TWIN DIODE—HIGH-MU TRIODE
9-PIN MINIATURE TYPE
With heater having controlled warm-up time

GENERAL DATA

Electrical:
Heater, for Unipotential Cathodes:
Heater arrangement Series Parallel Voltage (AC or DC) ....... 6.3 3.15 volts Current .......... 0.3 0.6 amp Warm-up time (Average) .......... 11 sec Direct Interelectrode Capacitances (Approx.): 0
Triode Unit:
Grid to plate .......... 1.8 \( \mu \)f Grid to cathode and heater .......... 1.5 \( \mu \)f Plate to cathode and heater .......... 0.5 \( \mu \)f Diode Units:
Diode-No.1 plate to cathode of diodes No.1 and No.2 & internal shield, and heater ........ 3.6 \( \mu \)f Diode-No.2 plate to cathode of diodes No.1 and No.2 & internal shield, and heater ........ 3.6 \( \mu \)f Triode grid to either diode plate .......... 0.006 \( \mu \)f

Characteristics, Class A \(_1\) Amplifier (Triode Unit):
Plate Voltage .......... 100 250 volts Grid Voltage .......... -1 -3 volts Amplification Factor .......... 70 70 Plate Resistance (Approx.) .......... 54000 58000 ohms Transconductance .......... 1300 1200 \( \mu \)hos Plate Current .......... 0.8 1 ma

Mechanical:
Basing Designation for BOTTOM VIEW .......... 9EN

Pin 1—Diode-No.2
Plate
Pin 2—Diode-No.1
Plate
Pin 3—Cathode of Diodes No.1 & No.2, Internal Shield
Pin 4—Heater
Pin 5—Heater
Pin 6—Triode Cathode
Pin 7—Triode Grid
Pin 8—Triode Plate
Pin 9—Heater
Mid-Tap

\( \text{--- indicates a change.} \)
# TWIN DIODE—HIGH-MU TRIODE

## TRIODE UNIT — AMPLIFIER — Class A₁

<table>
<thead>
<tr>
<th>Maximum Ratings, Design-Center Values:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>PLATE VOLTAGE</td>
<td>300 max. volts</td>
</tr>
<tr>
<td>GRID VOLTAGE:</td>
<td></td>
</tr>
<tr>
<td>Positive-bias value</td>
<td>0 max. volts</td>
</tr>
<tr>
<td>PLATE DISSIPATION</td>
<td>1 max. watt</td>
</tr>
<tr>
<td>PEAK HEATER-CATHODE VOLTAGE:</td>
<td></td>
</tr>
<tr>
<td>Heater negative with respect to cathode</td>
<td>200 max. volts</td>
</tr>
<tr>
<td>Heater positive with respect to cathode</td>
<td>200&lt;sup&gt;△&lt;/sup&gt; max. volts</td>
</tr>
</tbody>
</table>

**Typical Operation as Resistance-Coupled Amplifier:**

See RESISTANCE-COUPLED AMPLIFIER CHART No. 7 at front of this Section

## DIODE UNITS — Two

Values are for Each Unit

<table>
<thead>
<tr>
<th>Maximum Ratings, Design-Center Values:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>PLATE CURRENT</td>
<td>5 max. ma</td>
</tr>
<tr>
<td>PEAK HEATER-CATHODE VOLTAGE:</td>
<td></td>
</tr>
<tr>
<td>Heater negative with respect to cathode</td>
<td>200 max. volts</td>
</tr>
<tr>
<td>Heater positive with respect to cathode</td>
<td>200&lt;sup&gt;△&lt;/sup&gt; max. volts</td>
</tr>
</tbody>
</table>

**Characteristics:**

Plate Current for plate volts = 5 20 ma

<sup>0</sup> Without external shield.
<sup>△</sup> The dc component must not exceed 100 volts.

