The 6CA4 is a heater-cathode twin diode in the 9 pin miniature construction. It is designed for full-wave rectifier operation, and especially suitable for compact amplifier designs.

**Ratings**

Interpreted according to design maximum system rectifier service:

- Maximum peak inverse plate voltage: 1200 volts
- Maximum AC plate-supply voltage per plate: See rating chart #1
- Maximum steady state peak plate current per plate: 500 ma.
- Maximum transient peak plate current per plate: 1.85 amp.
- Maximum duration 0.2 seconds
- Maximum dc output current: See rating chart #1
- Maximum heater-cathode voltage: 500 volts

**Typical operating conditions and characteristics**

Full-wave rectifier with capacitor-input filter:

- AC plate voltage per plate, RMS: 250, 300, 350 volts
- Filter input capacitor: 50, 50, 50 μf
- Total plate-supply resistance per plate: 150, 200, 240 ohms
- DC output current: 150, 150, 150 ma.
- DC output voltage at filter input: 245, 293, 347 volts
- Tube voltage drop: 150 ma, dc per plate: 20 volts

Design-maximum ratings are limiting values of operating and environmental conditions applicable to a Roget electron device of a specified type as defined by its published data, and should not be exceeded under the worst probable conditions. The device manufacturer chooses these values to provide acceptable serviceability of the device, taking responsibility for the effects of changes in operating conditions due to variations in device characteristics. The equipment manufacturer should design so that initially and throughout life no design-maximum value for the intended service is exceeded with a Roget device 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.
RATING CHART I
6CA4

MAXIMUM PROBABLE DC OUTPUT CURRENT PER PLATE IN MILLIAMPERES

MAXIMUM PROBABLE AC PLATE SUPPLY VOLTAGE PER PLATE (RMS) IN VOLTS

CAPACITOR OR CHOKE INPUT

A
B
C
D
E
F

RATING CHART II
6CA4

FOR CAPACITOR-INPUT FILTER
THE BOUNDARY CURVE IS BASED ON A STEADY-STATE PEAK PLATE CURRENT OF 0.5 AMPERE MAXIMUM PER PLATE.

RECTIFICATION EFF. = \( \frac{E}{E_s} \)
WHERE \( E \) = DC OUTPUT VOLTAGE AT FILTER INPUT
\( E_s \) = RMS SUPPLY VOLTAGE PER PLATE

MAX. PROBABLE DC OUTPUT PER PLATE IN MILLIAMPERES

RECTIFICATION EFFICIENCY

AREA OF PERMISSIBLE OPERATION
FOR CAPACITOR-INPUT FILTER

THE VALUES OF $R_a$ ARE BASED ON A
TRANSIENT (HOT SWITCHING) PEAK
PLATE CURRENT OF 1.85 AMPERES MAX.
PER PLATE.

$$R_a = R_{sec} + N^2 R_{pri} + R_A$$

WHERE

$R_a$ = PLATE SUPPLY RESISTANCE PER PLATE

$R_{sec}$ = 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

IF SERIES INDUCTANCE IS PRESENT IN
THE PLATE SUPPLY, IT IS PERMISSIBLE
TO USE A SMALLER-THAN-INDICATED VALUE
OF $R_a$ PROVIDING THE RATED MAXIMUM
VALUE OF TRANSIENT PEAK PLATE CURRENT
IS NEVER EXCEEDED.

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6CA4

EACH SECTION
$E_f = 6.3$ Volts
FULL WAVE RECTIFIER WITH CAPACITOR INPUT FILTER

$E_F = 6.3$ Volts
$C = 40 \mu F$

<table>
<thead>
<tr>
<th>Curve</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>$R_s$ in Ohms</td>
<td>136</td>
<td>172</td>
<td>210</td>
<td>248</td>
<td>265</td>
</tr>
</tbody>
</table>

(Boundary Line DEA is same as Shown on Rating Chart 1)

DC OUTPUT VOLTAGE AT INPUT TO FILTER IN VOLTS

DC OUTPUT CURRENT - MILLIAMPERES

FULL-WAVE RECTIFIER WITH CHOKE-INPUT FILTER

$E_F = 6.3$ Volts

(BOUNDARY LINE CBA IS SAME AS SHOWN ON RATING CHART 1)