The 6CB6-A is a miniature pentode designed for use as a radio-frequency or intermediate-frequency amplifier in television receivers. Features of the tube include high transconductance and low interelectrode capacitances. The suppressor and cathode terminals are brought out to separate base pins to permit the use of an unbypassed cathode-bias resistor to minimize the effects of regeneration.

**GENERAL**

**ELECTRICAL**

<table>
<thead>
<tr>
<th>Operation</th>
<th>Series Heater</th>
<th>Parallel Heater Operation*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heater Voltage, AC or DC</td>
<td>6.3</td>
<td>6.3 ± 0.6 Volts</td>
</tr>
<tr>
<td>Heater Current</td>
<td>0.3 ± 0.02</td>
<td>0.3† Amperes</td>
</tr>
<tr>
<td>Heater Warm-up Time‡</td>
<td>11</td>
<td>Seconds</td>
</tr>
<tr>
<td>Direct Interelectrode Capacitances</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grid-Number 1 to Plate: (g1 to p), max</td>
<td>0.015</td>
<td>0.025 pf</td>
</tr>
<tr>
<td>Input: g1 to (h+k+g2+g3+i.s.)</td>
<td>6.5</td>
<td>6.5 pf</td>
</tr>
<tr>
<td>Output: p to (h+k+g2+g3+i.s.)</td>
<td>3.0</td>
<td>2.0 pf</td>
</tr>
</tbody>
</table>

**MECHANICAL**

- Mounting Position—Any
- Envelope—T-5¹⁄₂, Glass
- Base—E7-1, Miniature Button 7-Pin
- Outline Drawing—EIA 5-2
- Maximum Diameter ....... ¾ Inches
- Maximum Over-all Length... 2 ½ Inches
- Maximum Seated Height .... 1 ½ Inches

**MAXIMUM RATINGS**

Design-Maximum ratings are limiting values of operating and environmental conditions applicable to a bogey electron tube of a specified type as defined by its published data and should not be exceeded under the worst probable conditions.

The tube manufacturer chooses these values to provide acceptable serviceability of the tube, making allowance for the effects of changes in operating conditions due to variations in the characteristics of the tube under consideration.

The equipment manufacturer should design so that initially and throughout life no design-maximum value for the intended service is exceeded with a bogey tube under the worst probable operating conditions with respect to supply-voltage variation, equipment component variation, equipment control adjustment, load variation, signal variation, and variations in the characteristics of all other electron devices in the equipment.

**PHYSICAL DIMENSIONS**

<table>
<thead>
<tr>
<th>Dimension</th>
<th>MAX.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grid-Number 1 to Plate: (g1 to p)</td>
<td>0.015</td>
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<tr>
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<td>3.0</td>
</tr>
</tbody>
</table>

**TERMINAL CONNECTIONS**

- Pin 1—Grid Number 1
- Pin 2—Cathode
- Pin 3—Heater
- Pin 4—Heater
- Pin 5—Plate
- Pin 6—Grid Number 2 (Screen)
- Pin 7—Internal Shield and Grid Number 3 (Suppressor)

**BASING DIAGRAM**

EIA 5-2

EIA 7CM

Supersedes ET-T1297 dated 4-56
MAXIMUM RATINGS

DESIGN-MAXIMUM VALUES

Plate Voltage ................................................. 330 Volts
Screen-Supply Voltage ....................................... 330 Volts
Screen Voltage—See Screen Rating Chart
Positive DC Grid-Number 1 Voltage ....................... 0 Volts
Plate Dissipation ............................................. 2.3 Watts
Screen Dissipation ........................................... 0.55 Watts
Heater-Cathode Voltage
  Heater Positive with Respect to Cathode
    DC Component ........................................... 100 Volts
    Total DC and Peak ..................................... 200 Volts
  Heater Negative with Respect to Cathode
    Total DC and Peak ..................................... 200 Volts

CHARACTERISTICS AND TYPICAL OPERATION

CLASS A1 AMPLIFIER

Plate Voltage ................................................. 125 125 Volts
Suppressor, Connected to Cathode at Socket
Screen Voltage ................................................. 125 125 Volts
Grid-Number 1 Voltage ................................……… 3.0 Volts
Cathode-Bias Resistor ....................................... 56 Ohms
Plate Resistance, approximate ............................ 0.28 Megohms
Transconductance ............................................. 8000 Micromhos
Plate Current .................................................. 2.8 13 Milliamperes
Screen Current .................................................. 2.8 3.7 Milliamperes
Grid-Number 1 Voltage, approximate
  Ib = 20 Microamperes ....................................... 6.5 Volts

* For parallel heater operation, the equipment designer should design the equipment so that heater voltage is centered at the specified rated value, with heater supply variations restricted to maintain heater voltage within the specified tolerance. For series heater operation, the equipment designer should design the equipment so that heater current is centered at the specified rated value, with heater supply variations restricted to maintain heater current within the specified tolerance.

† Heater current of a bogey tube at Ef = 6.3 volts.

‡ The time required for the voltage across the heater to reach 80 percent of its rated value after applying 4 times rated heater voltage to a circuit consisting of the tube heater in series with a resistance equal to 3 times the rated heater voltage divided by the rated heater current.

§ With external shield (EIA 316) connected to pin 2.

The tubes and arrangements disclosed herein may be covered by patents of General Electric Company or others. Neither the disclosure of any information herein nor the sale of tubes by General Electric Company conveys any license under patent claims covering combinations of tubes with other devices or elements. In the absence of an express written agreement to the contrary, General Electric Company assumes no liability for patent infringement arising out of any use of the tubes with other devices or elements by any purchaser of tubes or others.
AVERAGE TRANSFER CHARACTERISTICS

$E_f = \text{RATED VALUE}$
$E_b = 125 \text{ VOLTS}$
$E_{c2} = 0 \text{ VOLTS}$

GRID-NUMBER 1 VOLTAGE IN VOLTS
SCREEN CURRENT IN MILLIAMPERES

K-55611-TD124-4
SEPTEMBER 0, 1960

AVERAGE TRANSFER CHARACTERISTICS

$E_f = \text{RATED VALUE}$
$E_b = 125 \text{ VOLTS}$
$E_{c2} = 0 \text{ VOLTS}$

GRID-NUMBER 1 VOLTAGE IN VOLTS
TRANS-CONDUCTANCE IN MICROHMS

K-55611-TD124-5
SEPTEMBER 0, 1960