Power Output)
PLATE DISSIPATION . 100 max. 125 max. watts (Approx.). . . e 105%# 13 5% watts	5 W	PLATE DISSIPATION . 100 max. 125 max. watts (Approx.). . e 105%# 13 5% watts
respect to cathode . . 135 max. 135 max. volts Grid-No	1 V	respect to cathode . . 135 max. 135 max. volts Grid-No.1=Circuit
Heater positive with Resistancei 30000 max. 30000 max. ohms	30000 ohm	Heater positive with Resistancei 30000 max. 30000 max. ohms

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Typical Operation for "Single-Tone Modulation™ atGOMc:" RF POWER AMPLIFIER & OSC.--Class € Telegraph	0	Typical Operation for "Single-Tone Modulation™ atGOMc:" RF POWER AMPLIFIER & OSC.--Class € Telegraphyt
DC Plate voltage 1500 2000 volts and	2000 V	DC Plate voltage 1500 2000 volts and
DC Grid-No.2 Voltage\$ %00 400 volts RF POWER AMPLIFIER--Class C FM Telephony	400 V	DC Grid-No.2 Voltage\$ %00 400 volts RF POWER AMPLIFIER--Class C FM Telephony
voltage™. -50 =	50 V	voltage™. -50 =50 volts
No.1 voltage ny yu volts For max. plate voltage and max. plate input above	60 V	No.1 voltage ny yu volts For max. plate voltage and max. plate input above 60 Mc,
Zero—Signal DC Plate Current 30 30 ma see Rating Chart II	30 mA	Zero—Signal DC Plate Current 30 30 ma see Rating Chart II
Max.-Signal DC Plate Current 200 200 ma DC PLATE VOLTAGE 1250 max. 1500 max. volts	1500 V	Max.-Signal DC Plate Current 200 200 ma DC PLATE VOLTAGE 1250 max. 1500 max. volts
Current. . . N . 35 35 ma VOLTAGE. . . 400 max. 400 max. volts	400 V	Current. . . N . 35 35 ma VOLTAGE. . . 400 max. 400 max. volts
Effective RF Load Resnstance 4350 6000 ohms DC GRID-No.1 (CONTROL GRID)	1 ohm	Effective RF Load Resnstance 4350 6000 ohms DC GRID-No.1 (CONTROL GRID)
Max.-Signal Driver Power VOLTAGE. . =300 max. ~300 max. volts	300 V	Max.-Signal Driver Power VOLTAGE. . =300 max. ~300 max. volts
cutput (Approx.) . . . y y watts OC PLATE CURRENT - P 340 max. 340 max. ma	340 mA	cutput (Approx.) . . . y y watts OC PLATE CURRENT - P 340 max. 340 max. ma
OOutput—Circuit Eff C ency DC GRiD—No.1 CURRENT 25 max. 30 max. ma	30 mA	OOutput—Circuit Eff C ency DC GRiD—No.1 CURRENT 25 max. 30 max. ma
PLATE INPUT. e e e . 375 max. 500 max. watts	500 W	PLATE INPUT. e e e . 375 max. 500 max. watts
Output (APProx.) 185" 250% watts GR1D-No.2 INPUT. 20 max. 20 max. watts	20 W	Output (APProx.) 185" 250% watts GR1D-No.2 INPUT. 20 max. 20 max. watts
PLATE DISSIPATION. - 100 max. 125 max. watts	125 W	PLATE DISSIPATION. - 100 max. 125 max. watts

