

TWIN DIODE

FOR FULL-WAVE POWER-RECTIFIER APPLICATIONS

DESCRIPTION AND RATING

The 5AR4 is a heater-cathode twin diode designed for full-wave rectifier operation. High output current and small size make this tube especially suitable for compact amplifier designs.

GENERAL

ELECTRICAL

Cathode—Coated Unipotential
 Heater Voltage, AC or DC..... $5.0 \pm 10\%$ Volts
 Heater Current.....1.9 Amperes

MECHANICAL

Mounting Position—Any
 Envelope—T-9, Glass
 Base—B5-10, Intermediate-Shell Octal 5-Pin

MAXIMUM RATINGS

RECTIFIER SERVICE—DESIGN-MAXIMUM VALUES

Peak Inverse Plate Voltage.....1700 Volts
 AC Plate-Supply Voltage per Plate—See Rating Chart I
 Steady-State Peak Plate Current per Plate......825 Milliamperes
 Transient Peak Plate Current per Plate,
 Maximum Duration 0.2 Second.....3.7 Amperes
 DC Output Current—See Rating Chart I

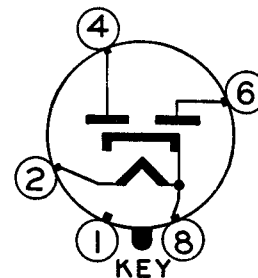
Design-Maximum ratings are limiting values of operating and environmental conditions applicable to a bogey tube of a specified type as defined by its published data, and should not be exceeded under the worst probable conditions.

The tube manufacturer chooses these values to provide acceptable serviceability of the tube, taking responsibility for the effects of changes in operating conditions due to variations in tube characteristics.

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, 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

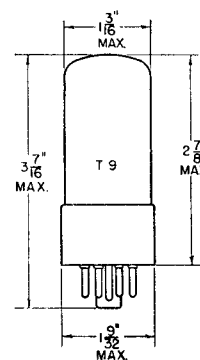


EIA 5DA

TERMINAL CONNECTIONS

- Pin 1—Internal Connection
- Pin 2—Heater
- Pin 4—Plate Number 2
- Pin 6—Plate Number 1
- Pin 8—Heater and Cathode

PHYSICAL DIMENSIONS



EIA 9-15

CHARACTERISTICS AND TYPICAL OPERATION

FULL-WAVE RECTIFIER WITH CAPACITOR-INPUT FILTER

AC Plate-Supply Voltage per Plate, RMS.....	450	550	Volts
Total Plate-Supply Resistance per Plate.....	160	200	Ohms
DC Output Current.....	225	160	Milliamperes
DC Output Voltage at Filter Input.....	475	620	Volts

