



ELECTRONIC TUBE REFERENCE

3J222E

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

CONSOLIDATED TECHNICAL DATA

1 SECTION
CONSTRUCTION
TRIODE

Very high-power industrial triode specifically designed for RF-heating oscillator service. Rated for 10 kW plate dissipation, with published Class C oscillator conditions producing approximately 26 kW RF output.

GENERAL CHARACTERISTICS

BASE DESIGNATION	—	BASE PINS	—
NOMINAL HEATER	8 V / 125 A	PARALLEL HEATER	— / —
HEATING	Direct	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION1 Triode	
TRANSCONDUCTANCE	0.06 S
AMPLIFICATION FACTOR	16
MAXIMUM PLATE VOLTAGE	7000 V
MAXIMUM PLATE DISSIPATION	10000 W
MAXIMUM GRID DISSIPATION	500 W
Published maximum ratings and characteristics audited; remaining values retained densely in parameter table.	

The 3J222E is an industrial triode specifically designed for high-power industrial RF heating oscillator 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
Published value	100 MHz	100 Mc/s. Design features give a high mutual conductance, resulting
Filament voltage [1]	8 V	Filament voltage 8 + 29 8 4 59, v
Filament voltage [2]	29 V	Filament voltage 8 + 29 8 4 59, v
Filament voltage [3]	8 V	Filament voltage 8 + 29 8 4 59, v
Filament voltage [4]	4 V	Filament voltage 8 + 29 8 4 59, v
Filament voltage [5]	59 V	Filament voltage 8 + 29 8 4 59, v
Filament current {nominal}	125 A	Filament current {nominal} 125 A
Filament cold resistance (nominal)	0.0085 ohm	Filament cold resistance (nominal) 0.0085 Q
Mutual conductance } at Va, [1]	2 mA/V	Mutual conductance } at Va, 2kV, V; —87V 60 mA/vV
Mutual conductance } at Va, [2]	-87 mA/V	Mutual conductance } at Va, 2kV, V; —87V 60 mA/vV
Mutual conductance } at Va, [3]	60 mA/V	Mutual conductance } at Va, 2kV, V; —87V 60 mA/vV
Grid to anode	50	Grid to anode 50 pF
Grid to filament	80	Grid to filament 80 pF
Anode to filament	3	Anode to filament 3 pF
Maximum radiator core temperature	220	Maximum radiator core temperature 220 °C
Maximum seal temperature	180	Maximum seal temperature 180 . °C
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

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
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)	7 V	direct voltage plus ripple) 7 kV
Maximum direct anode current	6 mA	Maximum direct anode current 6 A
Maximum direct anode dissipation (continuous)	10 kW	Maximum direct anode dissipation (continuous) 10 kw
Maximum direct grid dissipation (continuous)	500 W	Maximum direct grid dissipation (continuous) 500 w
Maximum direct grid current (Note [1])	2 mA	Maximum direct grid current (Note 2) 1-4 A
Maximum direct grid current (Note [2])	1 mA	Maximum direct grid current (Note 2) 1-4 A
Maximum direct grid current (Note [3])	-4 mA	Maximum direct grid current (Note 2) 1-4 A
Maximum negative grid bias [1]	-1	Maximum negative grid bias —1 500 v
Maximum negative grid bias [2]	500	Maximum negative grid bias —1 500 v
Note	2 W	Note 2.—This figure is given for guidance. Grid dissipation is absolute rating.
Direct anode voltage	3 kV	Direct anode voltage 3 kV
Direct grid voltage	-660 V	Direct grid voltage —660 v
Direct anode current [1]	5 A	Direct anode current 5-6 A
Direct anode current [2]	-6 A	Direct anode current 5-6 A
Peak r.f. grid voltage [1]	930 V	Peak r.f. grid voltage 930 \2
Peak r.f. grid voltage [2]	2 V	Peak r.f. grid voltage 930 \2
Direct grid current (Note [1])	3 mA	Direct grid current (Note 3) 750 (1200) mA
Direct grid current (Note [2])	750 mA	Direct grid current (Note 3) 750 (1200) mA
Direct grid current (Note [3])	1200 mA	Direct grid current (Note 3) 750 (1200) mA
Grid dissipation (Note [1])	3 W	Grid dissipation (Note 3) 260 2%
Grid dissipation (Note [2])	260 W	Grid dissipation (Note 3) 260 2%
Grid dissipation (Note [3])	2 W	Grid dissipation (Note 3) 260 2%

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid resistor	900	Grid resistor 900 Q
Power input [1]	33 kW	Power input 33-6 kW
Power input [2]	-6 kW	Power input 33-6 kW
Output power (oscillator)	26 kW	Output power (oscillator) 26 kw
Power into load at [1]	859 kW	Power into load at 859, transfer efficiency 21 kW
Power into load at [2]	21 kW	Power into load at 859, transfer efficiency 21 kW
yd	1607 kV	yd 1607 ANODE VOLTAGE (kV)
Fig	2 V	Fig. 2.—Grid Voltage versus Anode Voltage
A	2	A 2. FILAMENT
Published value	5	5. GRID
i	4	i 4 ANODE