ADVANCE DATA

MECHANICAL DATA

Bulb	T-12
Base	Large Octal Low Loss Phenolic, 5-Pin
Outline	See Drawing
Basing	5T
Cathode	Coated Filament
Mounting Position[1]	Vertical

DURABILITY CHARACTERISTICS

Impact Acceleration (1 msec duration)	450 G	Max.
Fatigue (Vibrational Acceleration for Extended Periods)	2.5 G	Max.

ELECTRICAL DATA

FILAMENT CHARACTERISTICS

Filament Voltage	5.0	Volts
Filament Current	3.0	Amperes

RATINGS (Design Maximum)[2]

Rectifier Service[3]

Peak Inverse Plate Voltage	1700 Volts	Max.
AC Plate Supply Voltage Each Plate, RMS (See Rating Chart I)	600 Volts	Max.
DC Output Current	See Rating Chart I	
Steady State Peak Plate Current Each Plate (See Rating Chart II)	1.1 Ampere	Max.
Transient Peak Plate Current Each Plate (See Rating Chart III)	5.1 Amperes	Max.

AVERAGE CHARACTERISTICS

Tube Voltage Drop Tube Conducting:		
275 Ma Each Plate	47 Volts	

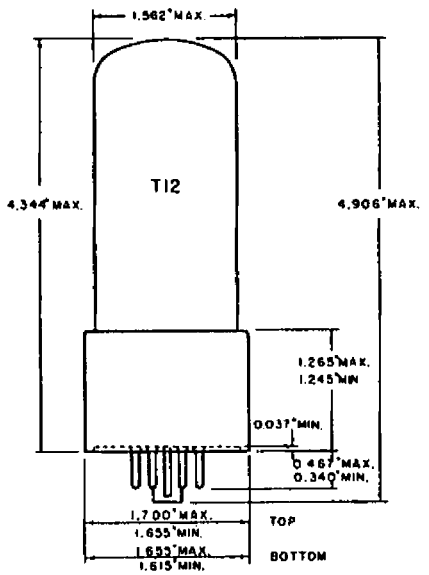
TYPICAL OPERATION

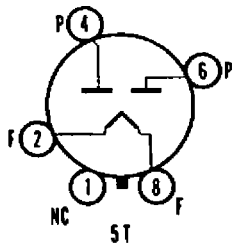
Full Wave Rectifier--Capacitor Input Filter

AC Plate Supply Voltage Each Plate, RMS[4]	330	500	Volts
Filter Input Capacitor	40	40	µf
Effective Plate-Supply Resistance Each Plate	21	67	Ohms
DC Output Current	330	310	Ma
DC Output Voltage at Filter Input	320	520	Volts

QUICK REFERENCE DATA

The reliable Type 5931 is a filamentary, full-wave high vacuum rectifier intended for commercial and industrial applications where a high degree of reliability is required. It is characterized by long life and stable performance under conditions of severe shock and vibration.





SYLVANIA ELECTRONIC TUBES
A Division of
SYLVANIA ELECTRIC PRODUCTS, Inc.
RECEIVING TUBE OPERATIONS
EMPORIUM, PENNSYLVANIA

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46 (10-58)

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TYPICAL OPERATION (Cont'd)

Full Wave Rectifier--Choke Input Filter

AC Plate Supply Voltage Each Plate, RMS[4]	600	Volts
Filter Input Choke	10	Henrys
DC Output Current	275	Ma
DC Output Voltage at Filter Input	460	Volts

NOTES:

1. Horizontal Operation is permitted if Pins 1 and 4 are in a vertical plane.
2. See "Interpretation of Rating Charts".
3. For use with sinusoidal supply voltages within the frequency range of 25 to 1000 cps.
4. AC plate voltage is measured without load.

INTERPRETATION OF RATING CHARTS

To simplify the application of the maximum ratings to circuit design, the Design-Maximum ratings are presented in chart form as Rating Charts I, II, & III. Operating points should be so selected that the boundary limits on Rating Charts I, II, & III are not exceeded with a bogey tube under the worst probable operating conditions with respect to supply-voltage variation, equipment component variation, equipment control adjustment, and environmental conditions.

A brief description of each of the Rating Charts is given below. The values of a-c voltage as presented refer to the unloaded supply voltages per plate.

Rating Chart I

Rating Chart I presents the maximum ratings for a-c plate supply voltage and d-c output current. The boundary FAEDG defines the limits for capacitor-input filter operation and the boundary FABCDG defines the limits for choke-input filter operation.

Rating Chart II

Rating Chart II provides a convenient method for checking conformance with the maximum steady-state peak-plate-current rating. Rating Chart II applies to capacitor-input filter operation only.

Rating Chart III

Rating Chart III shows the minimum value of plate supply resistance (Rs) required to remain within the transient peak-plate-current rating. The value of Rs should be such that it lies to the left of the line on the Rating Chart at the highest probable value of line voltage. Rating Chart III applies to capacitor-input filter operation only.

$$Rs = N^2 Rpri + Rsec + Ra$$

Where: N = Voltage step up ratio of plate transformer. $\left(N = \frac{Nsec}{Npri} = 1/2 \text{ wave}\right)$

