



5Y3-G, 5Y3-GT

# FULL-WAVE VACUUM RECTIFIER

5Y3-G  
5Y3-GT

## GENERAL DATA

### Electrical:

Filament, Coated:

|                  |   |          |
|------------------|---|----------|
| Voltage. . . . . | 5 | ac volts |
| Current. . . . . | 2 | amp      |

### Mechanical:

Mounting Position. . . . . Vertical, or Horizontal with pins  
2 and 8 in horizontal plane

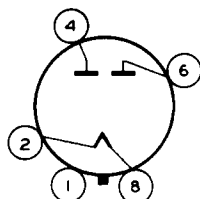
|                              | 5Y3-G                       | 5Y3-GT                        |
|------------------------------|-----------------------------|-------------------------------|
| Maximum Overall Length . . . | 4-5/8"                      | 3-3/8"                        |
| Maximum Seated Length. . . . | 4-1/16"                     | 2-13/16"                      |
| Maximum Diameter . . . . .   | 1-13/16"                    | 1-5/16"                       |
| Bulb . . . . .               | ST-14                       | T-9                           |
| Base . . . . .               | { Med.-Shell<br>Octal 5-Pin | { Inter.-Shell<br>Octal 5-Pin |

Basing Designation for BOTTOM VIEW . . . . . G-5T

Pin 1—No Connection

Pin 2—Filament

Pin 4—Plate No.2



Pin 6—Plate No.1

Pin 8—Filament

## FULL-WAVE RECTIFIER

### Maximum Ratings, Design-Center Values\*

|                                          |                  |       |
|------------------------------------------|------------------|-------|
| PEAK INVERSE PLATE VOLTAGE . . . . .     | 1400 max.        | volts |
| PEAK PLATE CURRENT PER PLATE . . . . .   | 400 max.         | ma    |
| AC PLATE SUPPLY                          |                  |       |
| VOLTAGE (RMS) PER PLATE. . . . .         | See Rating Chart |       |
| DC OUTPUT CURRENT PER PLATE. . . . .     | See Rating Chart |       |
| HOT-SWITCHING TRANSIENT                  |                  |       |
| PLATE CURRENT PER PLATE                  |                  |       |
| For duration of 0.2 second maximum . . . | 2.2 max.         | amp   |

### Typical Operation with Capacitor-Input Filter:

|                                                                      |     |      |       |
|----------------------------------------------------------------------|-----|------|-------|
| AC Plate-to-Plate                                                    |     |      |       |
| Supply Voltage (RMS) . . . . .                                       | 700 | 1000 | volts |
| Filter-Input Capacitor . . . . .                                     | 10  | 10   | μf    |
| Total Effect. Plate-Supply                                           |     |      |       |
| Impedance Per Plate. . . . .                                         | 50  | 140  | ohms  |
| DC Output Voltage at Input<br>to Filter (Approx.):                   |     |      |       |
| At Half-Load Cur. of { 62.5 ma. . .                                  | 390 | —    | volts |
| 42 ma. . .                                                           | —   | 610  | volts |
| At Full-Load Cur. of { 125 ma. . .                                   | 350 | —    | volts |
| 84 ma. . .                                                           | —   | 560  | volts |
| Voltage Regulation, Half-Load<br>to Full-Load Current (Approx.). . . | 40  | 50   | volts |



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## Typical Operation with Choke-Input Filter:

AC Plate-to-Plate

|                                |     |      |         |
|--------------------------------|-----|------|---------|
| Supply Voltage (RMS) . . . . . | 700 | 1000 | volts   |
| Filter-Input Choke . . . . .   | 10* | 10** | henries |

