

**TWIN DIODE**

**FOR FULL-WAVE POWER RECTIFIER APPLICATIONS**

**DESCRIPTION AND RATING**

The 5V3 is a filamentary twin diode designed for use as a full-wave rectifier in the power supply of color television receivers or other equipment that has high direct-current requirements.

**GENERAL**

**ELECTRICAL**

Cathode—Coated Filament  
 Filament-Voltage, AC or DC . . . . . 5.0  $\pm$  10% Volts  
 Filament-Current . . . . . 3.8 Amperes

**MECHANICAL**

Mounting Position—Vertical\*  
 Envelope—T-12, Glass  
 Base—B8-118, Short Medium-Shell Octal 8-Pin

**MAXIMUM RATINGS**

**RECTIFIER SERVICE—DESIGN-MAXIMUM VALUES**

Peak Inverse Plate Voltage . . . . . 1550 Volts  
 AC Plate-Supply Voltage, per Plate—See Rating Chart 1, page 3  
 Steady-State Peak Plate Current, per Plate . . . . . 1.3 Amperes  
 Transient Peak Plate Current, per Plate,  
     Maximum Duration 0.2 Second . . . . . 6.0 Amperes  
 DC Output Current—See Rating Chart 1, page 3

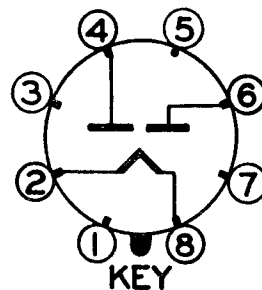
Design-Maximum ratings are limiting values of operating and environmental conditions applicable to a bogey tube of a specified type as defined by its published data, and should not be exceeded under the worst probable conditions.

These values are chosen by the tube manufacturer to provide acceptable serviceability of the tube, taking responsibility for the effects of changes in operating conditions due to variations in the characteristics of the tube under consideration.

The equipment manufacturer should design so that initially and throughout life no design-maximum value for the intended service is exceeded with a bogey tube under the worst probable operating conditions with respect to supply-voltage variation, equipment component variation, variation in characteristics of all other tubes in the equipment, equipment control adjustment, load variation, signal variation, and environmental conditions.

The tubes and arrangements disclosed herein may be covered by patents of General Electric Company or others. Neither the disclosure of any information herein nor the sale of tubes by General Electric Company conveys any license under patent claims covering combinations of tubes with other devices or elements. In the absence of an express written agreement to the contrary, General Electric Company assumes no liability for patent infringement arising out of any use of the tubes with other devices or elements by any purchaser of tubes or others.

**BASING DIAGRAM**

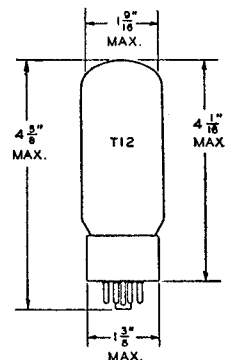


EIA 5T

**TERMINAL CONNECTIONS**

- Pin 1—No Connection
- Pin 2—Filament
- Pin 3—No Connection
- Pin 4—Plate Number 2
- Pin 5—No Connection
- Pin 6—Plate Number 1
- Pin 7—No Connection
- Pin 8—Filament

**PHYSICAL DIMENSIONS**



EIA 12-16

## CHARACTERISTICS AND TYPICAL OPERATION

### FULL-WAVE RECTIFIER WITH CAPACITOR-INPUT FILTER

AC Plate-Supply Voltage, per Plate, RMS. . . . .	300	425	Volts
Filter Input Capacitor. . . . .	40	40	Microfarads
Total Plate-Supply Resistance, per Plate. . . . .	24	56	Ohms
DC Output Current. . . . .	380	350	Milliamperes
DC Output Voltage at Filter Input. . . . .	285	430	Volts

### FULL-WAVE RECTIFIER WITH CHOKE-INPUT FILTER

AC Plate-Supply Voltage, per Plate, RMS. . . . .	500	Volts
Filter Input Choke . . . . .	10	Henrys
DC Output Current. . . . .	350	Milliamperes
DC Output Voltage at Filter Input. . . . .	385	Volts
Tube Voltage Drop		
I <sub>b</sub> = 350 Milliamperes DC per Plate. . . . .	47	Volts