FULL-WAVE RECTIFIER WITH CHOKE-INPUT FILTER

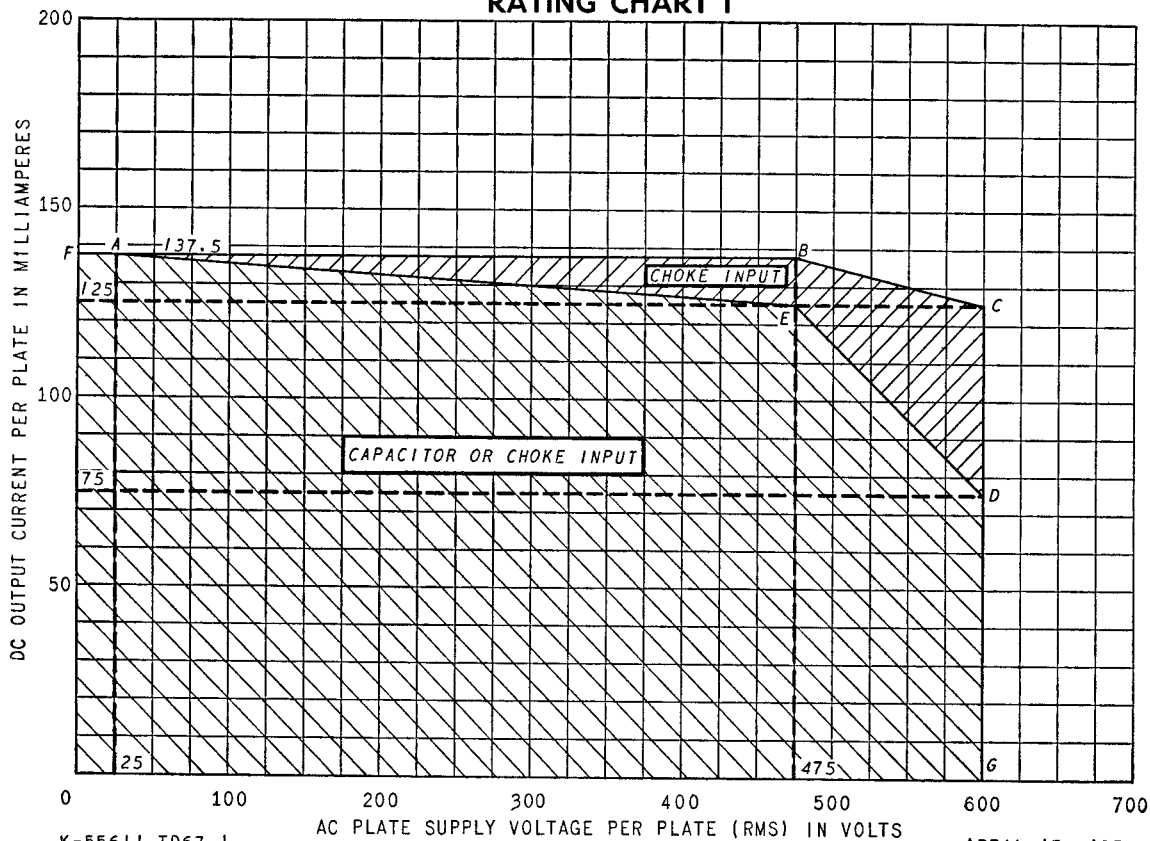
AC Plate-Supply Voltage per Plate, RMS.....	450	550	Volts
Filter Input Choke.....	10	10	Henrys
DC Output Current.....	250	225	Milliamperes
DC Output Voltage at Filter Input.....	375	465	Volts
Tube Voltage Drop $I_b = 225$ Milliamperes DC per Plate.....		17	Volts

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.

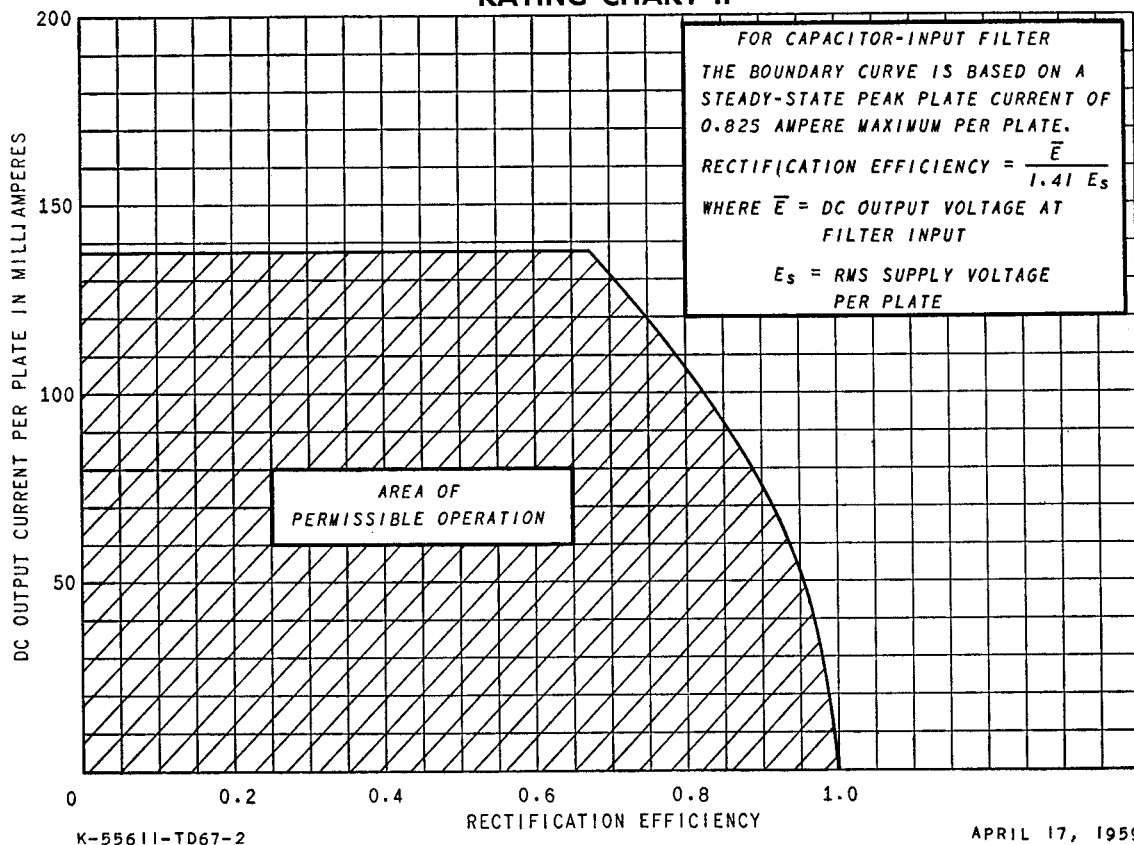
Operating points should be so selected that the boundary limits of a-c plate supply voltage and d-c output current on Rating Chart I, and maximum d-c output current per plate and rectification efficiency on Rating Chart II, are not exceeded with a bogey tube under the worst probable operating conditions 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.

