SY3-G, SY3-GT
FULL-WAVE VACUUM RECTIFIER

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

Maximum Overall Length: SY3-G 4-5/8" SY3-GT 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 Inter.-Shell Octal 5-Pin

Basing Designation for BOTTOM VIEW: G-5T

Pin 1 - No Connection Pin 6 - Plate No.1
Pin 2 - Filament Pin 8 - Filament
Pin 4 - Plate No.2

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 to Filter (Approx.):
At Half-Load Cur. of 62.5 ma: 390 - volts
42 ma: - 610 volts
125 ma: 350 - volts
84 ma: - 560 volts
Voltage Regulation, Half-Load 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
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.

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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 bound-
ary 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.
OPERATION CHARACTERISTICS
FULL-WAVE CIRCUIT, CAPACITOR INPUT TO FILTER

\[ E_c = 50 \text{ VOLTS AC} \]
CAPACITOR (C) INPUT TO FILTER: \( C = 10 \mu F \)
TOTAL EFFECTIVE PLATE-SUPPLY IMPEDANCE
PER PLATE \( 50 \text{ OHMS FOR CURVES } 1-5 \)
\( 140 \text{ OHMS FOR CURVES } 6-8 \)
SUPPLY FREQUENCY = 60 CPS

CURRENT-AND VOLTAGE-
BOUNDARY LINE 'ADK' IS
THE SAME AS SHOWN ON
RATING CHART

OUTPUT VOLTS AT INPUT TO FILTER

DC LOAD MILLIAMPERES

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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 = CHOКES 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

AS SHOWN
C 16µf

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