Full-Wave Vacuum Rectifier

For Industrial & Military Applications

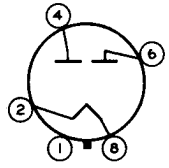
GENERAL DATA

Electrical:

Filament, Coated:[a]
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. . . . . 4-1/4"
Maximum Seated Length . . . . . 3-11/16"
Diameter. . . . . 1.438" to 1.562"
Bulb. T12
Base. . . . . Short Medium-Shell Octal 5-Pin Micanol with External Barriers, Style B, Arrangement 1 (JEDEC Group 1, No. B5-121)
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, *Absolute-Maximum Values:*

For altitudes up to	*40000*	*20000*	*feet*
PEAK INVERSE PLATE VOLTAGE. . .	2650 max.	3100 max.	volts
AC PLATE SUPPLY VOLTAGE PER PLATE (RMS, without load) . .	See *Rating Chart I*		
PEAK PLATE CURRENT PER PLATE. .	715 max.	715 max.	ma
DC OUTPUT CURRENT PER PLATE . .	See *Rating Chart I*		
HOT-SWITCHING TRANSIENT PLATE CURRENT PER PLATE	[b]	[b]	
BULB TEMPERATURE (At hottest point on bulb surface). . . .	230 max.	230 max.	°C

Typical Operation:

With capacitor-input filter

For altitudes up to	*40000*	*20000*	*feet*
AC-Plate-to-Plate Supply Voltage (RMS, without load) .	1400	1500	2000 volts
Filter-Input Capacitor.	20	20	20 μf
Total Effective Plate Supply Impedance Per Plate[c].	225	250	375 ohms

DC Output Voltage (Approx.) at Input to Filter:				
At half-load ma. =				
75.	–	910	1210	volts
125	750	–	–	volts
At full-load ma. =				
150	–	800	1040	volts
250	605	–	–	volts
Voltage Regulation (Approx.): Half-load to full-load current	145	110	170	volts
DC Output Current	250	150	150	ma

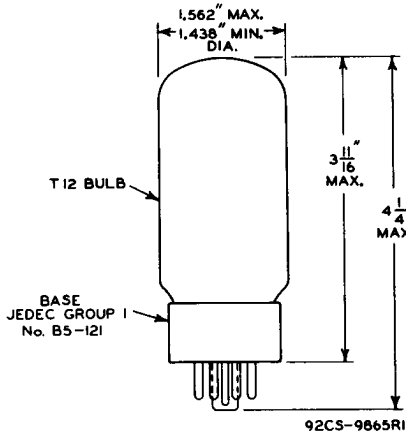
With choke-input filter

For altitudes up to	*40000*	*20000*	*feet*
AC Plate-to-Plate Supply Voltage (RMS, without load)	1500	1900	volts
Filter-Input Choke	5	10	henrys
DC Output Voltage (Approx.) at Input to Filter for dc output ma. =			
87.5	–	800	volts
125	600	–	volts
175	–	760	volts
250	560	–	volts
Voltage Regulation (Approx.): Half-load to full-load current	40	40	volts
DC Output Current	250	175	ma

[a] See accompanying chart *Operating Areas for Simultaneous and Delayed Application of Plate Voltage* for conditions necessitating delay in application of plate voltage until filament has reached operating temperature.

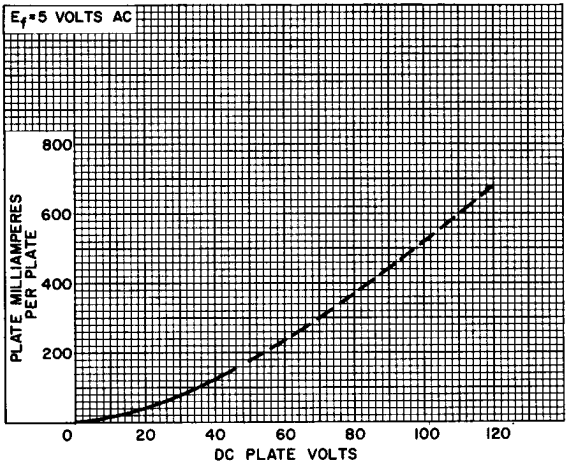
[b] If hot-switching is required in operation, choke-input circuits are recommended. Such circuits limit the hot-switching current to a value no higher than that of the peak plate current. When capacitor-input circuits are used, a maximum value of 3 amperes should not be exceeded.

