



ELECTRONIC TUBE REFERENCE

829

Power - Beam (NOT sweep) electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION

CONSTRUCTION

BEAMPOWER

Push-pull beam-power transmitting tube designed for Class-C RF power amplification and related modulated transmitter service.

GENERAL CHARACTERISTICS

BASE DESIGNATION	—	BASE PINS	—
NOMINAL HEATER	12.6 V / 1.125 A	PARALLEL HEATER	6.3 V / 2.25 A
HEATING	Indirect	SERIES OPERATION	Capable
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION 1 Beam Power	
MAXIMUM PLATE VOLTAGE	500 V
MAXIMUM SCREEN VOLTAGE	200 V
MAXIMUM PLATE DISSIPATION	40 W
MAXIMUM SCREEN DISSIPATION	7 W
Source-derived section; identical dual beam-power sections compressed where applicable.	

RCA-829 is a push-pull, beam-power transmitting tube TYPICAL OPERATION: With modulation factor of 0.

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
from RMA release #	1943 mA	from RMA release #347, Sept. 24, 1943
of the heater-cathode type. It contains two beam power D-C Plate voltage	500 V	of the heater-cathode type. It contains two beam power D-C Plate voltage 500 Volts
units within one envelope. Total maximum plate dis- p-C Screen Voltage	200 V	units within one envelope. Total maximum plate dis- p-C Screen Voltage 200 volts
D-C Grid Voltage	-38 V	D-C Grid Voltage . -38 Volts
sipation is	82 W	sipation is 40 watts. The exceptional efficiency and Peak R-F Grid-to-Grid voltage 82 Volts
high power sensitivity of the	17 V	high power sensitivity of the 829 permit full power Peak A-F Grid voltage 17 Volts
0-C Plate Current 120 Ma.	120 mA	0-C Plate Current 120 Ma.
output with very low driving power. For example, a D-C Screen Current	10 A	output with very low driving power. For example, a D-C Screen Current 10 Ma.
single tube operated in push-pull class C telegraph D-C Grid Current (Approx.)	2 mA	single tube operated in push-pull class C telegraph D-C Grid Current (Approx.) 2 Ma.
driving Power (Approx.)*	0.5 W	driving Power (Approx.)* 0.5 Watt
service is capable of handling a power input of	23 W	service is capable of handling a power input of 120 Power Output (Approx.) 23 Watts
quencies as high as	829 MHz	quencies as high as 200 Mc (1-1/2 meters). The 829 As Plate-Modulated Push-Pull R-F Power Amplifier -
high as	250 MHz	high as 250 Mc. Carrier conditions per tube for use witha max. modulation
The exceptional efficiency of the	125 V	The exceptional efficiency of the 829 at the ultra- D-C PLATE VOLTAGE . 125 max. Volts

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
high frequencies is made possible by the balanced and D-C SCREEN VOLTAGE (Grid MNo,	225 V	high frequencies is made possible by the balanced and D-C SCREEN VOLTAGE (Grid MNo,2) 225 max. Volts
D-C GRID VOLTAGE (Grid No	-175 V	D-C GRID VOLTAGE (Grid No.1) -175 max. Volts
compact structure of the beam power units, excellent	212 mA	compact structure of the beam power units, excellent 0-C PLATE CURRENT 212 max. Ma,
internal shielding, and close electrode spacing. The	15 mA	internal shielding, and close electrode spacing. The 0-C GRID CURRENT 15 max. Ma.
PLATE INPUT	90 W	PLATE INPUT 90 max. Watts
internal leads are short and heavy in order to mini-SCREEN INPUT	7 W	internal leads are short and heavy in order to mini- SCREEN INPUT 7 max. Watts
mize internal lead inductance. The terminal arrange- PLATE DISSIPATION	28 W	mize internal lead inductance. The terminal arrange- PLATE DISSIPATION 28 ®max. Watts
ment provides excellent insulation and is designed to D-C Plate voltage	425 V	ment provides excellent insulation and is designed to D-C Plate voltage 425 Volts
D-C Screen Voltage of	200 V	D-C Screen Voltage of 200 volts
of the tube is unnecessary in adequately shielded cir- D-C Grid voltage of	-60 V	of the tube is unnecessary in adequately shielded cir- D-C Grid voltage of -60 Volts
cuits. peak R-F Grid-to-Grid voltage	154 V	cuits. peak R-F Grid-to-Grid voltage 154 volts
The heaters are arranged to allow operation from p-C Plate Current	212 mA	The heaters are arranged to allow operation from p-C Plate Current 212 Ma.,
D-C Screen Current	35 mA	D-C Screen Current 35 Ma.
either a	11 V	either a 12,6~ or a 6.3-volt supply. D-C Grid Current (Approx.) 11 Ma.
Driving Power (Approx.)	0.8 W	Driving Power (Approx.) 0.8 watt
power Output (Approx.)	63 W	power Output (Approx.) 63 Watts
voltage {A.C. or D.C.) per unit	6.3 V	voltage {A.C. or D.C.) per unit 6.3 Volts
Current per Unit	500 A	Current per Unit 1.125 Amperes D-C PLATE VOLTAGE . 500 max. Volts
D-C SCREEN VOLTAGE {(Grid No	225 V	D-C SCREEN VOLTAGE {(Grid No.2) 225 max. Volts

