# Diode—Sharp-Cutoff Twin-Plate Tetrode

**9-PIN MINIATURE TYPE**

For Frequency-Divider and Complex-Wave-Generator Circuits of Electronic Musical Instruments

### GENERAL DATA

**Electrical:**

Heater, for Unipotential Cathode:
- Voltage (AC or DC)............ 6.3 ± 10% volts
- Current at 6.3 volts........... 0.3 amp

Direct Interelectrode Capacitances:

**Tetrode Unit:**
- Grid No.1 to plate A........... 0.04 μf
- Grid No.1 to plate B........... 0.03 max. μf
- Grid No.1 to cathode & internal shield, grid No.2, and heater........ 5.5 μf
- Plate A to cathode & internal shield, grid No.2, and heater........ 1.8 μf
- Plate B to cathode & internal shield, grid No.2, and heater........ 1.8 μf
- Tetrode grid No.1 to diode plate........ 0.022 μf
- Tetrode plate A to diode plate........ 0.02 max. μf
- Tetrode plate B to diode plate........ 0.055 μf

### Characteristics, Class A, Amplifier (Tetrode Unit):

**Plates A and B connected together**

- Plate Voltage............ 100 volts
- Grid-No.2 Voltage............ 100 volts
- Grid-No.1 Supply Voltage............ 0 volts
- Grid-No.1 Resistor (Bypassed)............ 2.2 meegohms
- Plate Resistance (Approx.)............ 90000 ohms
- Transconductance............ 3200 μmhos
- Plate Current............ 3.8 ma
- Grid-No.2 Current............ 1.7 ma
- Grid-No.1 Voltage (Approx.) for plate μa = 20°............ -4 volts

Using either Plate A or B, with plate not in use connected to ground:

- Plate Voltage............ 100 volts
- Grid-No.2 Voltage............ 100 volts
- Grid-No.1 Supply Voltage............ 0 volts
- Grid-No.1 Resistor (Bypassed)............ 2.2 meegohms
- Plate Resistance (Approx.)............ 130000 ohms
- Transconductance............ 1900 μmhos
- Plate Current............ 2.2 ma
- Grid-No.2 Current............ 3 ma

### Mechanical:

- Operating Position............ Any
- Maximum Overall Length............ 2-5/8"ma
- Maximum Seated Length........... 2-3/8"
Length, Base Seat to Bulb Top (Excluding tip) ... 2" ± 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)
Basing Designation for BOTTOM VIEW ..................... 9MR

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<tr>
<th>Pin</th>
<th>Description</th>
<th>Location</th>
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<tbody>
<tr>
<td>1</td>
<td>Tetrode Plate B</td>
<td>Pin 6 - Cathode, Internal Shield</td>
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<tr>
<td>2</td>
<td>No Connection</td>
<td>Pin 7 - Tetrode Grid No.1</td>
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<tr>
<td>3</td>
<td>Diode Plate</td>
<td>Pin 8 - Tetrode Grid No.2</td>
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<td>4</td>
<td>Heater</td>
<td>Pin 9 - Tetrode Plate A</td>
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**FREQUENCY-DIVIDER & COMPLEX-WAVE-GENERATOR SERVICE**

**TETRODE UNIT**

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

- **PLATE A VOLTAGE** ................ 330 max. volts
- **PLATE B VOLTAGE** .......... 330 max. volts
- **GRID-No.2 (SCREEN-GRID) SUPPLY VOLTAGE** .......... 330 max. volts
- **GRID-No.2 VOLTAGE** .......... See Grid-No.2 Input Rating Chart at front of Receiving Tube Section

**GRID-No.1 (CONTROL-GRID) VOLTAGE:**

- Negative-bias value ........ 50 max. volts
- Positive-bias value ........... 0 max. volts

**GRID-No.2 INPUT:**

- For grid-No.2 voltages up to 165 volts ........ 0.65 max. watt
- For grid-No.2 voltages between 165 and 330 volts See Grid-No.2 Input Rating Chart at front of Receiving Tube Section

- **PLATE A DISSIPATION** ........ 1.5 max. watts
- **PLATE B DISSIPATION** .......... 1.5 max. watts

**PEAK HEATER-CATHODE VOLTAGE:**

- Heater negative with respect to cathode . 200 max. volts
- Heater positive with respect to cathode . 200* max. volts

**Maximum Circuit Values:**

- Grid-No.1-Circuit Resistance:
  - For grid-No.1-resistor-bias operation . 2.2 max. megohms

**DIODE UNIT**

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

- **PLATE CURRENT** .......... 1 max. ma

**Characteristics, Instantaneous Test Condition:**

- Plate Current for plate volts = 10. . . . 2 ma

* Without external shield.
* The dc component must not exceed 100 volts.

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**RADIO CORPORATION OF AMERICA**
Electron Tube Division
Harrison, N. J.
AVERAGE CHARACTERISTICS
Tetrode Unit

$E_F = 6.3$ VOLTS
GRID-N$\#2$ VOLTS = 100
PLATE A CONNECTED TO PLATE B

PLATE ($I_B$) OR GRID-N$\#2$ ($I_C$) MILLIAMPERES

92CM-10693
AVERAGE PLATE CHARACTERISTICS
Tetrode Unit—Triode Connection

$E_g = 6.3 \text{ VOLTS}$
GRID №2 CONNECTED TO PLATES A & B.

PLATE MILLIAMPERES

PLATE VOLTS

92CM-10695

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