# MEDIUM-MU TRIODE—THREE-PLATE TETRODE

9-PIN MINIATURE TYPE

For harmonic-generator applications

## GENERAL DATA

### Electrical:
- **Heater**, for Unipotential Cathode:
  - Voltage (AC or DC) .............. 6.3 ± 10% volts
  - Current ......................... 0.45 amp
- **Direct Interelectrode Capacitances:**
  - Grid to plate .................. 1.4 µµf
  - Grid to cathode & heater ...... 2.6 µµf
  - Plate to cathode & heater .... 1 µµf
- **Tetrode Unit:**
  - Grid No.1 to plate No.1 ........ 0.06 max. µµf
  - Grid No.1 to cathode & heater, plate No.3, plate No.2,
    and grid No.2 .................. 4.5 µµf
  - Plate No.1 to cathode & heater,
    plate No.3, plate No.2,
    and grid No.2 .................. 1.4 µµf
  - Tetrode grid No.1 to triode plate .... 0.35 max. µµf
  - Tetrode plate No.1 to triode plate .... 0.008 max. µµf

### Characteristics, Class A1 Amplifier:

#### Triode Unit
- **Plate Voltage** .............. 100 volts
- **Grid Voltage** .............. -1 volt
- **Amplification Factor** ........ 40
- **Plate Resistance (Approx.)** .... 7400 ohms
- **Transconductance** .......... 5400 µµhos
- **Plate Current** ............... 7.9 ma
- **Grid Voltage (Approx.) for plate**
  - $\mu a = 100$ .................. -7 volts

#### Tetrode Unit with plates No.2 and No.3 connected to cathode
- **Plate-No.1 Voltage** .......... 250 volts
- **Grid-No.2 Voltage** .......... 250 volts
- **Grid-No.1 Voltage** .......... -2 volts
- **Plate-No.1 Resistance (Approx.)** .... 0.75 meghom
- **Transconductance, Grid No.1**
  - to Plate No.1 .................. 4400 µµhos
  - Plate-No.1 Current .......... 7.3 ma
  - Grid-No.2 Current .......... 1.4 ma
- **Grid-No.1 Voltage (Approx.) for plate**
  - No.1 $\mu a = 100$ .......... -7 volts

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*With external shield JEDEC No.315 connected to cathode.*
MEDIUM-MU TRIODE—THREE-PLATE TETRODE

**Mechanical:**
- Operating Position: Any
- Maximum Overall Length: 2-3/16" (15/16" excluding tip)
- Maximum Seated Length: 1-15/16"
- Length, Base Seat to Bulb Top: 1-9/16" ± 3/32"
- Diameter: 0.750" to 0.875"
- Dimensional Outline: See General Section
- Bulb: .76-1/2
- Base: Small-Button Noval 9-Pin (JEDEC No.E9-1)
- Basing Designation for BOTTOM VIEW: 9KP

**Pin Assignments:**
- Pin 1: Tetrode Plate No.3
- Pin 2: Triode Grid
- Pin 3: Triode Plate
- Pin 4: Heater, Cathode
- Pin 5: Heater
- Pin 6: Tetrode Grid No.1
- Pin 7: Tetrode Grid No.2
- Pin 8: Tetrode Plate No.2
- Pin 9: Tetrode Plate No.1

### HARMONIC-GENERATOR SERVICE

**Maximum Ratings, Design-Maximum Values:**

<table>
<thead>
<tr>
<th></th>
<th>Triode Unit</th>
<th>Tetrode Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLATE VOLTAGE</td>
<td>275 max.</td>
<td>—</td>
</tr>
<tr>
<td>PLATE-No.1 VOLTAGE</td>
<td>—</td>
<td>275 max.</td>
</tr>
<tr>
<td>PLATE-No.2 VOLTAGE</td>
<td>—</td>
<td>200 max.</td>
</tr>
<tr>
<td>PLATE-No.3 VOLTAGE</td>
<td>—</td>
<td>200 max.</td>
</tr>
<tr>
<td>GRID-No.2 (SCREEN-GRID) VOLTAGE</td>
<td>—</td>
<td>275 max.</td>
</tr>
<tr>
<td>SUPPLY VOLTAGE</td>
<td>—</td>
<td>See Grid-No.2 Input</td>
</tr>
<tr>
<td>GRID-No.2 VOLTAGE</td>
<td>—</td>
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</tr>
</tbody>
</table>

**Rating Chart at front of Receiving Tube Section**

- GRID-No.1 (CONTROL-GRID) VOLTAGE:
  - Negative-bias value: 40 max.
  - Positive-bias value: 0 max.
- GRID-No.2 INPUT:
  - For grid-No.2 voltages up to 137.5 volts: — 0.45 max. watt
  - For grid-No.2 voltages between 137.5 and 275 volts: — See Grid-No.2 Input

**Rating Chart at front of Receiving Tube Section**

- PLATE DISSIPATION: 1.7 max.
- PLATE-No.1 DISSIPATION: 2.3 max.
- PLATE-No.2 DISSIPATION: 0.3 max.
- PLATE-No.3 DISSIPATION: 0.3 max.
Typical Operation:

Tetrode Unit with separate plate operation

Plates—No.1, No.2, and No.3 Voltage ........ 100 volts
Grid-No.2 Voltage ................................ 50 volts
Grid-No.1 Voltage ................................ -1 volt
Plate-No.1 Current. .............................. 1.6 ma
Plate-No.2 Current. .............................. 0.04 ma
Plate-No.3 Current. .............................. 0.04 ma
Grid-No.2 Current. .............................. 0.3 ma

Transconductance (Approx.):
  Grid No.1 to plate No.1 ...................... 2500 μmhos
  Grid No.1 to plate No.2 ...................... 70 μmhos
  Grid No.1 to plate No.3 ...................... 70 μmhos

Maximum Circuit Values:

Triode Unit Tetrode Unit

Grid-No.1—Circuit
Resistance:
  For fixed-bias operation .................. 0.5 max. 0.5 max. megohm
AVERAGE CHARACTERISTICS
TETRODE UNIT

$E_p = 6.3$ VOLTS
PLATES NO. 2 AND NO. 3 CONNECTED TO CATHODE.
GRID-NO. 2 VOLTS = 150

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