[c] Indicated values for conditions shown will limit peak plate current to the maximum-rated value. When a filter-input capacitor larger than 20 μf is used, it may be necessary to increase plate-supply impedance to a higher value than that shown in the data to limit the peak plate current to the maximum-rated value.


1.562" MAX.
1.438" MIN. DIA.
3 11/16" MAX.
4 1/4" MAX.
T12 BULB
BASE
JEDEC GROUP 1
No. B5-121
92CS-9865RI

5R4GYB

AVERAGE PLATE CHARACTERISTIC



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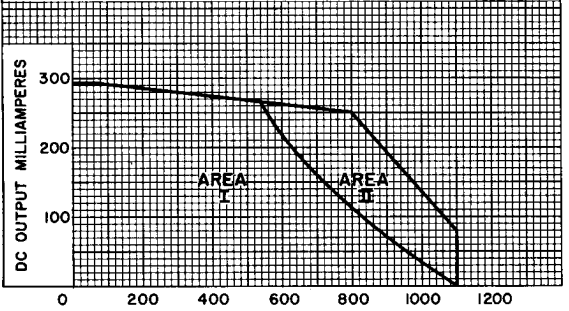
OPERATING AREAS FOR SIMULTANEOUS AND DELAYED APPLICATION OF PLATE VOLTAGE

FULL-WAVE RECTIFIER SERVICE WITH CAPACITOR-INPUT FILTER.
AREA I — FILAMENT AND PLATE VOLTAGE MAY BE APPLIED SIMULTANEOUSLY.
AREA II — FILAMENT SHOULD BE ALLOWED TO REACH OPERATING TEMPERATURE BEFORE PLATE VOLTAGE IS APPLIED. FOR AVERAGE CONDITIONS, THE DELAY IS APPROXIMATELY 10 SECONDS.



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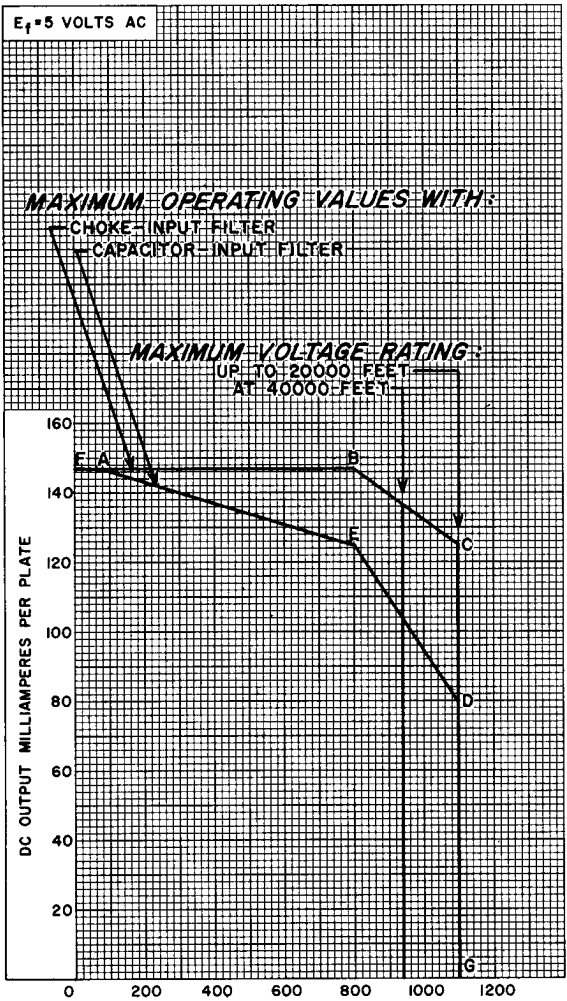
RATING CHART I



