

SVETLANA TECHNICAL DATA

4CX20,000C

Radial Beam Power Tetrode



The Svetlana™ 4CX20,000C is a high-performance ceramic/metal power tetrode designed for audio and radio frequency applications. It is particularly well-suited for use in VHF FM broadcast transmitters in the Band II 88-108 MHz frequency range. The Svetlana 4CX20,000C has a directly-heated thoriated tungsten mesh filament for mechanical ruggedness and good VHF electrical performance.

The Svetlana 4CX20,000C is manufactured in the Svetlana factory in St. Petersburg, Russia, and is a direct replacement for the 4CX20,000C 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):	6.7	
Grid to screen	6.7	
Direct interelectrode capacitances (grounded cathode):		
Cin	195	pF
Cout	22.7	pF
Cgp	0.6	pF
Direct interelectrode capacitance (grounded grid):		
Cin	87.4	pF
Cout	23.1	pF
Cpk	0.08	pF
Maximum frequency for full ratings (CW)	110 MHz	

Mechanical

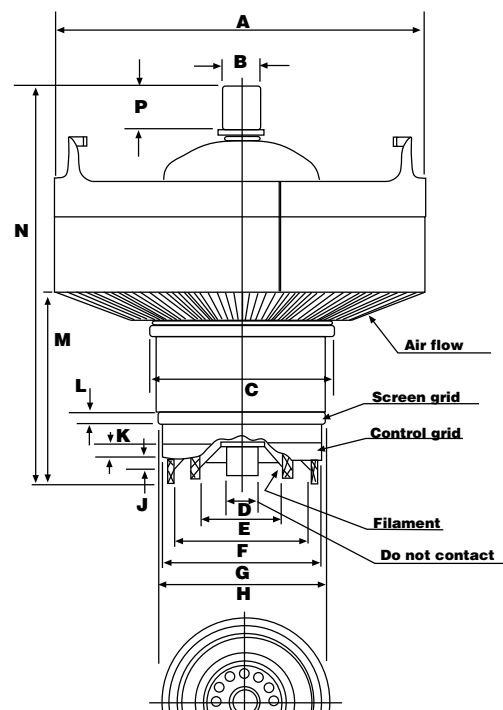
Maximum overall dimensions:		
Length	25 cm (9.84 in.)	
Diameter	22.4 cm (8.80 in.)	
Net weight	9.06 kg (20.0 lb.)	
Operating position	Axis vertical, base up or down	
Maximum operating temperature, ceramic/metal seals or envelope	250° C	
Cooling	Forced air	
Base	Coaxial, for use with Svetlana SK300A socket	

Radio Frequency Power Amplifier Class C FM

Absolute Maximum Ratings:

DC plate voltage	12,500	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

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	111.91	113.49	4.406	4.468
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
K	4.78	—	.188	—
L	4.78	—	.188	—
M	123.01	124.61	4.843	4.906
N	240.41	249.94	9.465	9.840
P	12.70	—	.500	—



Svetlana
ELECTRON DEVICES

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ELECTRON DEVICES

Typical Operation (Frequencies to 110 MHz)

DC plate voltage	9.0	12.0	kVdc
DC screen voltage	800	1000	Vdc
DC grid voltage	-300	-500	Vdc
DC plate current	4.15	3.55	Adc
DC screen current	0.2	0.25	Adc
DC grid current	38	53	mAdc
Driving power	360	340	W
Plate dissipation	8.5	8.1	kW
Plate output power	30	34.5	kW
Power Gain	19	20	dB

Cooling

Base-to-Anode Air Flow

Plate Dissipation Watts	Sea Level		10,000 Feet	
	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	498	1.5	730	1.9
20.0	652	2.4	955	3.0

1. Air flow for inlet air at 25°C. For each 10° increase in air temperature cooling, flow rate should be increased 20%.
2. 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.
3. Minimum air flow requirements for a maximum anode temperature of 225°C are shown in the table.
4. Air flow must be applied before or simultaneously with the application of power, including the tube filament, and should normally be maintained for several minutes after all power is removed from the tube.