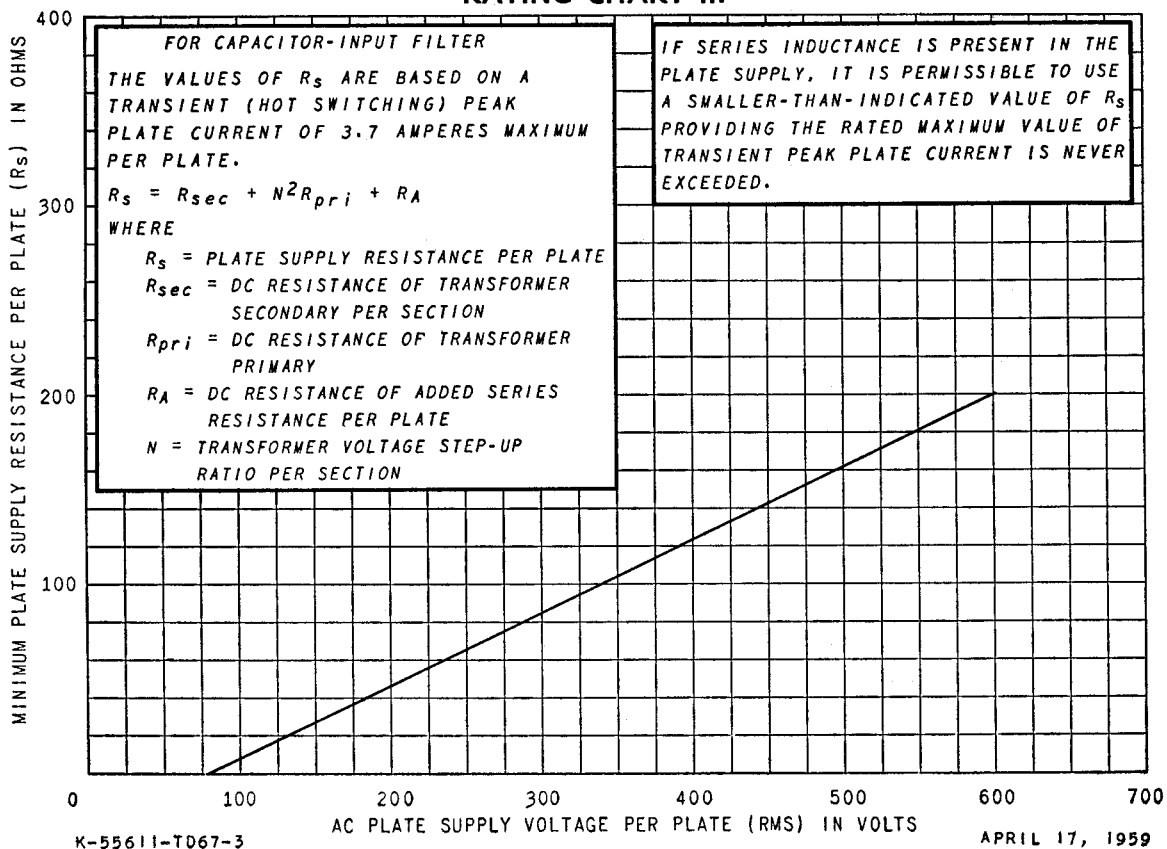
RATING CHART I



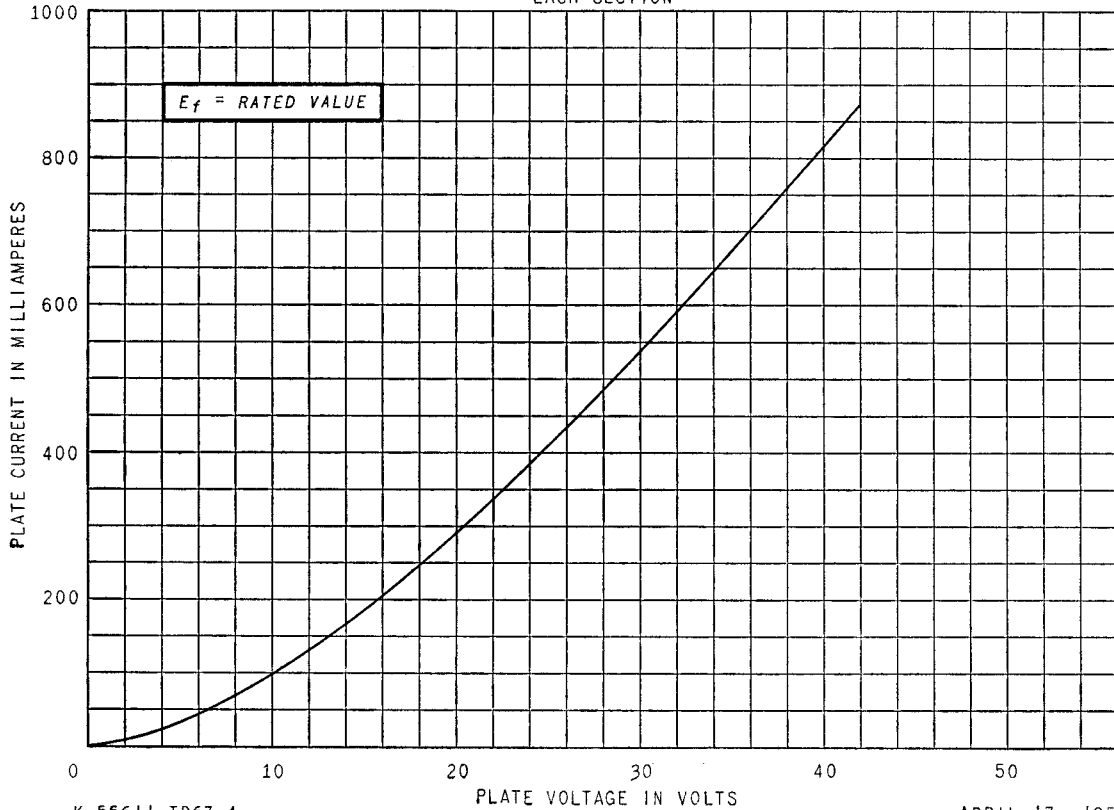
RATING CHART II