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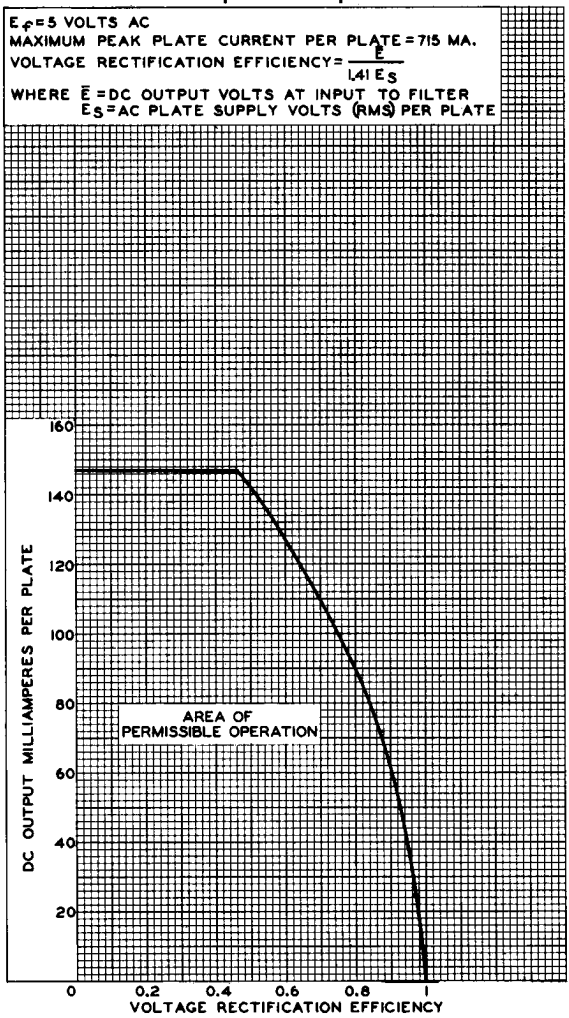
RATING CHART II
With Capacitor-Input Filter



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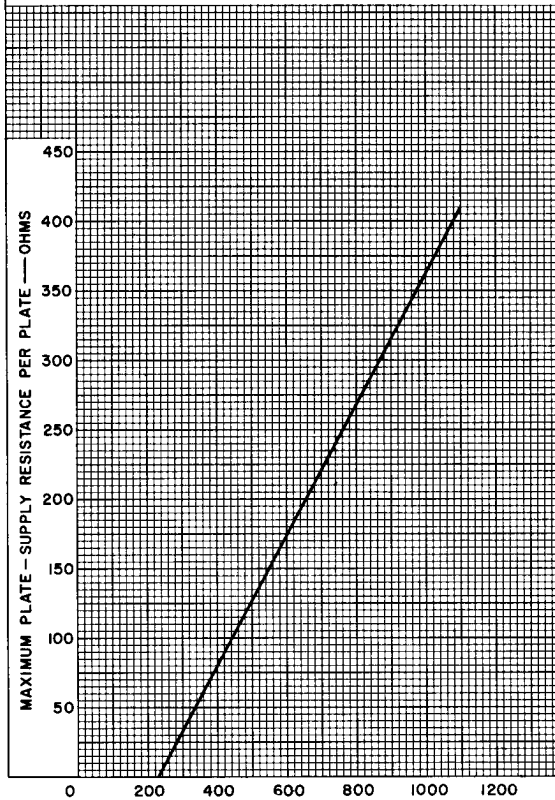
RATING CHART III
With Capacitor-Input Filter

E_f = 5 VOLTS AC
MAXIMUM HOT-SWITCHING AMPERES = 3
PLATE-SUPPLY RESISTANCE PER PLATE = $R_{SEC.} + N^2R_{PRI.} + R_A$
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



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