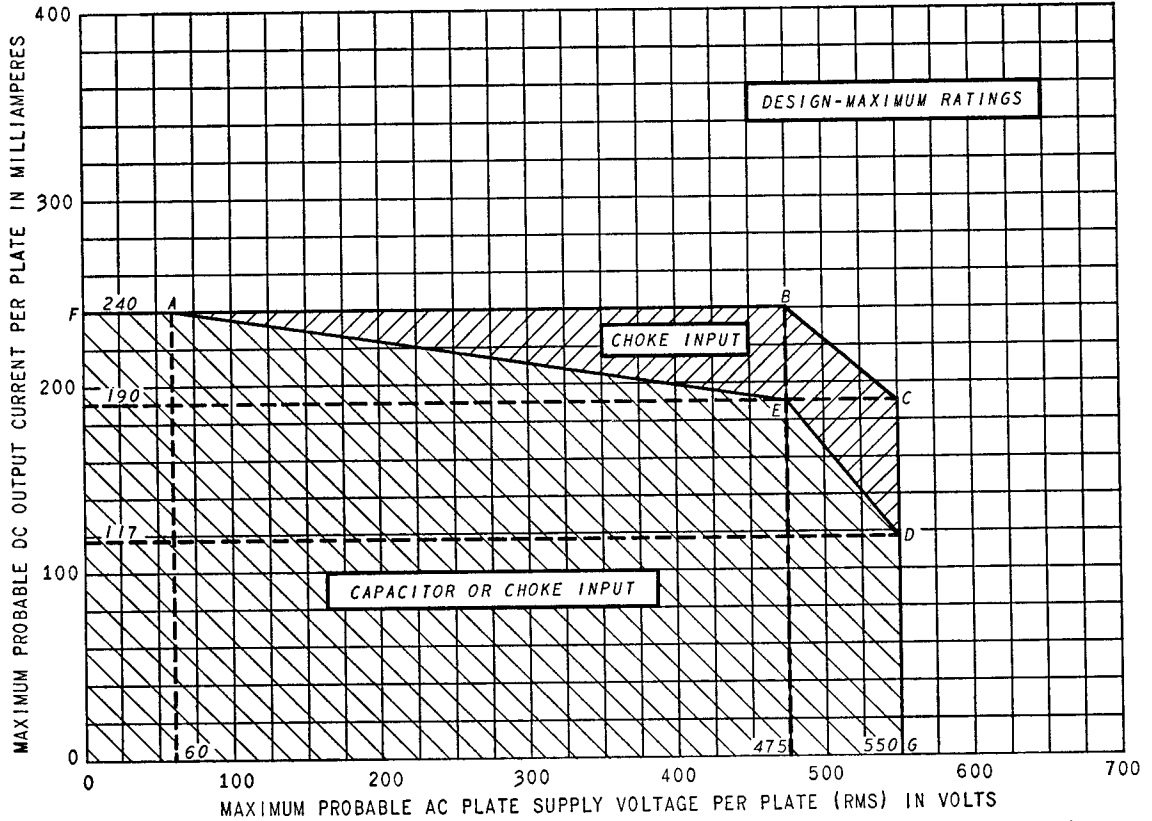
\* Horizontal operation is permitted if pins 2 and 4 are in a vertical plane.

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, 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. Rating Chart I applies to both capacitor-input and choke-input filters, while Rating Charts II and III apply to capacitor-input filters only.

Operating points should be so selected that the boundary limits of a-c plate supply voltage and d-c output current on Rating Chart I, and maximum d-c output current per plate and rectification efficiency on Rating Chart II, are not exceeded with a bogey tube under the worst probable conditions with respect to supply-voltage variation, equipment component variation, equipment control adjustment, and environmental conditions. On Rating Chart I 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 III shows the minimum value of plate-supply resistance (R<sub>s</sub>) required to remain within the transient peak-plate-current rating. The value of R<sub>s</sub> should be such that it lies to the left of the line on Rating Chart III at the highest probable value of line voltage.