$\left(N = \frac{Nsec}{2Npri} = \text{Full Wave}\right)$

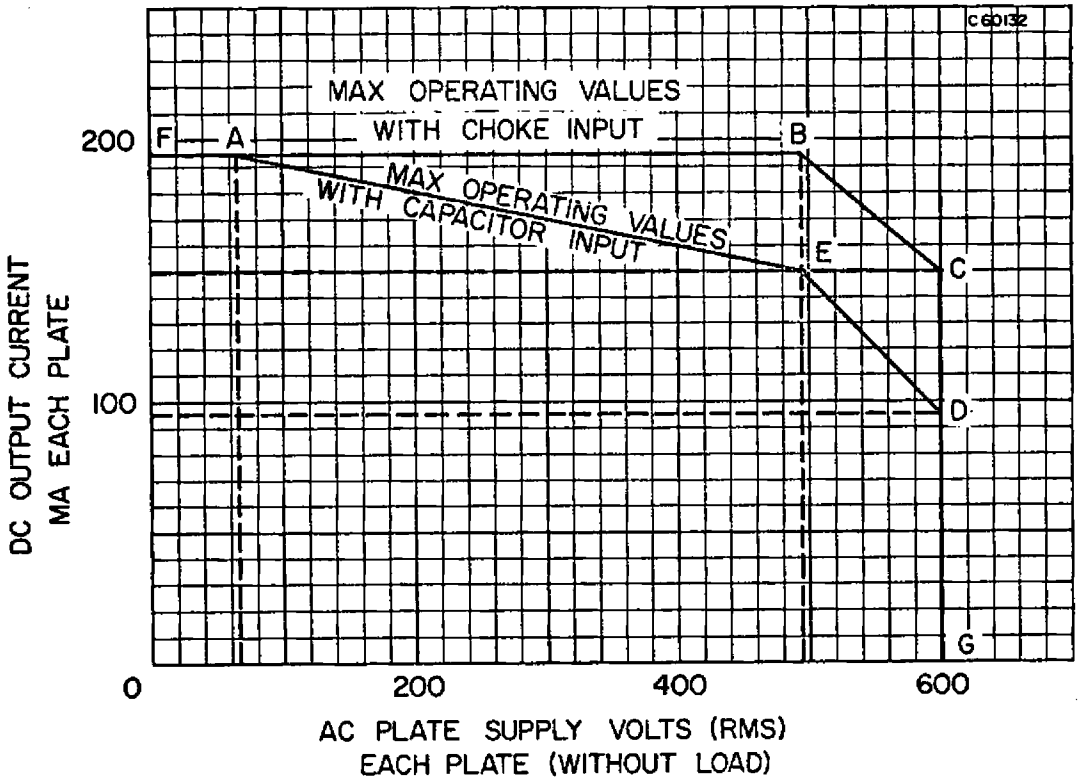
Rpri = DC resistance of transformer primary
Rsec = Average DC resistance of transformer secondary per section.
Ra = Added series resistance.

Plate supply voltages are measured with the rectifier tube non-conducting, e.e., with the transformer unloaded. This unloaded voltage is used when calculating rectification efficiency.

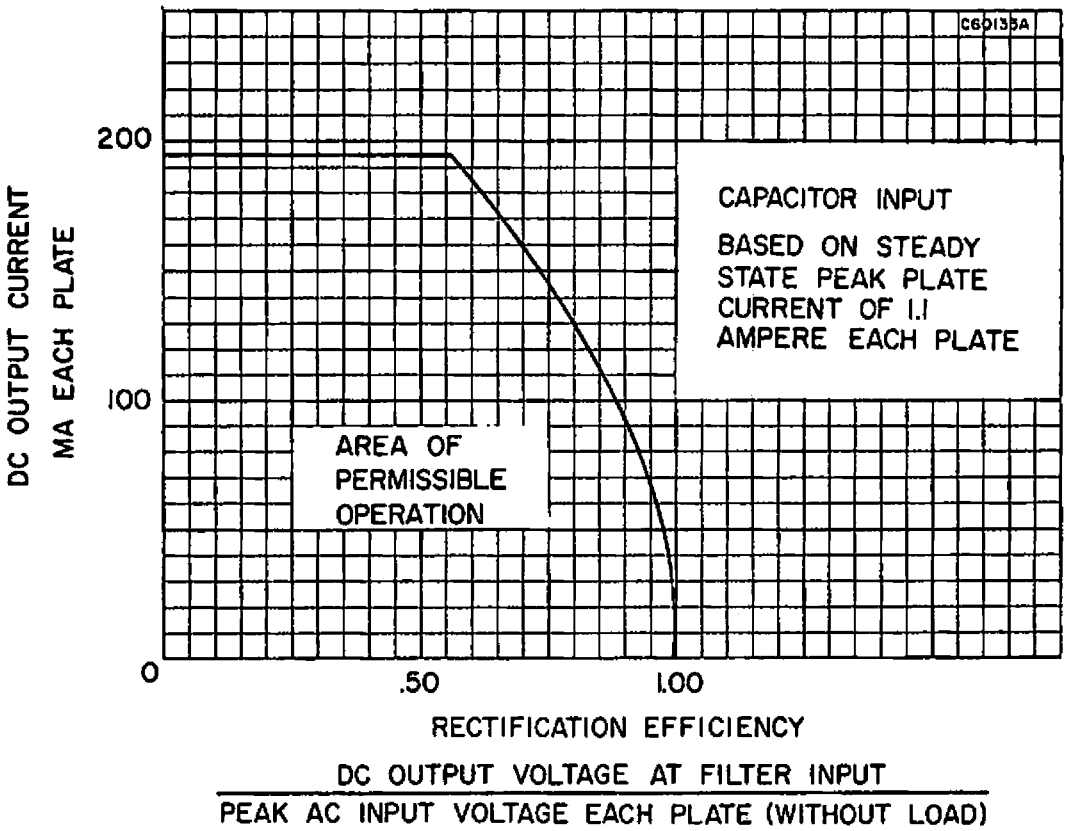
The rectification efficiency is defined as: $\frac{\text{DC Output Voltage}}{\sqrt{2}\ (\text{RMS Supply Voltage Per Plate})}$

The DC output voltage is measured at the input to the filter.

RATING CHART I



RATING CHART II



RATING CHART III