



ELECTRONIC TUBE REFERENCE

8165

Power - Tetrode (NOT beam) electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION

CONSTRUCTION

TETRODE

Instant-heating radial-beam transmitting tetrode for mobile RF power service, normally radiation/convection cooled and capable of substantial output to about 150 MHz.

GENERAL CHARACTERISTICS

BASE DESIGNATION	—	BASE PINS	—
NOMINAL HEATER	6 V / 3.5 A	PARALLEL HEATER	— / —
HEATING	Direct	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION 1 Tetrode	
AMPLIFICATION FACTOR	6
MAXIMUM PLATE VOLTAGE	3000 V
MAXIMUM SCREEN VOLTAGE	600 V
MAXIMUM PLATE DISSIPATION	65 W
MAXIMUM SCREEN DISSIPATION	10 W
MAXIMUM GRID DISSIPATION	5 W
<i>Promoted maximum ratings/characteristics populated from published headings; service-specific values retained in parameters.</i>	

The Eimac 8165/4-65A is a small radial-beam tetrode with a maximum plate- dissipation rating of 65 watts. In most applications, no forced air is required, normal radiation and convection cooling being adequate. An instant-heating, thoriated tung- sten filament is employed, allowing all electrode voltages to be applied simultaneously and permitting the conservation of power during standby periods. The 8165/4-65A is, therefore, a good choice for many mobile applications.

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1962 Eimac

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

1962 EIMAC

Section 1 · Tetrode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
dissipation rating of	65 W	dissipation rating of 65 watts. In most applications, no forced air is required, normal
and permitting the conservation of power during standby periods. The [1]	8165	and permitting the conservation of power during standby periods. The 8165/4-65A is,
and permitting the conservation of power during standby periods. The [2]	4	and permitting the conservation of power during standby periods. The 8165/4-65A is,
and permitting the conservation of power during standby periods. The [3]	-65	and permitting the conservation of power during standby periods. The 8165/4-65A is,
Voltage	6 V	Voltage ----- 6.0 volts
Current [1]	3.2 A	Current ----- 3.2 3.8 amperes
Current [2]	3.8 A	Current ----- 3.2 3.8 amperes
Grid-Screen Amplification Factor [1]	5	Grid-Screen Amplification Factor ----- . 5 7
Grid-Screen Amplification Factor [2]	7	Grid-Screen Amplification Factor ----- . 5 7
Input [1]	6 pF	Input ----- 6.0 8.3 uuf
Input [2]	8.3 pF	Input ----- 6.0 8.3 uuf
Output [1]	1.9 pF	Output ----- 1.9 2.6 uuf
Output [2]	2.6 pF	Output ----- 1.9 2.6 uuf
Frequency for Maximum Ratings	150	Frequency for Maximum Ratings ----- 150 me
RADIO-FREQUENCY POWER AMPLIFIER TYPICAL OPERATION (Frequencies up to	150 MHz	RADIO-FREQUENCY POWER AMPLIFIER TYPICAL OPERATION (Frequencies up to 150 megacycles)

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Telegraphy or FM Telephony Voltage [1]	-105	Telegraphy or FM Telephony Voltage - - - —105 —105 ~105
Telegraphy or FM Telephony Voltage [2]	-105	Telegraphy or FM Telephony Voltage - - - —105 —105 ~105
Telegraphy or FM Telephony Voltage [3]	105	Telegraphy or FM Telephony Voltage - - - —105 —105 ~105
MAXIMUM RATINGS {Key-down conditions) D-C Plate Current - - - o5 [1]	0 mA	MAXIMUM RATINGS {Key-down conditions) D-C Plate Current - - - o500 137 124 112 ma
MAXIMUM RATINGS {Key-down conditions) D-C Plate Current - - - o5 [2]	137 mA	MAXIMUM RATINGS {Key-down conditions) D-C Plate Current - - - o500 137 124 112 ma
MAXIMUM RATINGS {Key-down conditions) D-C Plate Current - - - o5 [3]	124 mA	MAXIMUM RATINGS {Key-down conditions) D-C Plate Current - - - o500 137 124 112 ma
MAXIMUM RATINGS {Key-down conditions) D-C Plate Current - - - o5 [4]	112 mA	MAXIMUM RATINGS {Key-down conditions) D-C Plate Current - - - o500 137 124 112 ma
D-C PLATE VOLTAGE [1]	3000 V	D-C PLATE VOLTAGE - - - - 3000 MAX. VOLTS D-C Screen Current* - - - ¥ 3 2% nma
D-C PLATE VOLTAGE [2]	3 V	D-C PLATE VOLTAGE - - - - 3000 MAX. VOLTS D-C Screen Current* - - - ¥ 3 2% nma
D-C PLATE VOLTAGE [3]	2 V	D-C PLATE VOLTAGE - - - - 3000 MAX. VOLTS D-C Screen Current* - - - ¥ 3 2% nma
D-C SCREEN VOLTAGE [1]	400 mA	D-C SCREEN VOLTAGE - - - 400 MAX. YOLTS D-C Grid Current* - - - . 19 15 13 9 ma
D-C SCREEN VOLTAGE [2]	19 mA	D-C SCREEN VOLTAGE - - - 400 MAX. YOLTS D-C Grid Current* - - - . 19 15 13 9 ma
D-C SCREEN VOLTAGE [3]	15 mA	D-C SCREEN VOLTAGE - - - 400 MAX. YOLTS D-C Grid Current* - - - . 19 15 13 9 ma
D-C SCREEN VOLTAGE [4]	13 mA	D-C SCREEN VOLTAGE - - - 400 MAX. YOLTS D-C Grid Current* - - - . 19 15 13 9 ma
D-C SCREEN VOLTAGE [5]	9 mA	D-C SCREEN VOLTAGE - - - 400 MAX. YOLTS D-C Grid Current* - - - . 19 15 13 9 ma
D-C GRID VOLTAGE [1]	-500 V	D-C GRID VOLTAGE - - - —500 MAX. YOLTS Peak R-F Grid Voltage* - - - 205 195 185 175 volts
D-C GRID VOLTAGE [2]	205 V	D-C GRID VOLTAGE - - - —500 MAX. YOLTS Peak R-F Grid Voltage* - - - 205 195 185 175 volts