RATING CHART III



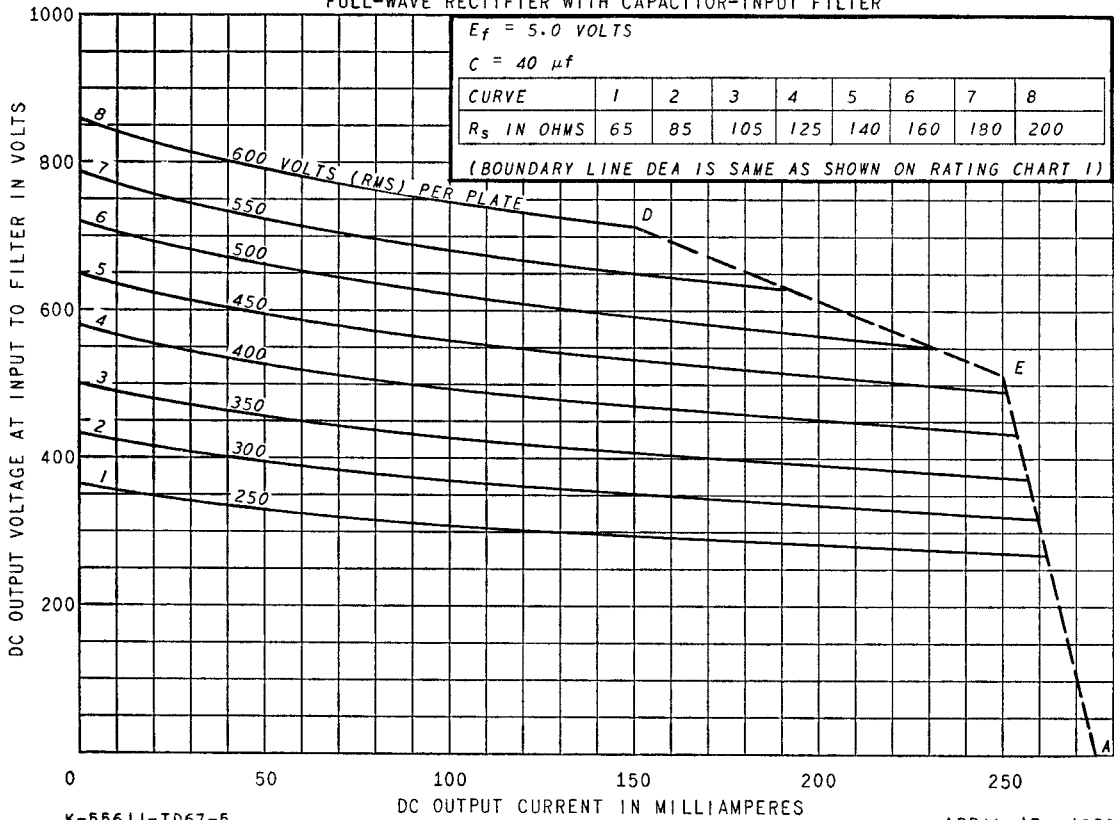
AVERAGE PLATE CHARACTERISTICS
 EACH SECTION



