Electronic TUBES

5V3

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 ± 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 I, 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 I, 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.

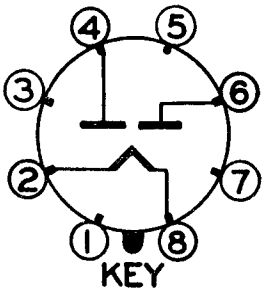
These values are chosen by the tube manufacturer to provide acceptable serviceability of the tube, taking responsibility for the effects of changes in operating conditions due to variations in the characteristics of the tube under consideration.

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.

GENERAL ELECTRIC

BASING DIAGRAM

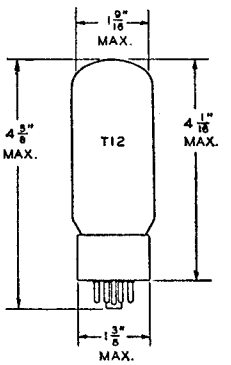


EIA 5T

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



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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 Ib = 350 Milliamperes DC per Plate	47	Volts

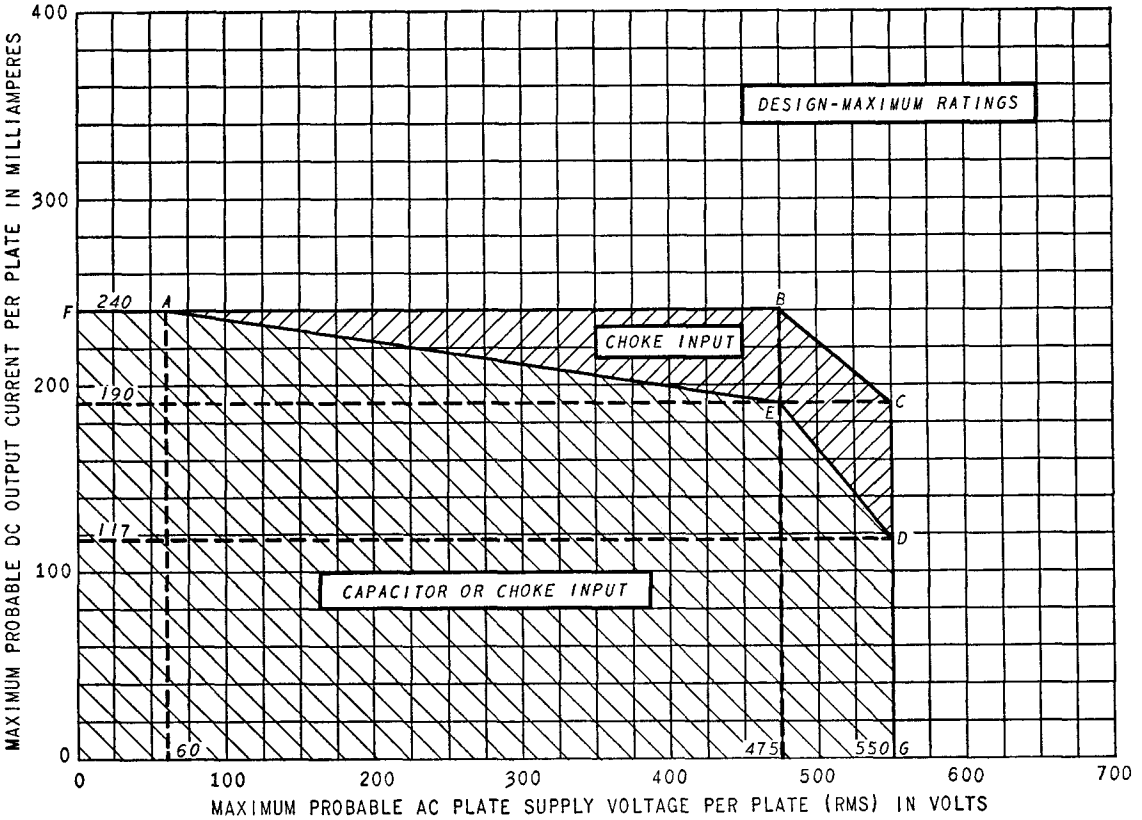
* Horizontal operation is permitted if pins 2 and 4 are in a vertical plane.