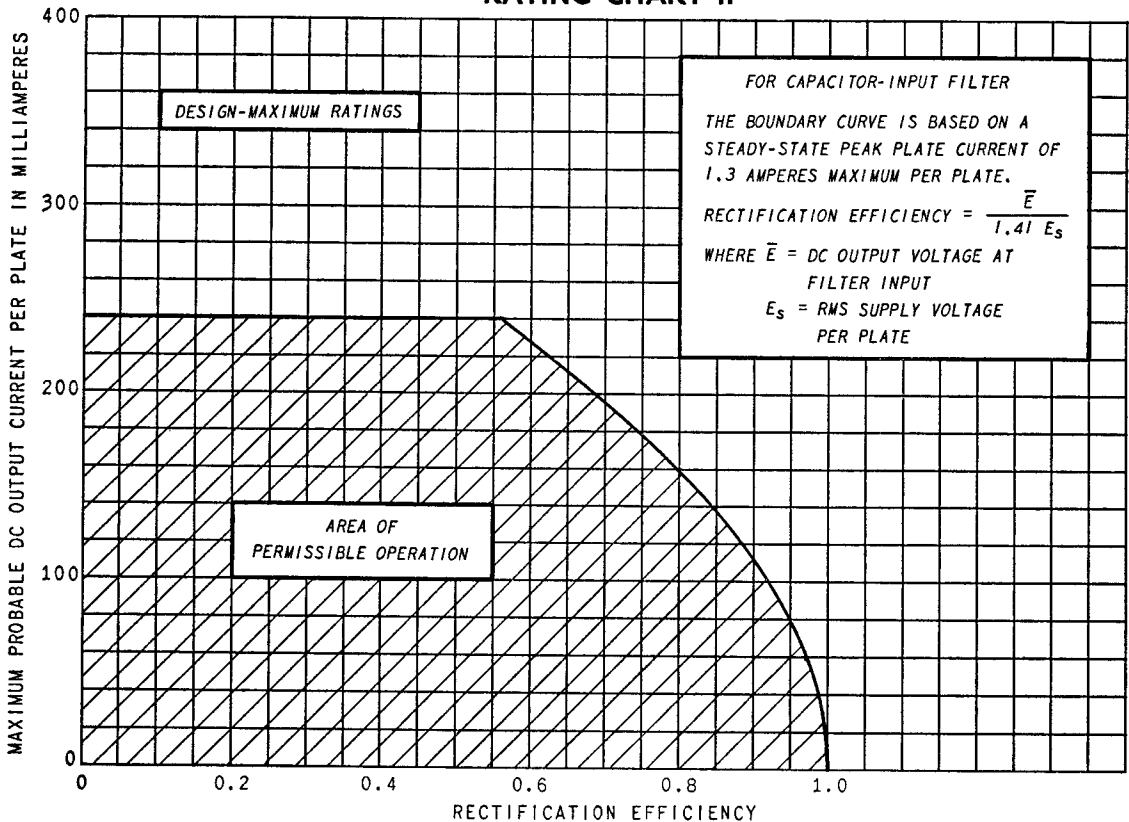
**RATING CHART I**



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MAY 17, 1960

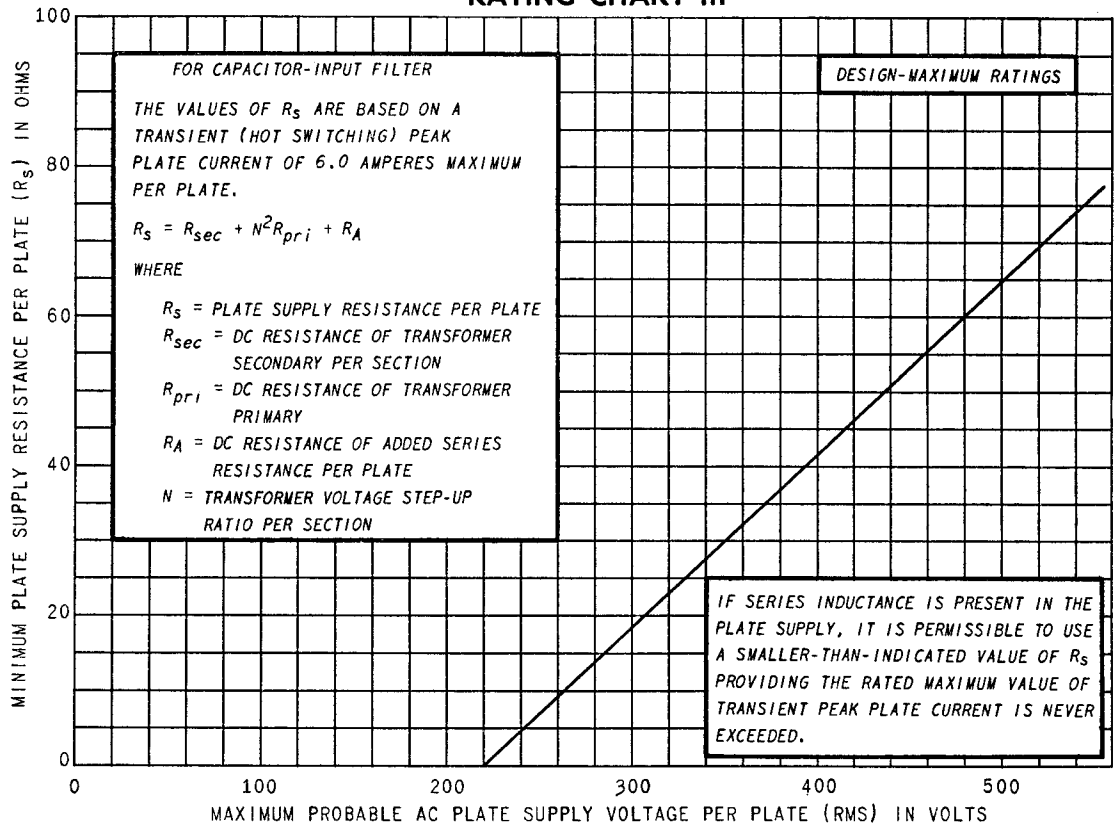
**RATING CHART II**



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MAY 17, 1960