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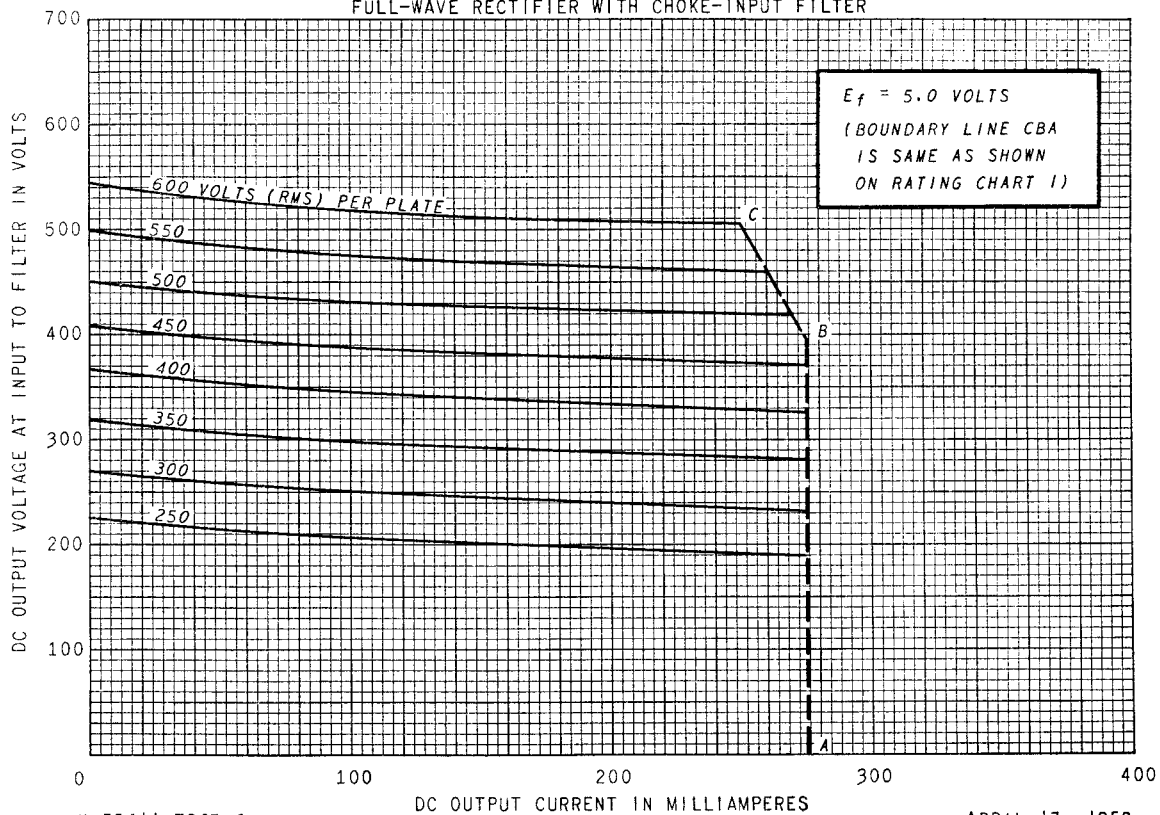
OPERATION CHARACTERISTICS
 FULL-WAVE RECTIFIER WITH CAPACITOR-INPUT FILTER



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OPERATION CHARACTERISTICS FULL-WAVE RECTIFIER WITH CHOKE-INPUT FILTER



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