



ELECTRONIC TUBE REFERENCE

3R187E

Power - Triode (over 1000V 100W) electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION

CONSTRUCTION

TRIODE

Heavy-filament triode for high-power electronic service. Available source material does not establish a narrower functional application confidently.

GENERAL CHARACTERISTICS

BASE DESIGNATION	—	BASE PINS	—
NOMINAL HEATER	5 V / 78 A	PARALLEL HEATER	— / —
HEATING	Direct	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION 1 Triode	
TRANSCONDUCTANCE	0.022 S
AMPLIFICATION FACTOR	12
MAXIMUM PLATE VOLTAGE	6500 V
MAXIMUM PLATE DISSIPATION	4000 W
MAXIMUM GRID DISSIPATION	200 W
Published maximum ratings and characteristics audited; remaining values retained densely in parameter table.	

The 3R187E is a water-cooled industrial triode for class-C RF heating oscillators and class-B audio-frequency power-amplifier or modulator service.

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1962 ITT

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

1962 ITT

Section 1 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
This valve is electrically identical to [1]	3	This valve is electrically identical to 3JJ/187E but, for anode cooling, a helical copper tube
This valve is electrically identical to [2]	187	This valve is electrically identical to 3JJ/187E but, for anode cooling, a helical copper tube
Filament voltage	5 V	Filament voltage 5 v
Filament current, nominal	78 A	Filament current, nominal 78 A
Mutual conductance at $V_a =$ [1]	2 mA/V	Mutual conductance at $V_a = 2\text{kV}$; $V_g = -75\text{V}$ 22 mA/vV
Mutual conductance at $V_a =$ [2]	-75 mA/V	Mutual conductance at $V_a = 2\text{kV}$; $V_g = -75\text{V}$ 22 mA/vV
Mutual conductance at $V_a =$ [3]	22 mA/V	Mutual conductance at $V_a = 2\text{kV}$; $V_g = -75\text{V}$ 22 mA/vV
Grid to anode	29	Grid to anode 29 - pF
Grid to filament	54	Grid to filament 54 pF
Anode to filament	15	Anode to filament 15 pF
Published value [1]	214	214-LVA-001A Filament connector, smaller
Published value [2]	1	214-LVA-001A Filament connector, smaller
Published value [1]	214	214-LVA-001B Filament connector, larger
Published value [2]	1	214-LVA-001B Filament connector, larger
Published value [1]	214	214-LVA-001C Grid connector
Published value [2]	1	214-LVA-001C Grid connector
direct voltage plus ripple) [1]	55 kV	direct voltage plus ripple) 55 6-5 kv
direct voltage plus ripple) [2]	6 kV	direct voltage plus ripple) 55 6-5 kv

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
direct voltage plus ripple) [3]	-5 kV	direct voltage plus ripple) 55 6-5 kv
Maximum direct anode current [1]	2 mA	Maximum direct anode current 2 2 A
Maximum direct anode current [2]	2 mA	Maximum direct anode current 2 2 A
Maximum direct anode dissipation (continuous) [1]	3 kW	Maximum direct anode dissipation (continuous) 3 3 kW
Maximum direct anode dissipation (continuous) [2]	3 kW	Maximum direct anode dissipation (continuous) 3 3 kW
Maximum direct grid dissipation (continuous) [1]	200 W	Maximum direct grid dissipation (continuous) 200 200 w
Maximum direct grid dissipation (continuous) [2]	200 W	Maximum direct grid dissipation (continuous) 200 200 w
Maximum direct grid current (Note [1])	1 mA	Maximum direct grid current (Note 1) 500 500 mA
Maximum direct grid current (Note [2])	500 mA	Maximum direct grid current (Note 1) 500 500 mA
Maximum direct grid current (Note [3])	500 mA	Maximum direct grid current (Note 1) 500 500 mA
Maximum negative grid bias [1]	-1500	Maximum negative grid bias —1500 —1500 v
Maximum negative grid bias [2]	-1500	Maximum negative grid bias —1500 —1500 v
Maximum frequency for the above ratings [1]	120 MHz	Maximum frequency for the above ratings 120 100 MHz
Maximum frequency for the above ratings [2]	100 MHz	Maximum frequency for the above ratings 120 100 MHz
Note	1 W	Note 1.—This figure is given for guidance. Grid dissipation is absolute rating.
Direct anode voltage [1]	5 kV	Direct anode voltage 5 [65 kv
Direct anode voltage [2]	65 kV	Direct anode voltage 5 [65 kv
Direct grid voltage [1]	-560 V	Direct grid voltage —560 —650 —720 A
Direct grid voltage [2]	-650 V	Direct grid voltage —560 —650 —720 A
Direct grid voltage [3]	-720 V	Direct grid voltage —560 —650 —720 A
Direct anode current [1]	16 A	Direct anode current 16 15 18 A
Direct anode current [2]	15 A	Direct anode current 16 15 18 A
Direct anode current [3]	18 A	Direct anode current 16 15 18 A

