MECHANICAL DATA

Bulb  T-12, Glass
Base  B3-118, Short Medium Shell Octal 8-Pin
Basing  5Q
Cathode  Coated Filament
Mounting Position  1  Vertical

ELECTRICAL DATA

FILAMENT CHARACTERISTICS

Filament Voltage, A C or D C  5.0 Volts  
Filament Current  3.0 Amperes

RATINGS (Design Center Values)  

Rectifier Service  3  
Peak Inverse Plate Voltage  1550 Volts  Max. 
A C Plate Supply Voltage Per Plate, RMS  550 Volts  Max.  
(See Rating Chart I) 
D C Output Current  See Rating Chart I
Steady State Peak Plate Current  900 Ma  Max.  
Per Plate (See Rating Chart II)  
Transient Peak Plate Current  4.3 Amperes Max.  
Per Plate (See Rating Chart III)

AVERAGE CHARACTERISTICS

Tube Voltage Drop  
Tube Conducting:  225 Ma  44 Volts  
250 Ma  47 Volts  
275 Ma  50 Volts

TYPICAL OPERATION

Full Wave Rectifier - Capacitor Input Filter  
A C Plate Supply Voltage Per Plate, RMS  300  450 Volts  
Filter Input Capacitor  40  40 uf  
Total Plate-Supply Resistance Per Plate  25  75 Ohms  
D C Output Current  275  250 Ma  
D C Output Voltage at Filter Input  290  460 Volts

Full Wave Rectifier - Choke Input Filter  
A C Plate Supply Voltage Per Plate, RMS  550 Volts  
Filter Input Choke  10 Henrys  
D C Output Current  250 Ma  
D C Output Voltage at Filter Input  440 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.

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INTERPRETATION OF RATING CHARTS

Rating Charts I, II and III represent boundary conditions beyond which operation of the Sylvania Type 5X4GA is not permitted. With the aid of simple laboratory measurements and the use of the three Charts, any application may be analyzed for proper rectifier type operation.

The boundaries of Rating Chart I are based on constant plate dissipation. These boundaries differ, depending upon the type of filter used. With capacitor input, operation is confined to the area bounded by FAEDG while for choke input, the entire area bounded by FABCDG may be used.

The boundary of Rating Chart II represents a line of constant steady-state peak current. Operation within the boundary is permitted.

Rating Chart III defines the minimum value of effective plate supply resistance, per plate, for any given plate voltage supply which will assure that the surge currents are within a safe value.

For any application, each Chart should be consulted. On all Charts the points of operation should fall within the proper boundaries.

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

The rectification efficiency is defined as

\[
\frac{D\, C\, \text{Output Voltage}}{\sqrt{2} \, (RMS\, \text{Supply Voltage Per Plate})}
\]

The D C output voltage is measured at the input to the filter.
SYLVANIA
5X4GA

RATING CHART II

DC OUTPUT VOLTAGE
$\sqrt{2} \times AC \times E_{pp}$ PER PLATE

RECTIFICATION EFFICIENCY (%)
CAPACITOR INPUT

BASED ON ALLOWABLE PEAK PLATE CURRENT OF 4.3 AMPERES