HITACHI
6KN8 • 4KN8
TWIN TRIODE

for VHF cascode amplifier application

The Hitachi 6KN8 and 4KN8 are miniature, medium-mu twin triode designed for use as a cascode connected VHF amplifier of television tuners. As 6KN8 and 4KN8 have considerably high transconductance and low interelectrode capacitance with their special frame grid structure, these tubes enable the television tuner to have high gain and low noise characteristics.

The Hitachi 6KN8 and 4KN8 are newly registered JEDEC type name and have been famous by the name of Hitachi 6R-HH8 and 4R-HH8.

**ELECTRICAL DATA**

Cathode ........................................ Coated Unipotential

Heater;

<table>
<thead>
<tr>
<th></th>
<th>4KN8</th>
<th>6KN8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heater Voltage</td>
<td>4.2</td>
<td>6.3</td>
</tr>
<tr>
<td>Heater Current</td>
<td>0.6</td>
<td>0.4</td>
</tr>
<tr>
<td>Heater Warm up Time</td>
<td>11</td>
<td>–</td>
</tr>
</tbody>
</table>

Maximum Heater-Cathode Voltage

|                                | 220  | 220  |
|                                | Volts | Volts |

DC Component

|                                | 220  | 220  |
|                                | Volts | Volts |

Total DC and Peak

|                                | 220  | 220  |
|                                | Volts | Volts |

Heater Positive with Respect to Cathode

|                                | 110  | 110  |
|                                | Volts | Volts |

DC Component

|                                | 220  | 220  |
|                                | Volts | Volts |

Total DC and Peak

|                                | 220  | 220  |
|                                | Volts | Volts |

Direct Interelectrode Capacitance (with external shield)

|                                | Unit No. 1 | Unit No. 2 |
|                                |            |            |
| Grid to Plate                  | 1.7         | 1.7 μf     |
| Input: grounded cathode        | 3.6         | – μf       |
|                               | –           | 6.0 μf     |
| Output: grounded cathode       | 2.4         | – μf       |
|                               | –           | 3.6 μf     |
| Plate to Cathode               | 0.17        | 0.17 μf    |
| Heater to Cathode              | 2.5         | 2.5 μf     |
| Plate to Plate, max.           | 0.015       | μf         |

from JEDEC release #3821, July 23, 1962
**MAXIMUM RATINGS** (Absolute Maximum System, A-class Amplifier)

Plate Voltage* ................................................. 220 Volts  
Plate Dissipation .......................................... 2.2 Watts  
DC Cathode Current ......................................... 22 Milliamperes  
Fixed Bias Grid Circuit Resistance ..................... 1 Megohms

**TYPICAL OPERATING CONDITIONS AND CHARACTERISTICS**

Class A, Amplifier (each unit)

- Plate Voltage ........................................... 110 Volts  
- Grid Voltage ............................................. −1 Volts  
- Amplification Factor .................................. 45  
- Plate Resistance (approx.) ..................... 2,800 Ohms  
- Transconductance .................................... 16,000 Micromhos  
- Plate Current ........................................... 16 Milliamperes  
- Grid Voltage, approximately for
  - $Gm = 50$ Micromhos .......................... −5 Volts

Cascode Amplifier

- Plate Supply Voltage .................. 220 Volts  
- Grid Supply Voltage ....................... 0 Volts  
- Grid Circuit Resistance ...................... 1 Megohms  
- Plate Current ....................................... 17 Milliamperes  
- Transconductance .................................. 16,500 Micromhos

*Note*: When the tube is used as a cascode amplifier and the two sections are connected in series, this voltage may be as high as 330 Volts maximum under cutoff condition.

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**PLATE CHARACTERISTICS (1)** (each section)

**PLATE CHARACTERISTICS (2)** (cascade connection)
MAIN PRODUCTS

Electrical and Mechanical Machinery and Equipment for Power Generation, Transformation and Transmission
General Purpose Motor-Driven Machinery and Equipment
Machinery and Equipment for Coal and Ore Mining
Machinery and Equipment for Iron and Steel Refining
Locomotives, Rolling Stock and Other Transportation Equipment
Machinery and Equipment for Material Handling and Transporting
Machinery and Equipment for Marine Service
Household Electric Machines and Appliances
Machinery and Equipment for Agricultural and Fishing Industries
Machinery and Equipment for Waterworks and Gasworks
Machinery and Equipment for Refrigeration and Cold Storage Plants
Machinery and Equipment for Civil Engineering and Construction
Machinery and Equipment for Chemical Industry
Machinery and Equipment for Textile and Paper Manufacturing Industries
Machinery and Equipment for Wire and Wireless Communications
Electronic Computers and Applied Electronic Instruments
Precision Instruments for Scientific Researches
Electrical and Optical Measuring Instruments
Incandescent and Fluorescent Lamps and Lighting Fixtures
Electron Tubes for Radio and Television
Transistors and Semiconductor Products
Insulating Materials; Synthetic Resin Products
Printing Presses
Machine Tools

Products by Associated Companies

Malleable Cast Iron, Cast and Forged Steel Products
Rolls; Special Steels
Electric Wires and Cables

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Codes: All Codes Used

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