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_s) required to remain within the transient peak-plate-current rating. The value of R_s 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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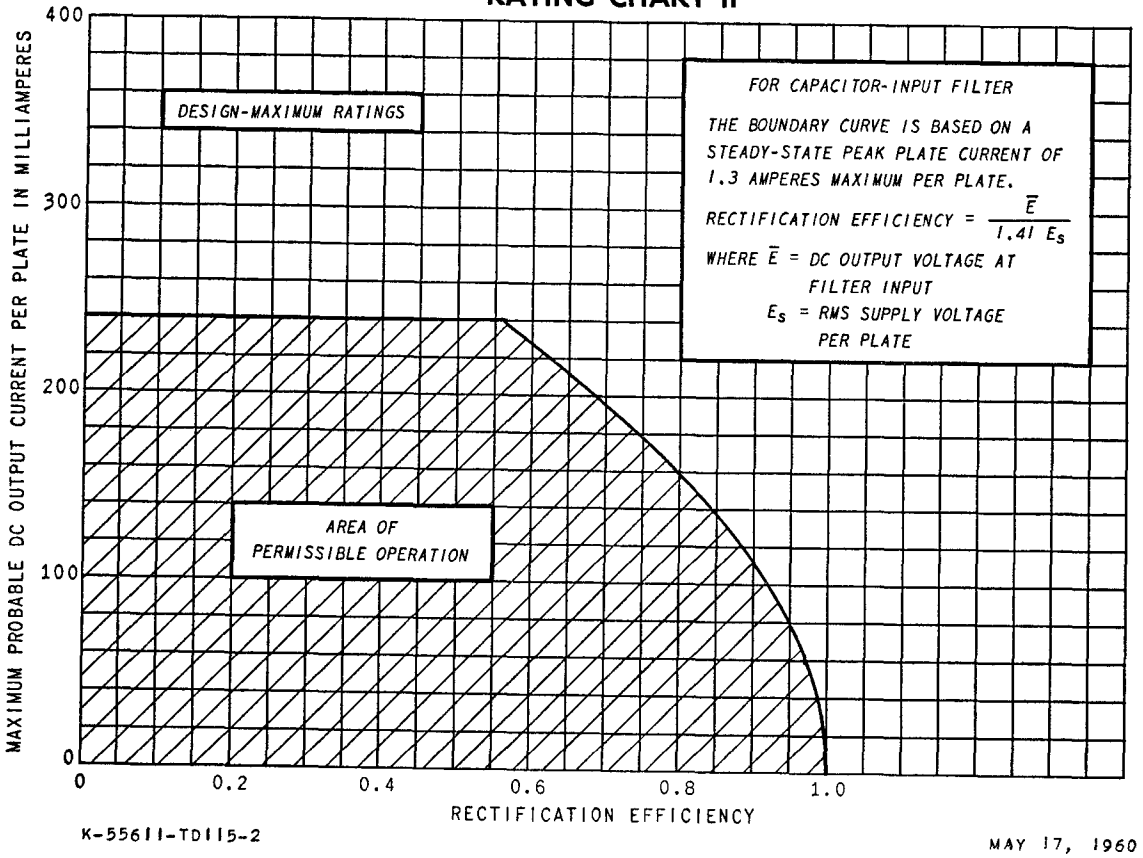
RATING CHART II



