

SVETLANA TECHNICAL DATA

5CX1500A Power Pentode



T The Svetlana 5CX1500A is a high-performance ceramic/metal power pentode designed for use as a highly linear Class AB1 linear amplifier. It may also be used as a high-gain Class C amplifier in HF radio frequency industrial processing applications such as plasma generation, sputtering and semiconductor manufacturing. The 5CX1500A filament is precision fabricated in a cylindrical mesh configuration for exceptional mechanical stability and long life.

The Svetlana 5CX1500A is manufactured in the Svetlana factory in St. Petersburg, Russia, and is designed to be a direct replacement for the 5CX1500A manufactured in the United States

Characteristics

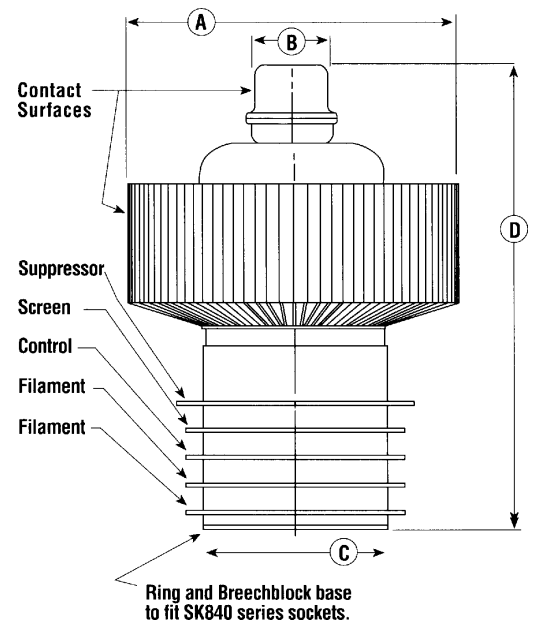
Electrical

Filament:	Thoriated tungsten
Voltage	5.0 ± 0.25 V
Current, at 5.0 volts	38.5 A
Transconductance (Average):	
$I_b = 1.0$ Adc, $E_{c2} = 500$ Vdc	24,000 μ mhos
Amplification factor (average):	
Grid to Screen	5.5
Direct interelectrode capacitance (grounded cathode):	
Input	75 pF
Output	17.8 pF
Feedback	0.20 pF
Frequency of maximum rating:	
CW	110 MHz

Mechanical

Cooling	Forced air
Base	Ring and breechblock
Recommended air system socket	SK-840 series
Recommended (air) chimney	SK-806
Operating position	Axis vertical, base down or up
Maximum operating temperature	250°C
Maximum dimensions:	
Length	130 mm (5.2 in.)
Diameter	85.6 mm (3.37 in.)
Net weight	850 gm (30 oz.)

Svetlana Outline drawing



Dimensional Data

Dim.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	84.7	85.6	3.33	3.37
B	20.5	20.8	0.81	0.82
C	47.5	48.3	1.87	1.90
D	124	131	4.90	5.15



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Radio Frequency Power Amplifier (CW conditions)

Absolute maximum ratings

Plate voltage	5000	V
Screen voltage	750	V
Plate dissipation	1500	W
Suppressor dissipation	25	W
Screen dissipation	75	W
Grid dissipation	25	W

Typical Operation

(Frequencies to 30 MHz)

Plate voltage	3000	4000	4500	Vdc
Suppressor voltage	0	0	0	Vdc
Screen voltage	500	500	500	Vdc
Grid voltage	-200	-200	-200	Vdc
Plate current	900	800	900	mAdc
Screen current	94	66	88	mAdc
Grid current	35	25	34	mAdc
Peak rf grid voltage	255	245	255	v
Calculated driving power	9.0	6.5	9.0	W
Plate input power	2700	3200	4050	W
Plate dissipation	720	850	870	W
Plate output power	1980	2350	3180	W
Resonant load impedance	1570	2240	2520	ohms

Plate operation The plate dissipation rating of the 5CX1500A is 1500 watts. The tube and associated circuitry should be protected against surge current in the event of an arc with a current limiting resistance of 10 - 25 ohms in series with the lead from the power supply to the plate. The resistor should be capable of withstanding the surge current. It should not be used as a fuse.

Minimum Cooling Air-Flow Requirements				
Plate dissipation (watts)	Sea Level		6,000 feet	
	Air flow (CFM)	Pressure drop (Inches of water)	Air Flow (CFM)	Pressure Drop (Inches of water)
1000	27	0.33	33	0.40
1550	47	0.76	58	.95

Since the power dissipated by the filament represents about 200 watts and since grid plus screen plus suppressor dissipation can, under some conditions, represent another 125 watts, allowance has been made in preparing this tabulation for an additional 325 watts dissipation.