Full-Wave Vacuum Rectifier

GENERAL DATA

Electrical:
Filament, Coated:
Voltage (AC or DC) ..................... 5 volts
Current ................................ 2 amp

Mechanical:
Operating Position ..................... Vertical, base down or up, or →
Horizontal with pins 2 and 4 in vertical plane
Maximum Overall Length ............... 3-3/8\" 
Maximum Seated Length ............... 2-13/16\" →
Maximum Diameter ..................... 1-9/32\" →
Dimensional Outline .................... See General Section
Bulb .................................... 1\" T9
Base ................................... Intermediate-Shell Octal 5-Pin, →
Arrangement 1 (JEDEC Group 1, No.65-10), or Short Intermediate-Shell Octal 5-Pin with External Barriers, Arrangement 1 (JEDEC Group 1, No.65-62)
Basing Designation for BOTTOM VIEW ............................... 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:

For power-supply frequencies of 25 to 1000 cps →
PEAK INVERSE PLATE VOLTAGE ................. 1400 max. volts
AC PLATE SUPPLY VOLTAGE PER PLATE
(RMS, without load) ..................... See Rating Chart I
STEADY-STATE PEAK PLATE CURRENT
PER PLATE (See Rating Chart II) ........ 440 max. ma
TRANSIENT PEAK PLATE CURRENT
PER PLATE (See Rating Chart III) ....... 2.5 max. amp
DC OUTPUT CURRENT ..................... See Rating Chart I

Typical Operation:

With capacitor-input filter
AC Plate-to-Plate Supply
Voltage (RMS, without load) .......... 700 1000 volts
Filter-Input Capacitance* .............. 20 - μf

With choke-input filter →

Indicates a change.

RADIO CORPORATION OF AMERICA
Electron Tube Division
Harrison, N. J.

DATA 1
7-61
Filter-Input Choke: \(10\) henrys
Total Effective Plate Supply Impedance
Per Plate: \(50\) ohms
DC Output Voltage at
input to filter: \(360\) volts, \(380\) volts
DC Output Current: \(125\) ma

**Characteristics, Instantaneous Test Condition:**
Tube-Voltage Drop for plate ma. = \(125\)
(Per plate).......................... \(50\) volts

*Values of capacitance greater than \(20\ \mu\)f may be used, provided the plate supply impedance is increased to prevent exceeding the maximum peak-plate-current rating.*

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**RATING CHART I**

- **MAXIMUM OPERATING VALUES WITH:**
  - CHOKE-INPUT FILTER
  - CAPACITOR-INPUT FILTER

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*Indicates a change.*
RATING CHART II
Capacitor-Input Filter

$E_f = 5$ VOLTS AC
MAXIMUM STEADY-STATE PEAK PLATE CURRENT PER PLATE (MILLIAMPERES) = 440

RECTIFICATION EFFICIENCY $= \frac{E}{141E_S}$

WHERE $E = DC$ OUTPUT VOLTS AT INPUT TO FILTER
$E_S = AC$ PLATE SUPPLY VOLTS (RMS) PER PLATE

AREA OF PERMISSIBLE OPERATION

DC OUTPUT MILLIAMPERES PER PLATE

RECTIFICATION EFFICIENCY

RATING CHART III
Capacitor-Input Filter

$E_f = 5$ VOLTS AC
MAXIMUM TRANSIENT PEAK PLATE CURRENT PER PLATE (AMPERES) = 2.5

EFFECTIVE PLATE SUPPLY RESISTANCE PER PLATE $= R_{SEC.} + N^2 R_{PRI.} + R_A$

WHERE $R_{SEC.} = DC$ RESISTANCE OF TRANSFORMER SECONDARY PER SECTION
$R_{PRI.} = DC$ RESISTANCE OF TRANSFORMER PRIMARY
$R_A = DC$ RESISTANCE OF ADDED SERIES RESISTANCE PER PLATE

N = TRANSFORMER VOLTAGE STEP-UP RATIO PER SECTION

MINIMUM EFFECTIVE PLATE SUPPLY RESISTANCE PER PLATE

AC PLATE SUPPLY VOLTS (RMS) PER PLATE (WITHOUT LOAD)