

SVETLANA TECHNICAL DATA

4CX20,000B

Radial Beam Power Tetrode



The Svetlana™ 4CX20,000B is a high-performance ceramic/metal power tetrode designed for audio and radio frequency applications. It is particularly well-suited for use in AM broadcast transmitters and pulse modulator service. The Svetlana 4CX20,000B has a directly-heated thoriated tungsten mesh filament for mechanical ruggedness and has excellent high voltage stand-off capability.

The Svetlana 4CX20,000B is manufactured in the Svetlana factory in St. Petersburg, Russia, and is a direct replacement for the 4CX20,000B manufactured in the United States.

Characteristics

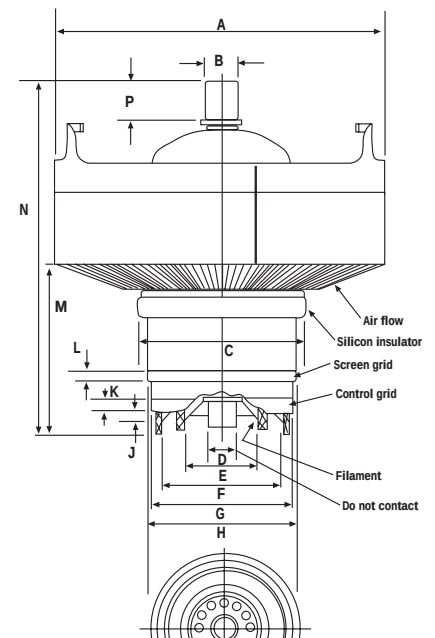
Electrical

Filament:	Thoriated-tungsten mesh	
Voltage	10.0 ± 0.5	V
Current @ 10.0V	140	A
Amplification factor (average):		
Grid to screen	6.7	
Direct interelectrode capacitances (grounded cathode):		
Cin	190	pF
Cout	23.5	pF
Cgp	1.5	pF
Direct interelectrode capacitance (grounded grid):		
Cin	83	pF
Cout	24.5	pF
Cgk	0.2	pF
Maximum frequency for full ratings (CW)	30	MHz

Mechanical

Maximum overall dimensions:		
Length	25 cm (9.84 in.)	
Diameter	22.4 cm (8.80 in.)	
Net weight	6.35 kg (14.0 lb.)	
Operating position	Axis vertical, base up or down	
Maximum operating temperature, ceramic/metal seals or envelope	250° C	
Cooling	Forced air	
Base	Coaxial, for use with Svetlana SK300A socket	

Svetlana Outline drawing



Dimensional Data

	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	221.74	225.04	8.730	8.860
B	21.72	22.73	.855	.895
C	116.66	118.26	4.593	4.656
D	15.24	19.30	.600	.760
E	48.16	49.17	1.896	1.936
F	79.58	80.59	3.133	3.173
G	96.32	97.33	3.792	3.832
H	101.09	102.11	3.980	4.020
J	4.78	—	.188	—
K	4.78	—	.188	—
L	4.78	—	.188	—
M	123.01	124.61	4.906	—
N	240.41	249.94	9.465	9.840
P	12.70	—	.500	—



Svetlana
ELECTRON DEVICES

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Svetlana
ELECTRON DEVICES

Radio Frequency Power Amplifier Class C AM

Absolute Maximum Ratings:

DC plate voltage	10,000	
V		
DC grid voltage-	1000	
V		
DC screen voltage	2,000	V
DC plate current	5.0	A
Plate dissipation	20	kW
Screen dissipation	450	W
Grid dissipation	200	W

Typical Operation (Frequencies to 30 MHz, Carrier Conditions)

DC plate voltage	7.8	kVdc
DC screen voltage	750	Vdc
DC grid voltage	300	Vdc
Peak AF screen voltage (100% modulation)	750	Vdc
DC plate current	4.6	Adc
DC screen current*	0.220	Adc
DC grid current*	0.108	Adc
Driving power(calculated)	35	W
Plate dissipation	6.9	kW
Plate impedance	845	Ohms
Plate output power	29	kW

Pulse Modulator or Regulator Service

Absolute Maximum Ratings

DC plate voltage	35	kV
DC screen voltage	2500	V
DC grid voltage	-15	kV
Rear DC cathode current	80	A
Plate dissipation	20.0	W
Screen dissipation	450	W
Grid dissipation	200	W
Maximum pulse length	100	mS

*Approximate value

Cooling

Base-to-Anode Air Flow

Sea Level			10,000 Feet	
Plate Dissipation Watts	Air Flow CFM	Pressure Drop Inches of Water	Air Flow CFM	Pressure Drop Inches of Water
12.5	257	0.6	377	0.7
15.0	367	1.0	537	1.2
17.5	500	1.5	730	1.9
20.0	652	2.4	955	3.0

- For each 10° increase in air temperature cooling, flow rate should be increased 20%
- Air must be passed around the base of the tube and through the socket, to assure adequate cooling of the tube base and the socket contacts.
- Minimum air flow requirements for a maximum anode temperature of 225°C are shown in the table.
- Air flow must be applied before or simultaneously with the applicaiton of power, including the tube filament, and should normally be maintained for several minutes after all power is removed from the tube.