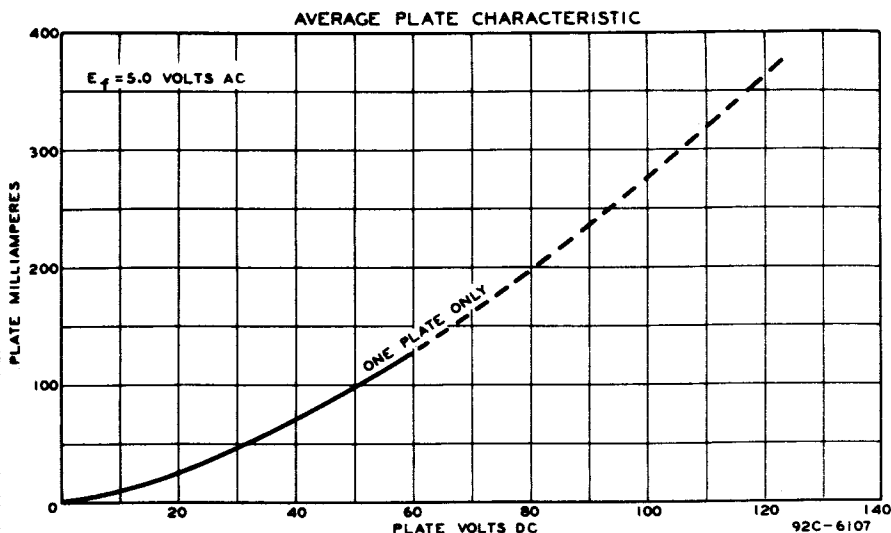
DC Output Voltage at Input  
to Filter (Approx.):

|                      |            |     |     |       |
|----------------------|------------|-----|-----|-------|
| At Half-Load Cur. of | 75 ma. .   | 270 |     | volts |
|                      | 62.5 ma. . | -   | 405 | volts |
| At Full-Load Cur. of | 150 ma. .  | 245 |     | volts |
|                      | 125 ma. .  | -   | 390 | volts |

|                                                                   |    |    |       |
|-------------------------------------------------------------------|----|----|-------|
| Voltage Regulation, Half-Load<br>to Full-Load Current (Approx.) . | 25 | 15 | volts |
|-------------------------------------------------------------------|----|----|-------|

\* This value is adequate to maintain optimum regulation in the region to the right of line L=10H on curve OPERATION CHARACTERISTICS With Choke-Input to Filter, provided the load current is not less than 35 ma. For load currents less than 35 ma., a larger value of inductance is required for optimum regulation.

\*\* This value is adequate to maintain optimum regulation in the region to the right of line L=10H on curve OPERATION CHARACTERISTICS With Choke-Input to Filter, provided the load current is not less than 50 ma. For load currents less than 50 ma., a larger value of inductance is required for optimum regulation.



## RATING CHART AND OPERATION CHARACTERISTICS

The *Rating Chart* presents graphically the relationships between maximum ac voltage input and maximum dc output current derived from the fundamental ratings for conditions of capacitor-input and choke-input filters. This graphical presentation gives the equipment designer considerable latitude in choice of operating conditions.

The *Operation Characteristics for Full-Wave Circuit with Capacitor-Input Filter* show not only the typical operating curves for such a circuit, but also show by means of boundary lines "ADK" the limiting current and voltage relation-



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ships presented on the Rating Chart.