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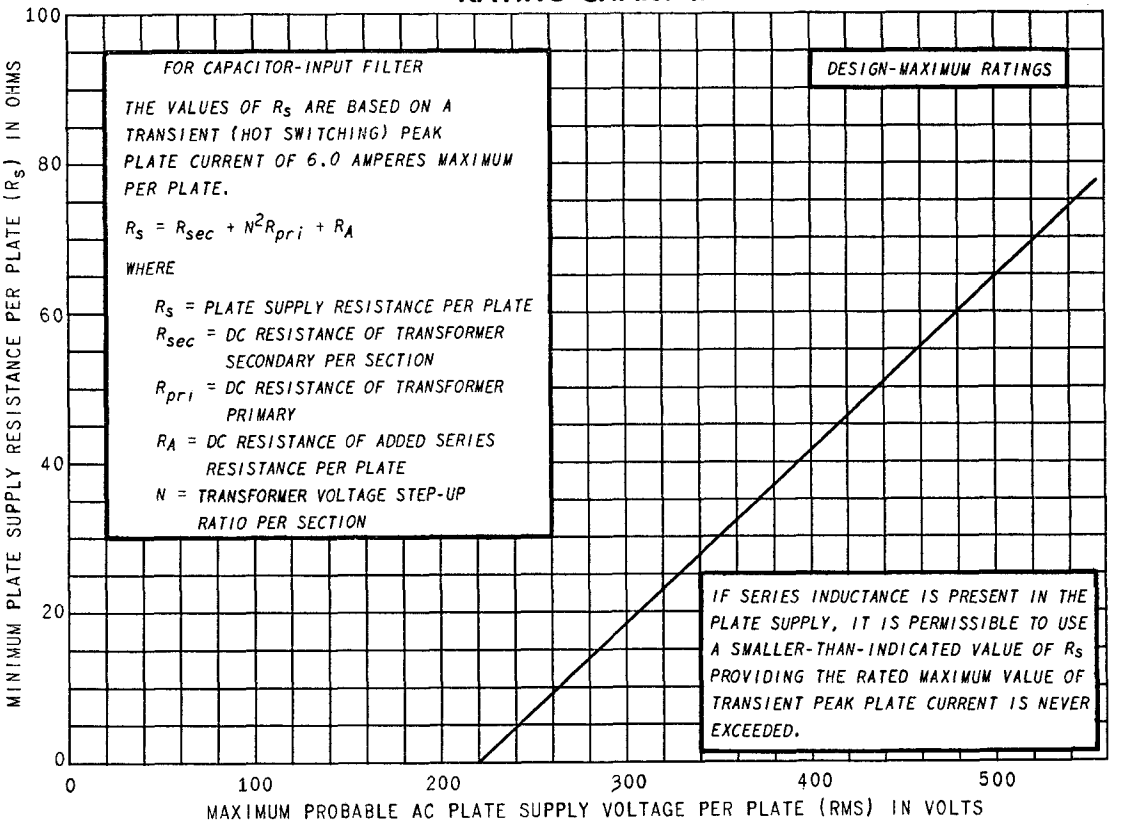
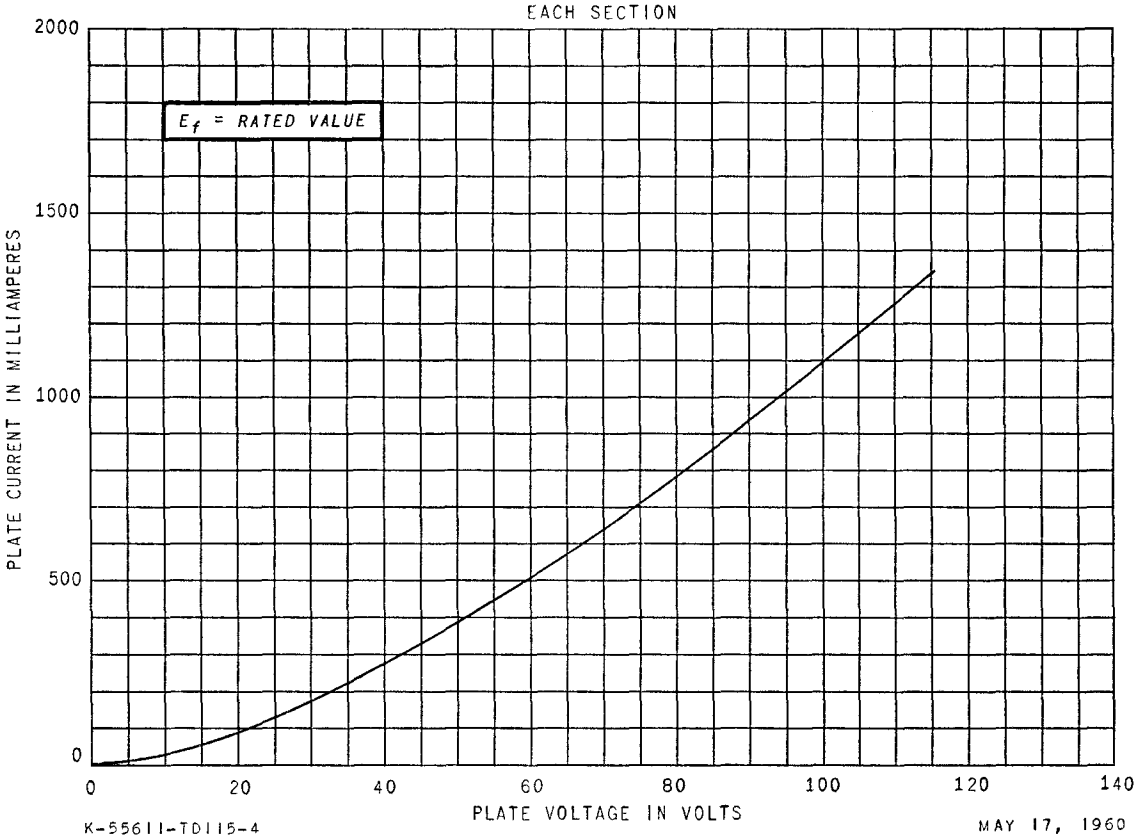
RATING CHART III



