Diode—
Sharp-Cutoff Three-Plate Tetrode

9-PIN MINIATURE TYPE
For Frequency-Divider and Complex-Wave-Generator Circuits of Electronic Musical Instruments

GENERAL DATA

Electrical:
Heater Characteristics and Ratings (Design-Maximum Values):
Voltage (AC or DC) .................. 6.3 ± 0.6 volts
Current at heater volts = 6.3 ........ 0.300 amp
Peak heater-cathode voltage:
   Heater negative with
   respect to cathode .............. 200 max. volts
   Heater positive with
   respect to cathode .............. 200 max. volts

Direct Interelectrode Capacitances:
Tetrode Unit:
   Grid No.1 to plate 1A .......... 0.02 max. pf
   Grid No.1 to plate 1B .......... 0.02 max. pf
   Grid No.1 to plate 2 .......... 0.06 max. pf
   Grid No.1 to cathode & internal
   shield, grid No.2, and heater .... 5.5 pf
   Plate 1A to cathode & internal
   shield, grid No.2, and heater .... 1.2 pf
   Plate 1B to cathode & internal
   shield, grid No.2, and heater .... 1.3 pf
   Plate 2 to cathode & internal
   shield, grid No.2, and heater .... 1.8 pf
   Tetrode grid No.1 to diode plate. 0.024 max. pf
   Tetrode plate 1A to diode plate 0.18 pf
   Tetrode plate 1B to diode plate 0.024 pf
   Tetrode plate 2 to diode plate 0.013 pf

Characteristics, Class A1 Amplifier (Tetrode Unit):
Plates 1A, 1B, and 2 connected together at socket

   Plate Voltage .................. 100 volts
   Grid-No.2 Voltage ............... 100 volts
   Grid-No.1 Supply Voltage ........ 0 volts
   Grid-No.1 Resistor (Bypassed) ... 2.2 megohms
   Plate Resistance (Approx.) .... 300000 ohms
   Transconductance ................ 3400 μmhos
   Plate Current .................. 4.2 ma
   Grid-No.2 Current ............... 1.7 ma
   Grid-No.1 Voltage (Approx.) ....
      for plate μa = 20 ........... -4 volts

Triode Connection—
   Grid No.2 connected to plates 1A, 1B, and 2 at socket

   Plate Voltage .................. 100 volts
   Grid-No.1 Supply Voltage ........ 0 volts

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Electron Tube Division
Harrison, N. J.
DATA 1
1-63
Grid-No.1 Resistor (Bypassed) ..... 2.2 megohms
Transconductance ..... 4500 μhos
Amplification Factor ..... 45
Plate Current ..... 5.5 ma

Separate plate operation, plates not under test grounded

Plate Voltage:
Plate 1A ..... 100 volts
Plate 1B ..... 100 volts
Plate 2 ..... 100 volts
Grid-No.2 Voltage ..... 100 volts
Grid-No.1 Supply Voltage ..... 0 volts
Grid-No.1 Resistor (Bypassed) ..... 2.2 megohms

Transconductance:
Grid No.1 to plate 1A ..... 2000 μhos
Grid No.1 to plate 1B ..... 2000 μhos
Grid No.1 to plate 2 ..... 1800 μhos

Plate Resistance (Approx.):
Plate 1A ..... 0.1 meghohm
Plate 1B ..... 0.1 meghohm
Plate 2 ..... 0.12 meghohm

Plate Current:
Plate 1A ..... 2.3 ma
Plate 1B ..... 2.3 ma
Plate 2 ..... 2.1 ma

Grid-No.2 Current:
For plate 1A volts = 100. ..... 3.8 ma
For plate 1B volts = 100. ..... 3.8 ma
For plate 2 volts = 100 ..... 3.3 ma

Mechanical:
Operating Position ..... Any
Type of Cathode ..... Coated Unipotential
Maximum Overall Length ..... 2-5/8"
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 ..... 90G

Pin 1 - Tetrode
Plate 1B
Pin 2 - Tetrode
Plate 1A
Pin 3 - Diode
Plate
Pin 4 - Heater
Pin 5 - Heater

Pin 6 - Cathode, Internal Shield
Pin 7 - Tetrode
Grid No.1
Pin 8 - Tetrode
Grid No.2
Pin 9 - Tetrode
Plate 2
FREQUENCY-DIVIDER & COMPLEX-WAVE-GENERATOR SERVICE

TETRODE UNIT

Maximum Ratings, Design-Maximum Values:

PLATE VOLTAGE:
- PLATE 1A: 330 max. volts
- PLATE 1B: 330 max. volts
- PLATE 2: 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 1A DISSIPATION: 1 max. watt
PLATE 1B DISSIPATION: 1 max. watt
PLATE 2 DISSIPATION: 1 max. watt

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

a The dc component must not exceed 100 volts.
b Without external shield.
AVERAGE CHARACTERISTICS

Tetrode Unit

$E_f = 6.3$ VOLTS
GRID-No. 2 VOLTS = 100
PLATES 1A, 1B, AND 2 CONNECTED TOGETHER AT SOCKET.
AVERAGE PLATE CHARACTERISTICS
Tetrode Unit—Triode Connection

E_I = 6.3 VOLTS
GRID No. 2 CONNECTED TO PLATES 1A, 1B AND 2 AT SOCKET.