

# SVETLANA TECHNICAL DATA

## 3CX10,000A3/8159

### Medium-Mu Power Triode



The Svetlana™ 3CX10,000A3/8159 is a high-performance ceramic/metal power triode designed for use in industrial heating, communications and broadcast FM applications. A modern mesh filament is used, replacing the old-fashioned hairpin construction. The improved mesh filament design ensures better mechanical rigidity and long lasting concentricity of the filament, providing enhanced linearity, less noise, reduced warm-up variation and longer life. The low-inductance, mesh-filament basket also forms a natural extension of the cylindrical stem geometry into the active area, giving superior VHF performance.

The Svetlana™ 3CX10,000A3/8159 is manufactured in the Svetlana Electron Devices complex in St. Petersburg, Russia, and is an exact replacement for the 3CX10,000A3/8159 manufactured in the United States.

#### Characteristics

##### Electrical

Filament	Thoriated-tungsten mesh
Voltage	7.50 ± 0.37 V
Current @ 7.50V	100 A
Amplification factor (average)	20
Direct interelectrode capacitances (grounded grid):	
Input	53.0 pF
Output	34.0 pF
Feedback	1.5 pF
Direct interelectrode capacitances (grounded filament):	
Input	53.0 pF
Output	1.5 pF
Feedback	34.0 pF
Maximum frequency for full ratings (CW)	140 MHz

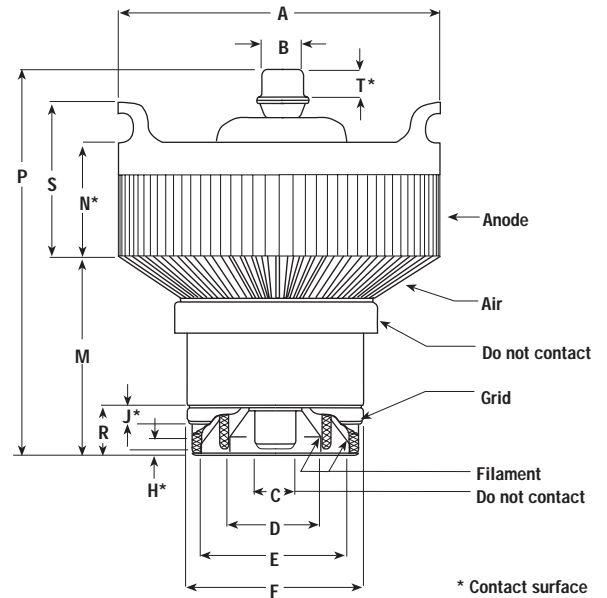
##### Mechanical

Cooling	Forced air
Base	Coaxial
Socketing	Svetlana SK1300, SK1320 or equiv.
Air chimney	Eimac 1306 or equiv.
Operating position	Vertical, Base up or down
Maximum operating temperature	250° C
Maximum dimensions:	
Length	222.25 mm (8.75 in.)
Diameter	179.07 mm (7.05 in.)
Net weight	5.45 kg (12 lb)

##### Cathode-Driven RF Linear Amplifier, Class AB

Maximum Ratings	
DC plate voltage	7,000 V
DC plate current	5.0 A
Plate dissipation	12 kW
Grid dissipation	250 W

Svetlana Outline drawing



##### Dimensional Data

Dim.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	175.97	179.07	6.928	7.050
B	21.72	22.73	0.855	0.895
C	18.29	19.30	0.720	0.760
D	48.16	49.17	1.896	1.936
E	79.58	80.59	3.133	3.173
F	96.32	97.33	3.792	3.832
H	4.78	—	0.188	—
J	4.78	—	0.188	—
M	100.33	109.22	3.950	4.300
N	61.26	70.82	2.412	2.788
P	209.55	222.25	8.250	8.750
R	25.04	26.67	0.986	1.050
S	86.66	96.22	3.412	3.788
T	9.53	—	0.375	—



# Svetlana 3CX10,000A3/8159 Medium-Mu Power Triode



## Cathode-Driven RF Linear Amplifier, Class AB

### Typical Operation

DC plate voltage	6000	7000	V
Zero-signal DC plate current	0.5	0.5	A
Single-tone DC plate current	4.0	4.0	A
Zero-signal DC grid voltage*	-270	-325	V
Single-tone DC grid current*	0.3	0.25	A
Peak driving power	1950	2050	W
Single-tone plate output power	18	20	kW

## Cathode-Driven Class C RF Amplifier, CW or FM

### Maximum Ratings

DC plate voltage	7,000	V
DC plate current	4.0	A
Plate dissipation	10	kW
Grid dissipation	250	W

### Typical operation

DC plate voltage	6000	7000	V
DC grid voltage	-535	-625	V
DC plate current	4.0	4.0	A
DC grid current*	0.545	0.53	A
Peak RF cathode voltage*	400	V	
Driving power*	1510	W	
Plate output power	20.5	24.5	kW

## RF Industrial Oscillator, Class C

### Maximum ratings (per tube)

DC plate voltage	7000	V
DC plate current	4.0	A
Plate dissipation	10	kW
Grid dissipation	250	W

\*Approximate values

Base-to-Anode Air Flow				
*	Sea Level		10,000 Feet	
Anode Dissipation Watts	Air Flow CFM	Pressure Drop Inches of Water	Air Flow CFM	Pressure Drop Inches of Water
4000	110	0.25	160	0.36
8000	270	0.95	390	1.40
12,000	448	2.00	650	2.90

\* Because the power dissipated by the filament represents about 750 watts and because grid dissipation can, under some conditions, represent another 250 watts, allowance has been made in preparing this tabulation for an additional 1000 watts.