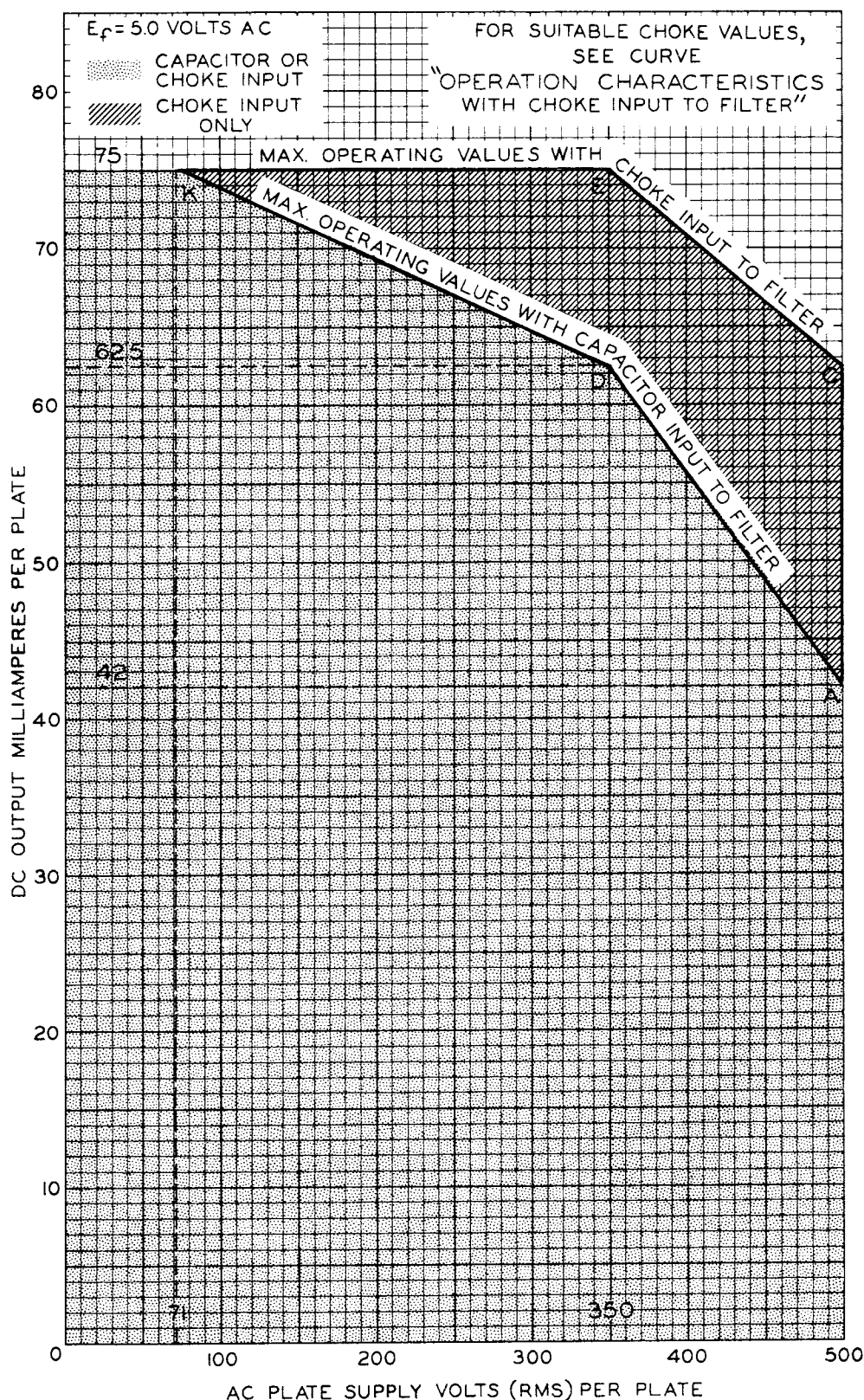
The *Operation Characteristics for Full-Wave Circuit with Choke-Input Filter* show the typical operating curves for such a circuit. They not only show by means of boundary line "CEK" the limiting current and voltage relationships presented on the *Rating Chart*, but also give information as to the effect on regulation of various sizes of chokes. The solid-line curves show the dc voltage outputs which would be obtained if the filter chokes had infinite inductance. The long-dash lines radiating from the zero position are boundary lines for various sizes of chokes as indicated. The intersection of one of these lines with a solid-line curve indicates the point on the curve at which the choke no longer behaves as though it had infinite inductance. To the left of the choke boundary line, the regulation curves depart from the solid-line curves as shown by the representative short-dash regulation curves.

