The 12DQ7 is a miniature power pentode primarily designed for use as the video output amplifier in television receivers. Features of the tube include high transconductance, low interelectrode capacitances, and high power sensitivity. In addition, it has a controlled heater warm-up characteristic.

### GENERAL

**ELECTRICAL**

<table>
<thead>
<tr>
<th>Series</th>
<th>Parallel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cathode—Coated Unipotential</td>
<td>12.6 ± 10%</td>
</tr>
<tr>
<td>Heater Voltage, AC or DC</td>
<td>0.3</td>
</tr>
<tr>
<td>Heater Warm-up Time*</td>
<td>11 Seconds</td>
</tr>
<tr>
<td>Direct Interelectrode Capacitances†</td>
<td></td>
</tr>
<tr>
<td>Grid-Number 1 to Plate, maximum</td>
<td>0.1 µf</td>
</tr>
<tr>
<td>Input</td>
<td>10.0 µf</td>
</tr>
<tr>
<td>Output</td>
<td>3.8 µf</td>
</tr>
</tbody>
</table>

**MECHANICAL**

- Mounting Position—Any
- Envelope—T-6½, Glass
- Base—E9-1, Small Button 9-Pin

### 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: 6.5 Watts
- Screen Dissipation: 1.1 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

**Grid-Number 1 Circuit Resistance**

- With Fixed Bias: 0.25 Megohms
- With Cathode Bias: 1.0 Megohms

Design-Maximum ratings are limiting values of operating and environmental conditions applicable to a bogey 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, taking responsibility for the effects of changes in operating conditions due to variations in tube characteristics.

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 environmental conditions.
CHARACTERISTICS AND TYPICAL OPERATION

CLASS A1 AMPLIFIER

Plate Voltage................................................................. 40 200 Volts
Suppressor—Connected to Cathode at Socket
Screen Voltage................................................................. 125 125 Volts
Grid-Number 1 Voltage..................................................... 0‡ Volts
Cathode-Bias Resistor..................................................... 68 Ohms
Plate Resistance, approximate........................................... 53000 Ohms
Transconductance............................................................ 10500 Micromhos
Plate Current................................................................. 45 26 Milliamperes
Screen Current............................................................... 16 5.6 Milliamperes
Grid-Number 1 Voltage, approximate
\[ I_b = 100 \text{ Microamperes} \] \[ -9 \text{ Volts} \]

* 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.

† Without external shield.

‡ Applied for short interval (two seconds maximum) so as not to damage tube.
AVERAGE TRANSFER CHARACTERISTICS

$E_f = \text{RATED VALUE}$
$E_b = 200\ \text{VOLTS}$
$E_{c3} = 0\ \text{VOLTS}$

GRID-NUMBER 1 VOLTAGE IN VOLTS

PLATE CURRENT IN MILLIAMPERES

K-55611-TD36-3

APRIL 22, 1958

AVERAGE TRANSFER CHARACTERISTICS

$E_f = \text{RATED VALUE}$
$E_b = 200\ \text{VOLTS}$
$E_{c3} = 0\ \text{VOLTS}$

SCREEN CURRENT ($I_{c2}$) IN MILLIAMPERES

GRID-NUMBER 1 VOLTAGE IN VOLTS

K-55611-TD36-4

APRIL 22, 1958
AVERAGE TRANSFER CHARACTERISTICS

\[ E_f = \text{RATED VALUE} \]
\[ E_b = 200 \text{ VOLTS} \]
\[ E_{c3} = 0 \text{ VOLTS} \]