K-55611-TD115-3 MAY 17, 1960

AVERAGE PLATE CHARACTERISTICS

EACH SECTION



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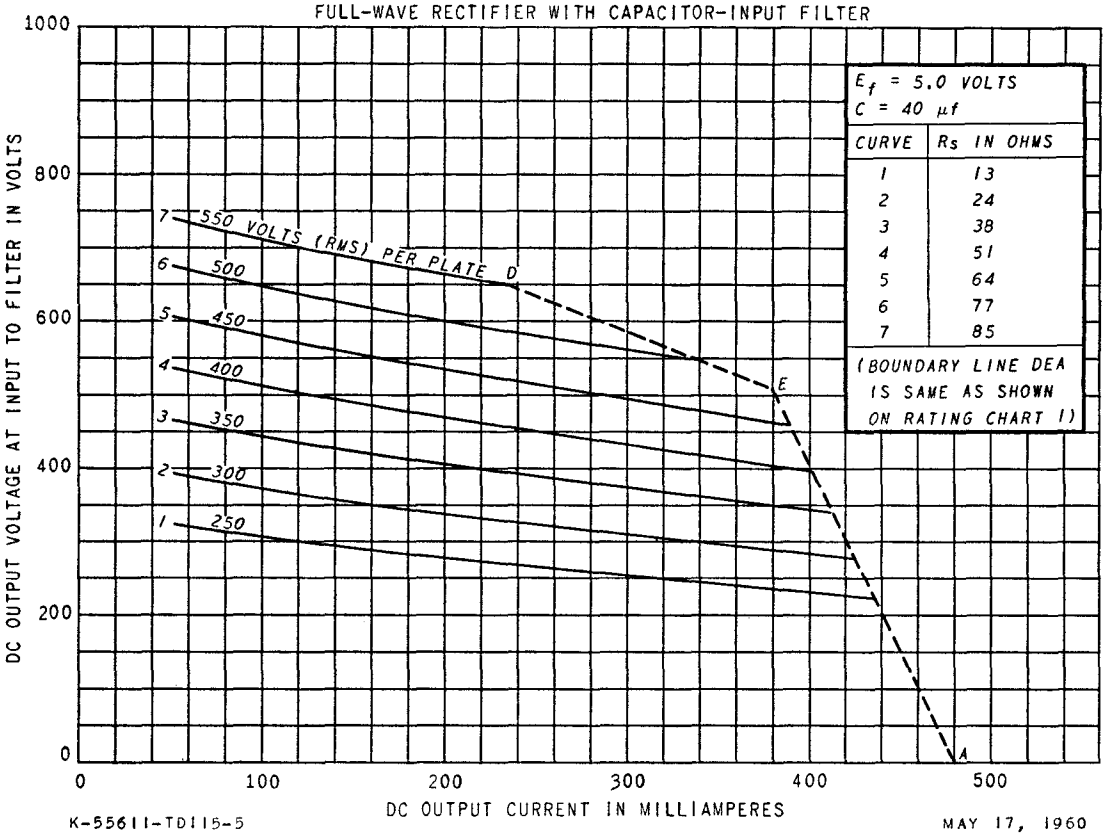
OPERATION CHARACTERISTICS

