THE 3CS6 IS A MINIATURE DUAL CONTROL PENTAGRID DESIGNED FOR USE IN SYNC SEPARATOR CIRCUITS IN 600 MA. SERIES HEATER OPERATED TELEVISION RECEIVERS. EACH OF THE CONTROL GRIDS HAVE A SHARP CUT-OFF CHARACTERISTIC. THERMAL CHARACTERISTICS OF THE HEATER ARE CONTROLLED SUCH THAT HEATER VOLTAGE SURGES DURING THE WARM-UP CYCLE ARE MINIMIZED PROVIDED IT IS USED WITH OTHER TYPES WHICH ARE SIMILARLY CONTROLLED. EXCEPT FOR HEATER RATINGS, ITS CHARACTERISTICS ARE IDENTICAL TO THE 6CS6.

DIRECT INTERELECTRODE CAPACITANCES — APPROX.

GRID #1 TO PLATE: \( G_1 \) TO \( P \) (MAX.) 0.05 \( \mu \)f
GRID #3 TO PLATE: \( G_3 \) TO \( P \) (MAX) 0.36 \( \mu \)f
#1 INPUT: \( G_1 \) TO \( (H+K+G_2+G_3+5') \) 5.5 \( \mu \)f
#3 INPUT: \( G_3 \) TO \( (H+K+G_2+G_3+5') \) 7.0 \( \mu \)f
OUTPUT: \( P \) TO \( (H+K+G_1+G_2+G_3+5') \) 7.5 \( \mu \)f
COUPLING: \( G_1 \) TO \( G_3 \) (MAX.) 0.22 \( \mu \)f

RATINGS — INTERPRETED ACCORDING TO DESIGN CENTER SYSTEM

DESIGN CENTER VALUES

HEATER VOLTAGE 3.15 VOLTS
MAXIMUM HEATER-CATHODE VOLTAGE:
HEATER NEGATIVE TOTAL DC AND PEAK 200 VOLTS
HEATER POSITIVE TOTAL DC AND PEAK 200 VOLTS
MAXIMUM PLATE VOLTAGE 300 VOLTS
MAXIMUM GRID #2 & #4 VOLTAGE
MAXIMUM GRID #2 & #4 SUPPLY VOLTAGE 300 VOLTS
MAXIMUM PLATE DISSIPATION
MAXIMUM SCREEN DISSIPATION:
FOR GRIDS \#2 & \#4 VOLTAGE UP TO 150 VOLTS 1.0 VOLTS
FOR GRIDS \#2 & \#4 VOLTAGE BETWEEN 150 & 300 VOLTS \( * \)
MAXIMUM CATHODE CURRENT 14 MA.
MAXIMUM GRID \#1 CIRCUIT RESISTANCE 0.47 MEGOHM
MAXIMUM GRID \#3 CIRCUIT RESISTANCE 2.2 MEGOHMS
HEATER WARM-UP TIME (APPROX.) * 11.0 SECONDS

* SEE SCREEN DISSIPATION RATING CHART JEDC #5-C4-2.

→ INDICATES A CHANGE.

* HEATER WARM-UP TIME IS DEFINED AS THE TIME REQUIRED FOR THE VOLTAGE ACROSS THE HEATER TO REACH 80% OF ITS RATED VOLTAGE AFTER APPLYING 9 TIMES RATED HEATER VOLTAGE TO A CIRCUIT CONSISTING OF THE TUBE HEATER IN SERIES WITH A RESISTANCE OF VALUE 3 TIMES THE Nominal heater operating resistance.

CONTINUED ON FOLLOWING PAGE
### TYPICAL OPERATING CONDITIONS AND CHARACTERISTICS

**CLASS A\_1 AMPLIFIER**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value 1</th>
<th>Value 2</th>
<th>Value 3</th>
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<tbody>
<tr>
<td>HEATER VOLTAGE</td>
<td>3.15</td>
<td>3.15</td>
<td>3.15</td>
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<tr>
<td>HEATER CURRENT</td>
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<td>PLATE VOLTAGE</td>
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<td>100</td>
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<tr>
<td>GRID #2 &amp; #4 VOLTAGE</td>
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<td>GRID #1 VOLTAGE</td>
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<td>-0</td>
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<td>GRID #3 VOLTAGE</td>
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<td>-1</td>
<td>0</td>
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<tr>
<td>PLATE CURRENT</td>
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<td>1.0</td>
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<tr>
<td>GRID #2 &amp; #4 CURRENT</td>
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<td>5.5</td>
<td>1.3</td>
</tr>
<tr>
<td>TRANSCONDUCTANCE (MEASURED BETWEEN GRID #1 AND PLATE)</td>
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<td>---</td>
<td>100 µMhos</td>
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<tr>
<td>TRANSCONDUCTANCE (MEASURED BETWEEN GRID #3 AND PLATE)</td>
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<td>1500 µMhos</td>
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<tr>
<td>PLATE RESISTANCE (APPROX.)</td>
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<td>1.0 MEGOHM</td>
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<tr>
<td>GRID #1 VOLTAGE (APPROX.) FOR Ib=50 µA</td>
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<td>---</td>
<td>-2.5 Vols</td>
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<tr>
<td>GRID #3 VOLTAGE (APPROX.) FOR Ib=50 µA</td>
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<td>-2.2</td>
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**Characteristics for 3CS6**

- $E_f = 3.15$ Volts
- $E_{C2&4} = 30$ Volts
- $E_{C1} = 0$ Volts

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**Graph**

- Plate Current vs. Plate Voltage
- Grid #1 and Grid #3 Voltages indicated.
- Plate Resistance shown.

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**Notes**

- Grid #2 & Grid #4 currents are indicated.
- Operating conditions specified for Ib=50 µA.

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**Conclusion**

The document provides detailed specifications and operating conditions for a class A\_1 amplifier with a focus on typical operating voltages and currents, along with graphical representations for visual understanding.
3CS6

$E_f = 3.15$ Volts
$E_{C2&4} = 30$ Volts
$E_{C3} = 0$ Volts

GRID #1 MILLIAMPERES

0 1 2 3 4 5

PLATE VOLTS

0 50 100 150 200 250 300

3CS6

$E_f = 3.15$ Volts
$E_{C2&4} = 30$ Volts
$E_{C3} = 0$ Volts

GRIDS #2/#4 (I_{C2&4}) MILLIAMPERES

0 5 10 15 20

PLATE VOLTS

0 50 100 150 200 250