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
of 60 ma. 8500 approx.Micromhos D-C GRID VOLTAGE (Grid No.1) —175 max.	175 mA	of 60 ma. 8500 approx.Micromhos D-C GRID VOLTAGE (Grid No.1) —175 max. Volts
D-C PLATE CURRENT	240 mA	D-C PLATE CURRENT 240 max. Ma.
D-C GRID CURRENT	15 mA	D-C GRID CURRENT 15 max. Ma.
PLATE INPUT	120 W	PLATE INPUT 120 max. Watts
SCREEN INPUT	7 W	SCREEN INPUT 7 max. Watts
rid-Plate (with external PLATE DISSIPATION	40 W	rid-Plate (with external PLATE DISSIPATION 40 max. Watts
Output	500 V	Output 7.0 put D-C Plate Voltage 500 Volts
(Including internal screen from a fixed supply of	200 V	(Including internal screen from a fixed supply of 200 volts
by-pass condenser)	0 mA	by-pass condenser) 65 approx. ypt from a series resistor of 9300 Ohms
T-16 0-C Grid voltage:	0 V	T-16 0-C Grid voltage:
See INSTALLATION (under Bulb) from a cathode resistor of	160 ohm	See INSTALLATION (under Bulb) from a cathode resistor of 160 ohms
TYPE OF COOLING from	3750 ohm	TYPE OF COOLING from 1 grid resistor of** 3750 Ohms
Peak R-f Grid-to-Grid voltage	128 V	Peak R-f Grid-to-Grid voltage 128 volts
MAXIMUM CCS RATINGS and TYPICAL OPERATING CONDITIONS D-C Plate Current	240 mA	MAXIMUM CCS RATINGS and TYPICAL OPERATING CONDITIONS D-C Plate Current 240 Ma.
D-C Screen Current	32 mA	D-C Screen Current 32 Ma.
CCS = Continuous Commercial Service D-C Grid Current (Approx.)	12 mA	CCS = Continuous Commercial Service D-C Grid Current (Approx.) 12 Ma.
Driving Power (Approx.)	0.7 W	Driving Power (Approx.) 0.7 Watt
Maximum Ratings Are Absolute Values Power Output (Approx.)	83 W	Maximum Ratings Are Absolute Values Power Output (Approx.) 83 Watts
Class C Telephony ohms (total} per tube, or	30000 ohm	Class C Telephony ohms (total} per tube, or 30000 ohms per unit., If
D-C PLATE VOLTAGE	500 V	D-C PLATE VOLTAGE . 500 max. Volts ## Modulation essentially negative may be used if the