FULL-WAVE RECTIFIER WITH CAPACITOR-INPUT FILTER



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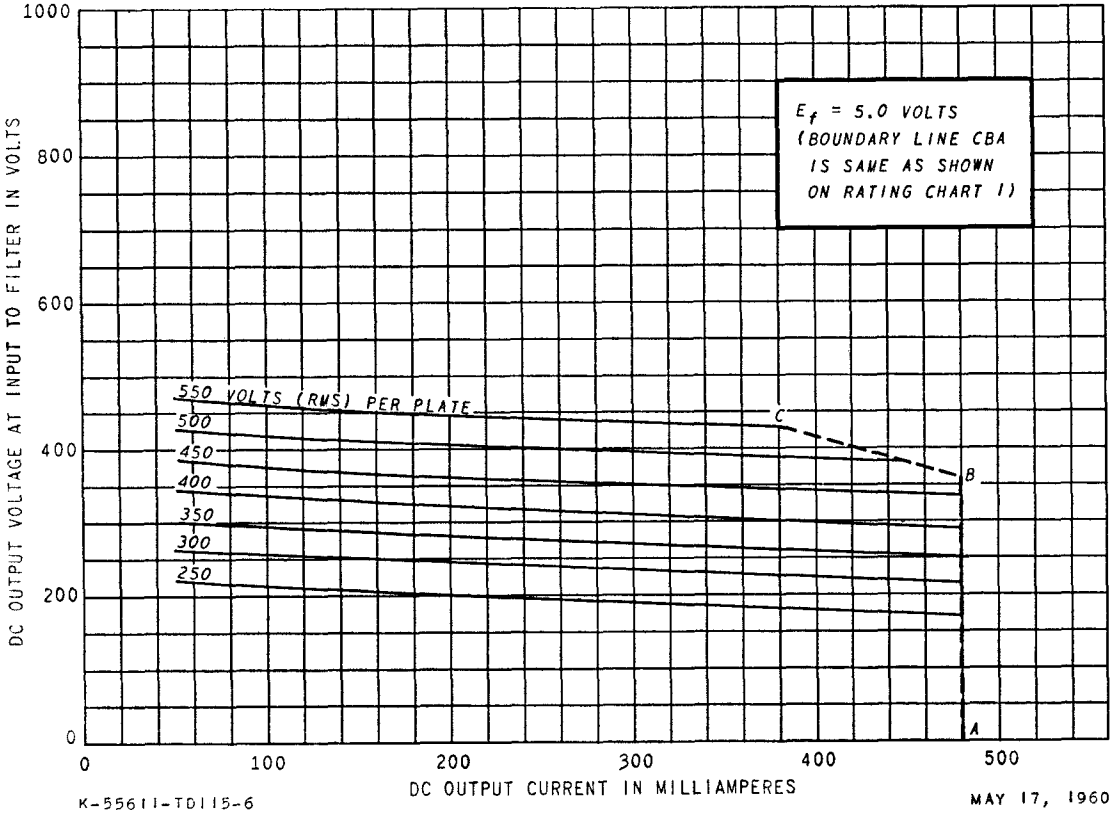
OPERATION CHARACTERISTICS

FULL-WAVE RECTIFIER WITH CHOKE-INPUT FILTER



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