Curves shown under Type 6T8-A also apply to the 6CN7

---

*indicates a change.*
Twin Diode—High-Mu Triode

9-PIN MINIATURE TYPE
With Heater Having Controlled Warm-Up Time

GENERAL DATA

**Electrical:**

Heater Characteristics and Ratings *(Design-Maximum Values):*

<table>
<thead>
<tr>
<th>Arrangement</th>
<th>Parallel</th>
<th>Series</th>
<th>Series</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage</td>
<td>(AC or DC)</td>
<td>6.3</td>
<td>6.3±0.6 volts</td>
</tr>
<tr>
<td>Current</td>
<td>0.600±0.040</td>
<td>0.300±0.020</td>
<td>0.300 *</td>
</tr>
<tr>
<td>Warm-up time</td>
<td>(Average)</td>
<td>11</td>
<td>11 sec</td>
</tr>
<tr>
<td>Peak heater-cathode voltage (Each unit):</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heater negative with respect to cathode</td>
<td>200 max. volts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heater positive with respect to cathode</td>
<td>200 * max. volts</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Direct Interelectrode Capacitances (Approx):

**Triode Unit:**

<table>
<thead>
<tr>
<th>Capacitance</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grid to plate</td>
<td>1.8 pf</td>
</tr>
<tr>
<td>Grid to cathode and heater</td>
<td>1.5 pf</td>
</tr>
<tr>
<td>Plate to cathode and heater</td>
<td>0.5 pf</td>
</tr>
</tbody>
</table>

**Diode Units:**

<table>
<thead>
<tr>
<th>Capacitance</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diode-No.1 plate to cathode of diodes No.1 and No.2 &amp; internal shield, and heater</td>
<td>3.6 pf</td>
</tr>
<tr>
<td>Diode-No.2 plate to cathode of diodes No.1 and No.2 &amp; internal shield, and heater</td>
<td>3.6 pf</td>
</tr>
<tr>
<td>Triode grid to either diode plate</td>
<td>0.006 pf</td>
</tr>
</tbody>
</table>

**Characteristics, Class A \* Amplifier (Triode Unit):**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plate Voltage</td>
<td>100 250 volts</td>
</tr>
<tr>
<td>Grid Voltage</td>
<td>-1 3 volts</td>
</tr>
<tr>
<td>Amplification Factor</td>
<td>70 70</td>
</tr>
<tr>
<td>Plate Resistance (Approx.)</td>
<td>54000 58000 ohms</td>
</tr>
<tr>
<td>Transconductance</td>
<td>1300 1200 *μmhos</td>
</tr>
<tr>
<td>Plate Current</td>
<td>0.8 1 ma</td>
</tr>
</tbody>
</table>

**Mechanical:**

Operating Position | Any
Type of Cathodes | Coated Unipotential
Maximum Overall Length | 2-3/16"
Maximum Seated Length | 1-15/16"
Length, Base Seat to Bulb Top (Excluding tip) | 1-9/16" ± 3/32"
Diameter | 0.750" to 0.875"
Dimensional Outline | See General Section
Bulb | T6-1/2
Base | Small-Button Noval 9-Pin (JEDEC No.E9-1)

*Indicates a change.
Basing Designation for BOTTOM VIEW: ........... 9EN

Pin 1 — Diode—No.2
Plate
Pin 2 — Diode—No.1
Plate
Pin 3 — Cathode of
Diodes No.1, & No.2,
Internal Shield
Pin 4 — Heater
Pin 5 — Heater
Pin 6 — Triode
Cathode
Pin 7 — Triode Grid
Pin 8 — Triode Plate
Pin 9 — Heater Tap

TRIODE UNIT — AMPLIFIER — Class A₁

Maximum Ratings, Design-Maximum Values:
PLATE VOLTAGE ................. 330 max. volts
GRID VOLTAGE:
  Positive-bias value ............ 0 max. volts
PLATE DISSIPATION ............. 1.1 max. watts

Typical Operation as Resistance-Coupled Amplifier:
See RESISTANCE-COUPL ED AMPLIFIER CHART No.7
at front of this section

DIODE UNITS — Two
Values are for Each Unit

Maximum Ratings, Design-Maximum Values:
PLATE CURRENT ............... 5.5 max. ma

Characteristics, Instantaneous Value:
Plate Current for plate volts = 5 ...... 20 ma

a At heater amperes = 0.600.
b At heater amperes = 0.300.
c At heater volts = 6.3
d The dc component must not exceed 100 volts.
e Without external shield.

CURVES
For Triode shown under Type 6T8A also apply to the 6CN7