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
D-C GRID VOLTAGE [3]	195 V	D-C GRID VOLTAGE - - - —500 MAX. YOLTS Peak R-F Grid Voltage* - - - 205 195 185 175 volts
D-C GRID VOLTAGE [4]	185 V	D-C GRID VOLTAGE - - - —500 MAX. YOLTS Peak R-F Grid Voltage* - - - 205 195 185 175 volts
D-C GRID VOLTAGE [5]	175 V	D-C GRID VOLTAGE - - - —500 MAX. YOLTS Peak R-F Grid Voltage* - - - 205 195 185 175 volts
D-C PLATE CURRENT - - w [1]	150 mA	D-C PLATE CURRENT - - w . 150 MAX. MA Driving Power* - - - - 39 29 24 1.6 watts
D-C PLATE CURRENT - - w [2]	39 mA	D-C PLATE CURRENT - - w . 150 MAX. MA Driving Power* - - - - 39 29 24 1.6 watts
D-C PLATE CURRENT - - w [3]	29 mA	D-C PLATE CURRENT - - w . 150 MAX. MA Driving Power* - - - - 39 29 24 1.6 watts
D-C PLATE CURRENT - - w [4]	24 mA	D-C PLATE CURRENT - - w . 150 MAX. MA Driving Power* - - - - 39 29 24 1.6 watts
D-C PLATE CURRENT - - w [5]	1.6 mA	D-C PLATE CURRENT - - w . 150 MAX. MA Driving Power* - - - - 39 29 24 1.6 watts
PLATE DISSIPATION - - - . & [1]	5 W	PLATE DISSIPATION - - - . &5 MAX. WATTS Plate Input Power - - . - 205 275 310 335 watts
PLATE DISSIPATION - - - . & [2]	205 W	PLATE DISSIPATION - - - . &5 MAX. WATTS Plate Input Power - - . - 205 275 310 335 watts
PLATE DISSIPATION - - - . & [3]	275 W	PLATE DISSIPATION - - - . &5 MAX. WATTS Plate Input Power - - . - 205 275 310 335 watts
PLATE DISSIPATION - - - . & [4]	310 W	PLATE DISSIPATION - - - . &5 MAX. WATTS Plate Input Power - - . - 205 275 310 335 watts
PLATE DISSIPATION - - - . & [5]	335 W	PLATE DISSIPATION - - - . &5 MAX. WATTS Plate Input Power - - . - 205 275 310 335 watts
SCREEN DISSIPATION - - N [1]	10 W	SCREEN DISSIPATION - - N . 10 MAX. WATTS Plate Output Power - - - . 140 210 245 270 watts
SCREEN DISSIPATION - - N [2]	140 W	SCREEN DISSIPATION - - N . 10 MAX. WATTS Plate Output Power - - - . 140 210 245 270 watts
SCREEN DISSIPATION - - N [3]	210 W	SCREEN DISSIPATION - - N . 10 MAX. WATTS Plate Output Power - - - . 140 210 245 270 watts
SCREEN DISSIPATION - - N [4]	245 W	SCREEN DISSIPATION - - N . 10 MAX. WATTS Plate Output Power - - - . 140 210 245 270 watts
SCREEN DISSIPATION - - N [5]	270 W	SCREEN DISSIPATION - - N . 10 MAX. WATTS Plate Output Power - - - . 140 210 245 270 watts
GRID DISSIPATION	5 W	GRID DISSIPATION - - - - 5 MAX. WATTS *Approximate values

