The 5AU4 is a filamentary full-wave high-vacuum rectifier designed for use in the power supply of television receivers and other equipments which have high output current requirements. In full-wave operation with a supply voltage of 300 volts RMS, the 5AU4 is capable of delivering a d-c output current of 350 milliamperes.

**GENERAL**

Cathode—Coated Filament  
Filament Voltage, AC or DC .......................... 5.0 Volts  
Filament Current ...................................... 3.75 Amperes  
Envelope—T-12, Glass  
Base—B8-114, Octal 8-Pin  
Mounting Position—Vertical*

**MAXIMUM RATINGS**

RECTIFIER SERVICE†—DESIGN-CENTER VALUE‡  
Peak Inverse Plate Voltage ..................................... 1400 Volts  
AC Plate-Supply Voltage per Plate—See Rating Chart 1§  
Steady-State Peak Plate Current per Plate .................. 1075 Milliamperes  
Transient Peak Plate Current per Plate,  
Maximum Duration 0.2 Second .......................... 5.25 Amperes  
DC Output Current—See Rating Chart 1§

**CHARACTERISTICS AND TYPICAL OPERATION**

FULL-WAVE RECTIFIER WITH CAPACITOR-INPUT FILTER  
AC Plate-Supply Voltage per Plate, RMS ........... 300  
Filter Input Capacitor .................................. 40  
Total Plate-Supply Resistance per Plate .......... 30  
DC Output Current .................................... 350  
DC Output Voltage at Filter Input .................. 275  
400 Volts  
50 Microfarads  
50 Ohms  
325 Milliamperes  
395 Volts  
FULL-WAVE RECTIFIER WITH CHOKE-INPUT FILTER  
AC Plate-Supply Voltage per Plate, RMS .......... 500  
Filter Input Choke ................................... 10  
DC Output Current .................................. 325  
DC Output Voltage at Filter Input ................. 395  
500 Volts  
10 Henrys  
325 Milliamperes  
395 Volts

**AVVERAGE CHARACTERISTICS**

Tube Voltage Drop  
$I_b = 350$ Milliamperes DC per Plate .................. 50 Volts

**GENERAL ELECTRIC**

*Supersedes page 1 dated 2-54
Horizontal operation is permitted if pins 2 and 4 are in a vertical plane.

† For use with sinusoidal supply voltages within the frequency range of 25 to 1000 cycles per second.

‡ To simplify the application of the maximum ratings to circuit design, the electrical design-center maximum ratings are also presented in chart form as Rating Charts I, II, and III. Rating Chart I presents the maximum ratings for a-c plate supply voltage and d-c output current. Rating Chart II provides a convenient method for checking conformance with the maximum steady-state peak-plate-current rating. Rating Chart III offers a convenient method for checking conformance with the maximum transient peak-plate-current rating.

With a capacitor-input filter, the conditions of each of Rating Charts I, II, and III must be satisfied in order to obtain performance within all of the appropriate electrical maximum ratings. With a choke-input filter, operation within the indicated boundary of Rating Chart I will assure performance within all of the appropriate electrical maximum ratings.

§ The maximum ratings for a-c plate supply voltage and d-c output current are interrelated and are also dependent on whether a choke- or capacitor-input filter is employed. This relationship is shown in Rating Chart I. With a capacitor-input filter, the operating point of d-c output current and a-c supply voltage must fall within the curve FAEDG. With a choke-input filter, the operating point must fall within the curve FABCDG.

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**RATING CHART I**

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△ Supersedes page 2 dated 2-54
RATING CHART II
FOR CAPACITOR-INPUT FILTER

THE BOUNDARY CURVE IS BASED ON
A STEADY-STATE PEAK PLATE CURRENT
OF 1075 MILLIAMPERES MAXIMUM
PER PLATE

RECTIFICATION EFFICIENCY = \frac{\epsilon}{1.41 E_s}

WHERE \epsilon = DC OUTPUT VOLTAGE AT
FILTER INPUT IN VOLTS
E_s = RMS SUPPLY VOLTAGE
PER PLATE IN VOLTS

AREA OF PERMISSIBLE OPERATION

RATING CHART III
FOR CAPACITOR-INPUT FILTER

THE VALUES OF R_s ARE BASED ON A
TRANSIENT (HOT SWITCHING) PEAK
PLATE CURRENT OF 5.25 AMPERES
MAXIMUM PER PLATE.

IF SERIES INDUCTANCE IS PRESENT
IN THE PLATE SUPPLY, IT IS PER-
MISSIBLE TO USE A SMALLER-THAN-
INDICATED VALUE OF R_s PROVIDING
THE RATED MAXIMUM VALUE OF TRANS-
IENT PEAK PLATE CURRENT IS NEVER
EXCEEDED.

MINIMUM PLATE SUPPLY RESISTANCE PER PLATE (R_s) IN OHMS

AC PLATE SUPPLY VOLTAGE PER PLATE (RMS) IN VOLTS
AVERAGE PLATE CHARACTERISTICS

Each section

$E_f = 5.0$ Volts

PLATE CURRENT IN MILLIAMPERES

PLATE VOLTAGE IN VOLTS

0 50 100 150 200

0 200 400 600 800 1000 1200 1400