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Peak r.f. grid voltage [1]	760 V	Peak r.f. grid voltage 760 890 970 V
Peak r.f. grid voltage [2]	890 V	Peak r.f. grid voltage 760 890 970 V
Peak r.f. grid voltage [3]	970 V	Peak r.f. grid voltage 760 890 970 V
Direct grid current (Note [1])	2 mA	Direct grid current (Note 2) . 100 (140) 130 (190) 150 (200) mA
Direct grid current (Note [2])	100 mA	Direct grid current (Note 2) . 100 (140) 130 (190) 150 (200) mA
Direct grid current (Note [3])	140 mA	Direct grid current (Note 2) . 100 (140) 130 (190) 150 (200) mA
Direct grid current (Note [4])	130 mA	Direct grid current (Note 2) . 100 (140) 130 (190) 150 (200) mA
Direct grid current (Note [5])	190 mA	Direct grid current (Note 2) . 100 (140) 130 (190) 150 (200) mA
Direct grid current (Note [6])	150 mA	Direct grid current (Note 2) . 100 (140) 130 (190) 150 (200) mA
Direct grid current (Note [7])	200 mA	Direct grid current (Note 2) . 100 (140) 130 (190) 150 (200) mA
Grid dissipation (Note [1])	2 W	Grid dissipation (Note 2) 25 55 55 w
Grid dissipation (Note [2])	25 W	Grid dissipation (Note 2) 25 55 55 w
Grid dissipation (Note [3])	55 W	Grid dissipation (Note 2) 25 55 55 w
Grid dissipation (Note [4])	55 W	Grid dissipation (Note 2) 25 55 55 w
Grid resistor [1]	56	Grid resistor 56 5 4.8 kQ
Grid resistor [2]	5	Grid resistor 56 5 4.8 kQ
Grid resistor [3]	4.8	Grid resistor 56 5 4.8 kQ
Power input [1]	8 kW	Power input 8 9 117 kw
Power input [2]	9 kW	Power input 8 9 117 kw
Power input [3]	117 kW	Power input 8 9 117 kw
Output power (oscillator) [1]	54 kW	Output power (oscillator) 54 69 89 kw
Output power (oscillator) [2]	69 kW	Output power (oscillator) 54 69 89 kw
Output power (oscillator) [3]	89 kW	Output power (oscillator) 54 69 89 kw
Power into load at	85 W	Power into load at 85 per cent
transfer efficiency [1]	4	transfer efficiency 4-6 58 7-5 kw
transfer efficiency [2]	-6	transfer efficiency 4-6 58 7-5 kw

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
transfer efficiency [3]	58	transfer efficiency 4-6 58 7-5 kw
transfer efficiency [4]	7	transfer efficiency 4-6 58 7-5 kw
transfer efficiency [5]	-5	transfer efficiency 4-6 58 7-5 kw
Maximum direct anode voltage	6 kV	Maximum direct anode voltage 6 kv
Maximum direct anode current	2 mA	Maximum direct anode current 2 A
Maximum direct anode dissipation (intermittent)	5 kW	Maximum direct anode dissipation (intermittent) 5 kw
Maximum direct anode dissipation (continuous)	4 kW	Maximum direct anode dissipation (continuous) 4 kw
Maximum direct grid dissipation (continuous)	200 W	Maximum direct grid dissipation (continuous) 200 w
Maximum direct grid voltage [1]	-1 V	Maximum direct grid voltage - --1 500 v
Maximum direct grid voltage [2]	500 V	Maximum direct grid voltage - --1 500 v
Direct anode voltage	5 kV	Direct anode voltage 5 kv
Direct grid voltage	-350 V	Direct grid voltage —350 v
Direct anode current (zero signal)	2 A	Direct anode current (zero signal) 02 A
Direct anode current (maximum signal)	19 mA	Direct anode current (maximum signal) 19 A
Load resistor, anode to anode	27	Load resistor, anode to anode 27 kQ
Peak a.f. grid to grid voltage	1040 V	Peak a.f. grid to grid voltage 1040 A
Grid drive power, approximately	85 W	Grid drive power, approximately 85 w
Direct grid current	80 mA	Direct grid current . 80 mA
Direct grid dissipation	14 W	Direct grid dissipation 14 w
Output power	12 kW	Output power 12 kw
Fig	1 V	Fig. 1.—Anode Current and Grid Current versus Anode Voltage
/,;l	1 kV	- /,;l 1) : ANODE VOLTAGE (kV)
Fig	2 A	Fig. 2.—~Constant Current Characteristics
P	2	P 2 FILAMENT
Published value [1]	2	2 N 31 GRID

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Published value [2]	31	2 N 31 GRID
'	4	' 4 ANODE
NOTE:— IN HIGH FREQUENCY CIRCUITS, CONTACT	2	NOTE:— IN HIGH FREQUENCY CIRCUITS, CONTACT 2

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