ELECTRONIC TUBE REFERENCE

3R222S

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

CONSOLIDATED TECHNICAL DATA
1 SECTION
CONSTRUCTION
TRIODE

Water-cooled industrial triode for high-power Class C RF-heating oscillator service. Rated for 10 kW plate dissipation, with published operating conditions delivering approximately 25–26 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	12
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 3R222S is a water-cooled industrial triode for high-power class-C industrial RF heating oscillator service.

SOURCE OPERATING CONDITIONS

1962 ITT

SOURCE PDF

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**
Anode voltage (peak value of direct voltage plus ripple)	**70 kV**	Anode voltage (peak value of direct voltage plus ripple) 7,0 kV
Direct anode current	**60 A**	Direct anode current : 6,0 A
Anode dissipation, continuous	**10 kW**	Anode dissipation, continuous 10 kW
Grid dissipation, continuous	**500 W**	Grid dissipation, continuous 500 W
Grid current (Note [1]	**1 A**	Grid current (Note 1) ' 1,4 A
Grid current (Note [2]	**14 A**	Grid current (Note 1) ' 1,4 A
Direct negative grid voltage [1]	**-1 V**	Direct negative grid voltage -1 500 v
Direct negative grid voltage [2]	**500 V**	Direct negative grid voltage -1 500 v
Maximum frequency for above ratings	**30 MHz**	Maximum frequency for above ratings 30 MHz
Note	**1**	Note 1, This figure is given for guidance. Grid dissipstion is absolute
Filament voltage [1]	**80 V**	Filament voltage 8,0V* 5%
Filament voltage [2]	**5 V**	Filament voltage 8,0V* 5%
Filament current, nominal	**125 A**	Filament current, nominal 125 A
Direct anode voltage '	**60 kV**	Direct anode voltage ' 6,0 kV
Direct grid voltage	**-660 V**	Direct grid voltage -660 , Vv
Direct anode current	**56 A**	Direct anode current 5,6 A
Peak r.f. grid voltage	**930 V**	Peak r.f. grid voltage - 930 v
Direct grid current (Note [1]	**2 mA**	Direct grid current (Note 2) 750 (1 200) mA

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Direct grid current (Note [2]	**750 mA**	Direct grid current (Note 2) 750 (1 200) mA
Direct grid current (Note [3]	**1 mA**	Direct grid current (Note 2) 750 (1 200) mA
Direct grid current (Note [4]	**200 mA**	Direct grid current (Note 2) 750 (1 200) mA
Grid dissipation (Note [1]	**2 W**	Grid dissipation (Note 2) 260 W
Grid dissipation (Note [2]	**260 W**	Grid dissipation (Note 2) 260 W
Grid resistor	**900**	Grid resistor 900 . [y
Power output	**26 kW**	Power output 26 kW
Power output, less drive.-...= e	**25 kW**	Power output, less drive.-...= e 25 kW
Power into load at [1]	**85 kW**	Power into load at 85% transfer eff1c1ency - 21 kW
Power into load at [2]	**21 kW**	Power into load at 85% transfer eff1c1ency - 21 kW
Cold filament resistance	**45 ohm**	Cold filament resistance 0,0045 Q
It is recommended that some resistance or reactance be introduced	**4 ohm**	It is recommended that some resistance or reactance be introduced 4into the
Mutual conductance (at Vg = [1]	**2 mA/V**	Mutual conductance (at Vg = 2kV : Vg = =B7V)) : 60 mA/V
Mutual conductance (at Vg = [2]	**60 mA/V**	Mutual conductance (at Vg = 2kV : Vg = =B7V)) : 60 mA/V
Grid to anode	**56**	Grid to anode 56 pF
Grid to filament	**100**	Grid to filament 100 pF
Anode to filament ‘	**30**	Anode to filament ‘ 3,0 pf
The anode must be cooled by an adequate water flow (see Figures [1]	**3**	The anode must be cooled by an adequate water flow (see Figures 3 and 4). It
The anode must be cooled by an adequate water flow (see Figures [2]	**4**	The anode must be cooled by an adequate water flow (see Figures 3 and 4). It
CN	**1**	CN-1A Filament connector, small
CN~	**1**	CN~1B Filament connector, large
CN	**1**	CN-1C Grid connector
Fig	**1 V**	Fig. 1. Constant Voltage Characteristic

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Fig	**2 A**	Fig. 2. Constant Current Characteristic
Water Temperature of	**60**	Water Temperature of 60°C