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
PLATE.MODULATED RADIO.FREQUENCY TYPICAL OPERATION (Frequencies up to	150 MHz	PLATE.MODULATED RADIO.FREQUENCY TYPICAL OPERATION (Frequencies up to 150 megacycles)
AMPLIFIER D-C Plate Voltage [1]	1000 V	AMPLIFIER D-C Plate Voltage - - - 1000 1500 2000 2500 volts
AMPLIFIER D-C Plate Voltage [2]	1500 V	AMPLIFIER D-C Plate Voltage - - - 1000 1500 2000 2500 volts
AMPLIFIER D-C Plate Voltage [3]	2000 V	AMPLIFIER D-C Plate Voltage - - - 1000 1500 2000 2500 volts
AMPLIFIER D-C Plate Voltage [4]	2500 V	AMPLIFIER D-C Plate Voltage - - - 1000 1500 2000 2500 volts
Class-C Telephony D-C Grid Voltage - - - --I5 [1]	0 V	Class-C Telephony D-C Grid Voltage - - - --I50 150 --I50 --150 volts
Class-C Telephony D-C Grid Voltage - - - --I5 [2]	150 V	Class-C Telephony D-C Grid Voltage - - - --I50 150 --I50 --150 volts
Class-C Telephony D-C Grid Voltage - - - --I5 [3]	0 V	Class-C Telephony D-C Grid Voltage - - - --I50 150 --I50 --150 volts
Class-C Telephony D-C Grid Voltage - - - --I5 [4]	-150 V	Class-C Telephony D-C Grid Voltage - - - --I50 150 --I50 --150 volts
MAXIMUM RATINGS (Carrier conditions) D-C Plate Current [1]	120 mA	MAXIMUM RATINGS (Carrier conditions) D-C Plate Current - - - 120 120 13 102 ma
MAXIMUM RATINGS (Carrier conditions) D-C Plate Current [2]	120 mA	MAXIMUM RATINGS (Carrier conditions) D-C Plate Current - - - 120 120 13 102 ma
MAXIMUM RATINGS (Carrier conditions) D-C Plate Current [3]	13 mA	MAXIMUM RATINGS (Carrier conditions) D-C Plate Current - - - 120 120 13 102 ma
MAXIMUM RATINGS (Carrier conditions) D-C Plate Current [4]	102 mA	MAXIMUM RATINGS (Carrier conditions) D-C Plate Current - - - 120 120 13 102 ma
D-C PLATE VOLTAGE [1]	2500 mA	D-C PLATE VOLTAGE - - - - 2500 MAX. VOLTS D- C Screen Current* - - 4 40 ¥ 26 ma
D-C PLATE VOLTAGE [2]	4 mA	D-C PLATE VOLTAGE - - - - 2500 MAX. VOLTS D- C Screen Current* - - 4 40 ¥ 26 ma
D-C PLATE VOLTAGE [3]	40 mA	D-C PLATE VOLTAGE - - - - 2500 MAX. VOLTS D- C Screen Current* - - 4 40 ¥ 26 ma
D-C PLATE VOLTAGE [4]	26 mA	D-C PLATE VOLTAGE - - - - 2500 MAX. VOLTS D- C Screen Current* - - 4 40 ¥ 26 ma
D-C SCREEN VOLTAGE [1]	400 mA	D-C SCREEN VOLTAGE - - - 400 MAX. VOLTS D.C Grid Current* . - - 20 20 8 13 ma