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
2) 225 max. Volts positive peak of the audio-frequency envelope does	225 V	2) 225 max. Volts positive peak of the audio-frequency envelope does
D-C GRID VOLTAGE (Grid No	115 V	D-C GRID VOLTAGE (Grid No.1) -175 max. Volts not exceed 115% of the carrier conditions.
D-C PLATE CURRENT	120 mA	D-C PLATE CURRENT 120 max. Ma,
PLATE INPUT	60 W	PLATE INPUT 60 m=ax. Watts INSTALLATION
SCREEN INPUT	6 W	SCREEN INPUT 6 max. Watts
PLATE DISSIPATION	829 W	PLATE DISSIPATION 40 max. Watts The 829 may be mounted by means of a special socket
frequencies below	107 MHz	frequencies below 60 Mc; No. 9935 {UT-107) has built- put to the screen determined. The screens should not be
and is designed for use at frequencies above	60 MHz	and is designed for use at frequencies above 60 Mc. a barely perceptible red color. This temperaturecorresponds
The heaters of the	1 V	The heaters of the 829 are connected in series within supply lead. It should remove the screen voltage
operation from a	12.6 V	operation from a 12.6-volt supply or parallel operation Shielding of the r—f amplifier stage employing the
from a	829 V	from a 6.3-volt supply. Either an a-c or a d-c supply 829 is required for stable operation, A convenient
heater-voltage should not deviate more than f	10 V	heater-voltage should not deviate more than f10% from tube through a hole in a metal plate so that the edge
100 volts. [If the use of a large resistor is neces- tiona! by-passin	100 V	100 volts. [If the use of a large resistor is neces — tiona! by-passing methods and grounding are not ade-
829 is supplied with unmodulated r-f grid excita— supplied with screen	829 V	829 is supplied with unmodulated r-f grid excita — supplied with screen voltage by any of the methods
are supplied with unmodulated d-c voltage, The audio not exceed	600 V	are supplied with unmodulated d-c voltage, The audio not exceed 600 volts under key-up conditions. Grid
of the grids of the class C amplifier on the positive classes of service at frequencies as high as	200 A	of the grids of the class C amplifier on the positive classes of service at frequencies as high as 200

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
is generally never more than	0.5 W	is generally never more than 0.5 watt, The screen quencies provided the maximum vauues of plate volt-
RCA	250 V	RCA-829 can be modulated 100% The screen voltage power input that can be used up to 250 Mc for any
to plate voltage remains constant. Modulation of a FREQUENCY	250 V	to plate voltage remains constant. Modulation of a FREQUENCY 200 250 Mc
PUSH-PULL R-F POWER AMPLIFIER	10 A	PUSH-PULL R-F POWER AMPLIFIER 1.2 70 10 ppf PER SECTION
(OPERATING FREQUENCY APPROX	200 MHz	(OPERATING FREQUENCY APPROX. 200 MC) 25 pf, 200 VOLTS
Ry R2 =	1 ohm	Ry R2 = 7500 TO 15000 OHMS, 1 WATT
R-F L [ANQ?&NA R3 =	10 ohm	R-F L [ANQ?&NA R3 = 60 OHMS, 10 WATTS
DRIVER AT &	15 ohm	DRIVER AT &7 Y FEEDERS Ry = 5300 OHMS, 15 WATTS
NOTE	2 V	NOTE 1: ADJUST COUPLING OF L1L2AND L3Lu FOR OPTIMUM GRID NOTE 2: GRID RESISTORS SHOULD BE ADJUSTED OK LBLR AT VOLT-
€4=12.6 VOLTS Egφxi2.6 VOLTS	6 V	€4=12.6 VOLTS Egφxi2.6 VOLTS
_SCREEN VOLTS=	2200 V	_SCREEN VOLTS=200 1 SCREEN VOLTS 2200
'<:'	25 V	'<:'5 7 \%\\c'*lo VOLTS €= +25— w / Rl
\\	0 V	\\ 3'-20 φ I// CONTROL-GRID VOLTS Ecy=0
PLATE v°"	8 V	PLATE v°"592c_ ianl PLATE vOLTS 92c~8ii2R1

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
As Grid-Modulated Push-Pull R=-F Power Amplifier - factor of	700 mA	As Grid-Modulated Push-Pull R=-F Power Amplifier - factor of 0.7
means of a protective resistance of about	2000 ohm	means of a protective resistance of about 2000 ohms resistor and fixed supply, or grid resistor and cathode
tive resistance of about	2000 ohm	tive resistance of about 2000 ohms in series with and fixed supply has the advantage of not only pro~