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## RATING CHART



NOV. 1, 1949

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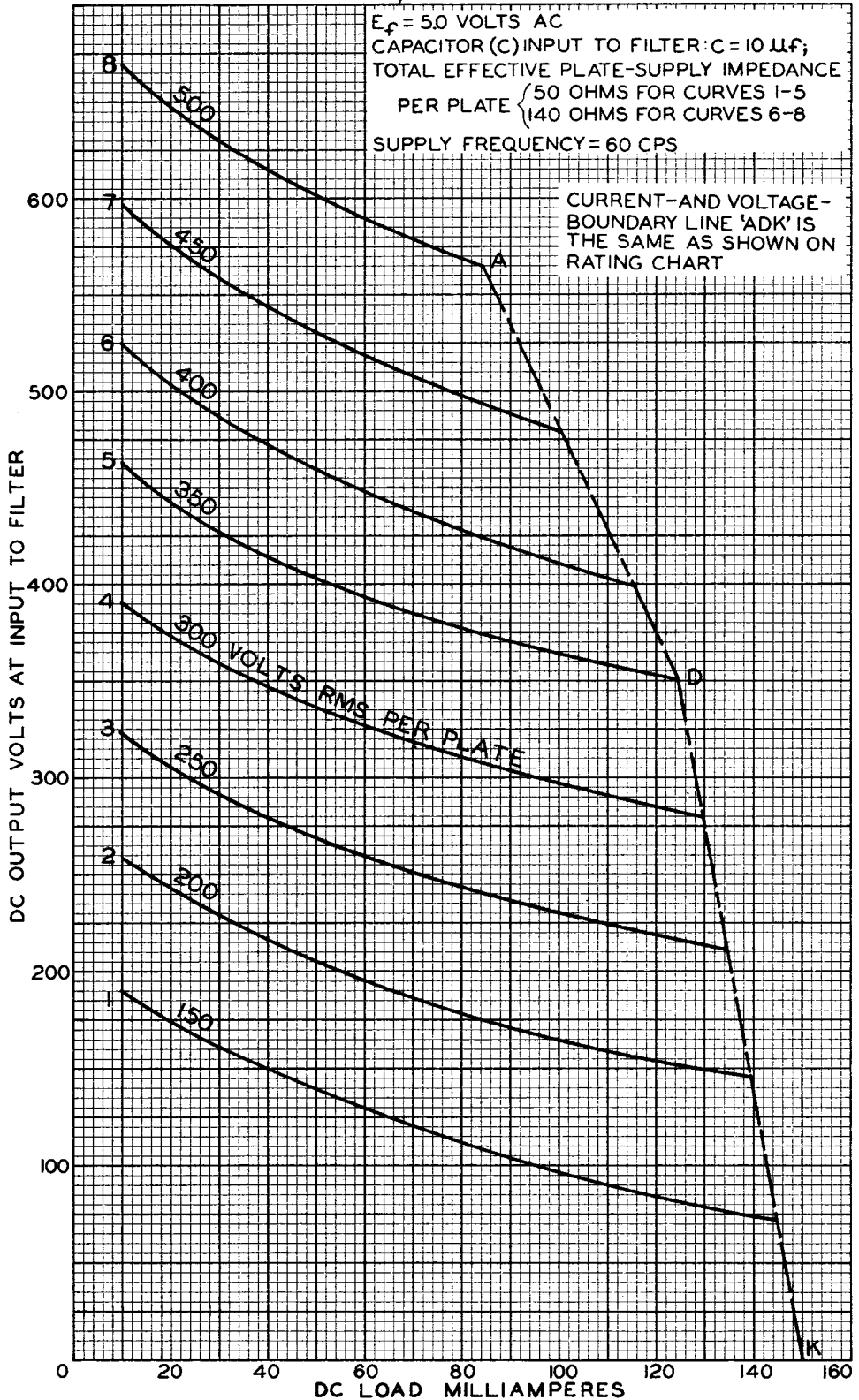
92CM-7396



5Y3-GT

5Y3-GT

# OPERATION CHARACTERISTICS FULL-WAVE CIRCUIT, CAPACITOR INPUT TO FILTER



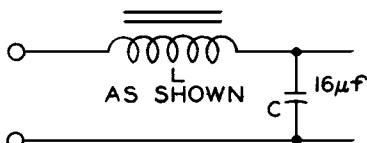
5Y3-GT



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# OPERATION CHARACTERISTICS FULL-WAVE CIRCUIT, CHOKE INPUT TO FILTER

$E_f = 5.0$  VOLTS AC, SUPPLY FREQUENCY = 60 CPS  
 SOLID-LINE CURVES = CHOKES OF INFINITE INDUCTANCE  
 LONG-DASH LINES = BOUNDARY LINES FOR CHOKE SIZES AS SHOWN  
 SMALL-DASH CURVES = REGULATION CURVES FOR REPRESENTATIVE CHOKE SIZES  
 CURRENT-AND-VOLTAGE BOUNDARY LINE 'CEK' IS THE SAME AS SHOWN ON RATING CHART



DC OUTPUT VOLTS AT INPUT TO FILTER

DC LOAD MILLIAMPERES

OCT. 28, 1949

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