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
D-C SCREEN VOLTAGE [2]	20 mA	D-C SCREEN VOLTAGE - - - 400 MAX. VOLTS D.C Grid Current* . - - - 20 20 8 13 ma
D-C SCREEN VOLTAGE [3]	20 mA	D-C SCREEN VOLTAGE - - - 400 MAX. VOLTS D.C Grid Current* . - - - 20 20 8 13 ma
D-C SCREEN VOLTAGE [4]	8 mA	D-C SCREEN VOLTAGE - - - 400 MAX. VOLTS D.C Grid Current* . - - - 20 20 8 13 ma
D-C SCREEN VOLTAGE [5]	13 mA	D-C SCREEN VOLTAGE - - - 400 MAX. VOLTS D.C Grid Current* . - - - 20 20 8 13 ma
D-C GRID VOLTAGE [1]	-500 V	D-C GRID VOLTAGE . - - —500 MAX. VOLTS Peak R-F Voltage* - - - . 255 255 250 235 volts
D-C GRID VOLTAGE [2]	255 V	D-C GRID VOLTAGE . - - —500 MAX. VOLTS Peak R-F Voltage* - - - . 255 255 250 235 volts
D-C GRID VOLTAGE [3]	255 V	D-C GRID VOLTAGE . - - —500 MAX. VOLTS Peak R-F Voltage* - - - . 255 255 250 235 volts
D-C GRID VOLTAGE [4]	250 V	D-C GRID VOLTAGE . - - —500 MAX. VOLTS Peak R-F Voltage* - - - . 255 255 250 235 volts
D-C GRID VOLTAGE [5]	235 V	D-C GRID VOLTAGE . - - —500 MAX. VOLTS Peak R-F Voltage* - - - . 255 255 250 235 volts
D-C PLATE CURRENT [1]	120 mA	D-C PLATE CURRENT - - - - 120 MAX. MA Driving Power* . - - 51 51 48 3.1 watts
D-C PLATE CURRENT [2]	51 mA	D-C PLATE CURRENT - - - - 120 MAX. MA Driving Power* . - - 51 51 48 3.1 watts
D-C PLATE CURRENT [3]	51 mA	D-C PLATE CURRENT - - - - 120 MAX. MA Driving Power* . - - 51 51 48 3.1 watts
D-C PLATE CURRENT [4]	48 mA	D-C PLATE CURRENT - - - - 120 MAX. MA Driving Power* . - - 51 51 48 3.1 watts
D-C PLATE CURRENT [5]	3.1 mA	D-C PLATE CURRENT - - - - 120 MAX. MA Driving Power* . - - 51 51 48 3.1 watts
PLATE DISSIPATION [1]	45 W	PLATE DISSIPATION . - - - 45 MAX. WATTS Plate Input Power - - - - 120 180 226 255 watts
PLATE DISSIPATION [2]	120 W	PLATE DISSIPATION . - - - 45 MAX. WATTS Plate Input Power - - - - 120 180 226 255 watts
PLATE DISSIPATION [3]	180 W	PLATE DISSIPATION . - - - 45 MAX. WATTS Plate Input Power - - - - 120 180 226 255 watts
PLATE DISSIPATION [4]	226 W	PLATE DISSIPATION . - - - 45 MAX. WATTS Plate Input Power - - - - 120 180 226 255 watts
PLATE DISSIPATION [5]	255 W	PLATE DISSIPATION . - - - 45 MAX. WATTS Plate Input Power - - - - 120 180 226 255 watts
SCREEN DISSIPATION [1]	10 W	SCREEN DISSIPATION - - - . 10 MAX. WATTS Plate Output Power - - - - 8 140 182 210 watts

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
SCREEN DISSIPATION [2]	8 W	SCREEN DISSIPATION - - - . 10 MAX. WATTS Plate Output Power - - - - 8 140 182 210 watts
SCREEN DISSIPATION [3]	140 W	SCREEN DISSIPATION - - - . 10 MAX. WATTS Plate Output Power - - - - 8 140 182 210 watts
SCREEN DISSIPATION [4]	182 W	SCREEN DISSIPATION - - - . 10 MAX. WATTS Plate Output Power - - - - 8 140 182 210 watts
SCREEN DISSIPATION [5]	210 W	SCREEN DISSIPATION - - - . 10 MAX. WATTS Plate Output Power - - - - 8 140 182 210 watts
Class-AB, D-C Screen Voltage [1]	500 V	Class-AB, D-C Screen Voltage - - - - 500 500 400 400 volts
Class-AB, D-C Screen Voltage [2]	500 V	Class-AB, D-C Screen Voltage - - - - 500 500 400 400 volts
Class-AB, D-C Screen Voltage [3]	400 V	Class-AB, D-C Screen Voltage - - - - 500 500 400 400 volts
Class-AB, D-C Screen Voltage [4]	400 V	Class-AB, D-C Screen Voltage - - - - 500 500 400 400 volts
MAXIMUM RATINGS Zero-Signal D-C Plate Current [1]	60 mA	MAXIMUM RATINGS Zero-Signal D-C Plate Current - 60 40 30 30 ma
MAXIMUM RATINGS Zero-Signal D-C Plate Current [2]	40 mA	MAXIMUM RATINGS Zero-Signal D-C Plate Current - 60 40 30 30 ma
MAXIMUM RATINGS Zero-Signal D-C Plate Current [3]	30 mA	MAXIMUM RATINGS Zero-Signal D-C Plate Current - 60 40 30 30 ma