### RATING CHART III

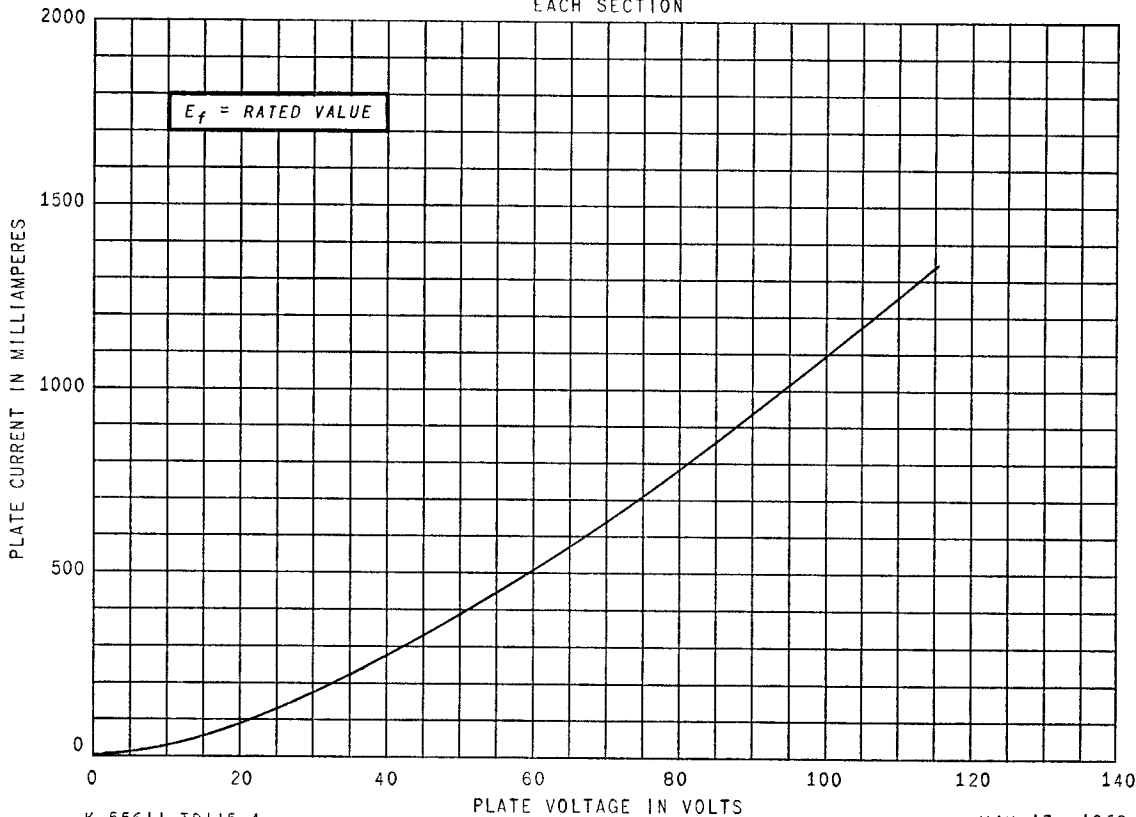


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### AVERAGE PLATE CHARACTERISTICS

EACH SECTION

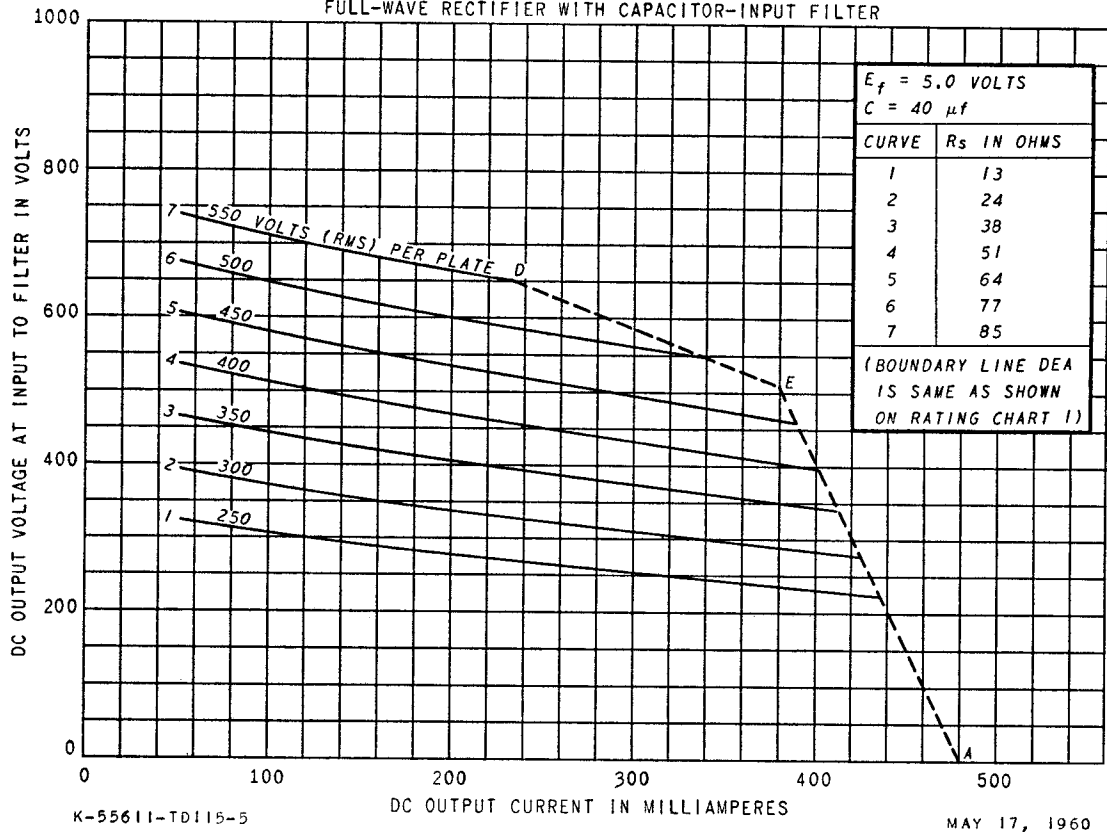


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MAY 17, 1960

**OPERATION CHARACTERISTICS**

FULL-WAVE RECTIFIER WITH CAPACITOR-INPUT FILTER



**OPERATION CHARACTERISTICS**

FULL-WAVE RECTIFIER WITH CHOKE-INPUT FILTER