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Class C Telephony respect to cathode . 135 max. 135 max. volts	135 V	Class C Telephony respect to cathode . 135 max. 135 max. volts
a max. modulation factor of 1.0 respect to cathode . 135 max. 135 max. volts	135 V	a max. modulation factor of 1.0 respect to cathode . 135 max. 135 max. volts
cos® 1c45%® Typical Operation at	60 MHz	cos® 1c45%® Typical Operation at 60 Mc:
DC Plate voltage 1000 1250	1500 V	DC Plate voltage 1000 1250 1500 volts
For max. plate voltage and max. plate input above 60 Mc, De Grid-No.2 voltageBE. . . w00 w00	400 V	For max. plate voltage and max. plate input above 60 Mc, De Grid-No.2 voltageBE. . . w00 400 volts
DC Grid-No.1 voltage®® . . . -100 -100	-100 V	DC Grid-No.1 voltage®® . . . -100 -100 -100 volts
DC PLATE VOLTAGE 1000 max. 1200 max. volts Peak RF Grid-No.1l voltage. 125 120	125 V	DC PLATE VOLTAGE 1000 max. 1200 max. volts Peak RF Grid-No.1l voltage. 125 120 volts
DC GRID-No.2 (SCREEN) pC Plate current 330 300	330 mA	DC GRID-No.2 (SCREEN) pC Plate current 330 300 330 ma
VOLTAGE. « « & & & v o« & 400 max. 400 max. volts	400 V	VOLTAGE. « « & & & v o« & 400 max. 400 max. volts
DC Grid-No.2 current 20 18	20 mA	DC Grid-No.2 current 20 18 20 ma
VOLTAGE. « « « « + » « . . =300 max. =300 max. volts DC Grid-No,	1 V	VOLTAGE. « « « « + » « . . =300 max. =300 max. volts DC Grid-No,1 Current
OC PLATE CURRENT 280 max. 280 max. ma	280 mA	OC PLATE CURRENT 280 max. 280 max. ma
(approx.). . P 5 5	5 mA	(approx.). . P 5 5 5 ma
DC GRID—No.1 CURRENT 25 max. 30 max. ma	30 mA	DC GRID—No.1 CURRENT 25 max. 30 max. ma
PLATE INPUT. 250 max. 335 max. watts	335 W	PLATE INPUT. 250 max. 335 max. watts
GRID-No.2 {NPUT. . . 13.5 max. 13.5 max. watts (Approx.). . . 90 90	3 W	GRID-No.2 {NPUT. . . 13.5 max. 13.5 max. watts (Approx.). . . 90 90 90 3
PLATE DISSIPATION. . . 67 max. 83 max. watts Useful Power Output _	83 W	PLATE DISSIPATION. . . 67 max. 83 max. watts Useful Power Output _

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
PEAK HEATER-CATHODE VOLTAGE (Approx.). 216% 225%	3409 V	PEAK HEATER-CATHODE VOLTAGE (Approx.). 216% 225% 3409 watts
respect to cathode 135 max. 135 max. volts Typical Operation at	175 V	respect to cathode 135 max. 135 max. volts Typical Operation at 175 Mc:
Heater positive with DC Plate voltage . 665 875	1000 V	Heater positive with DC Plate voltage . 665 875 1000 volts
respect to cathode 135 max. 135 max. volts	135 V	respect to cathode 135 max. 135 max. volts
DC Grid-No.2 voltageDD 400 400	400 V	DC Grid-No.2 voltageDD 400 400 400 volts
Typical Operation at 60 Mc: DC Grid-No.1 voltage®®. -100 -100 [	-100 V	Typical Operation at 60 Mc: DC Grid-No.1 voltage®®. -100 -100 [-100 volts
DC Plate voltage 1000 1200 volts DC Plate current .. 335 300	335 V	DC Plate voltage 1000 1200 volts DC Plate current .. 335 300 335 ma
OC Grid-No.2 voltage®. 100 400 volts DC Grid-No.2 current 8 7	8 V	OC Grid-No.2 voltage®. 100 400 volts DC Grid-No.2 current 8 7 8 ma
Dç Grid-No.1 voltageX*. . . . -130 130 volts C Grid-No, (Approx.). . P 5 5	1 V	Dç Grid-No.1 voltageX*. . . . -130 130 volts C Grid-No,1 current
Peak RF Grid-No.1 voltage. 145	5 mA	(Approx.). . P 5 5 5 ma
	150 V	Peak RF Grid-No.1 voltage. 145 150 volts

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
for plate volts = 300, grid-No.2 Effective Load Resistance	2 V	for plate volts = 300, grid-No.2 Effective Load Resistance


SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

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

Section 1 · Beam Power

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum DC Plate Voltage	1500 V	CCS linear RF service
Maximum DC Screen Voltage	400 V	CCS linear RF service
Maximum-Signal DC Plate Current	350 mA	CCS linear RF service
Plate Dissipation	100 W	CCS linear RF service
Typical DC Plate Voltage	1350 V	CCS linear RF service
Typical Useful Power Output	160 W	CCS linear RF service

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Mu Factor, Screen to Control Grid	7	CCS linear RF service
Grid-No.1 to Plate Capacitance	0.6 pF	CCS linear RF service
Grid-No.1 to Cathode/Heater Capacitance	8.5 pF	CCS linear RF service
Grid-No.2 to Plate Capacitance	9.5 pF	CCS linear RF service

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