

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^a max. volts

Direct Interelectrode Capacitances:^b

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.) 30000 ohms

Transconductance 3400 μ mhos

Plate Current 4.2 ma

Grid-No.2 Current 1.7 ma

Grid-No.1 Voltage (Approx.)

for plate μ = 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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Grid-No.1 Resistor (Bypassed)	2.2	megohms
Transconductance.	4500	μ hos
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	μ hos
Grid No.1 to plate 1B	2000	μ hos
Grid No.1 to plate 2.	1800	μ hos

Plate Resistance (Approx.):

Plate 1A.	0.1	megohm
Plate 1B.	0.1	megohm
Plate 2	0.12	megohm

Plate Current:

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

Grid-No.2 Current:

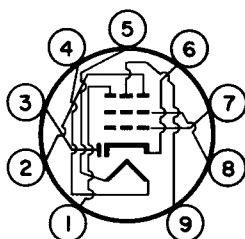
For plate 1A volts = 100.	3.8	ma
For plate 1B volts = 100.	3.8	ma
For plate 2 volts = 100	3.3	ma

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" $\pm$ 3/32"
Diameter.	0.750" to 0.875"
Dimensional Outline	See <i>General Section</i>
Bulb.	T6-1/2
Base.	Small-Button Noval 9-Pin (JEDEC No.E9-1)

Basing Designation for BOTTOM VIEW. 9QG

- 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
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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
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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
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PLATE 1B DISSIPATION.	1 max.	watt
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PLATE 2 DISSIPATION	1 max.	watt
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Maximum Circuit Values:

Grid-No.1-Circuit Resistance:

For grid-No.1-resistor-

bias operation.	2.2 max.	megohms
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DIODE UNIT

Maximum Ratings, Design-Maximum Values:

PLATE CURRENT	1 max.	ma
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Characteristics, Instantaneous Test Condition:

Plate Current for plate volts = 10. . .	2	ma
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^a The dc component must not exceed 100 volts.

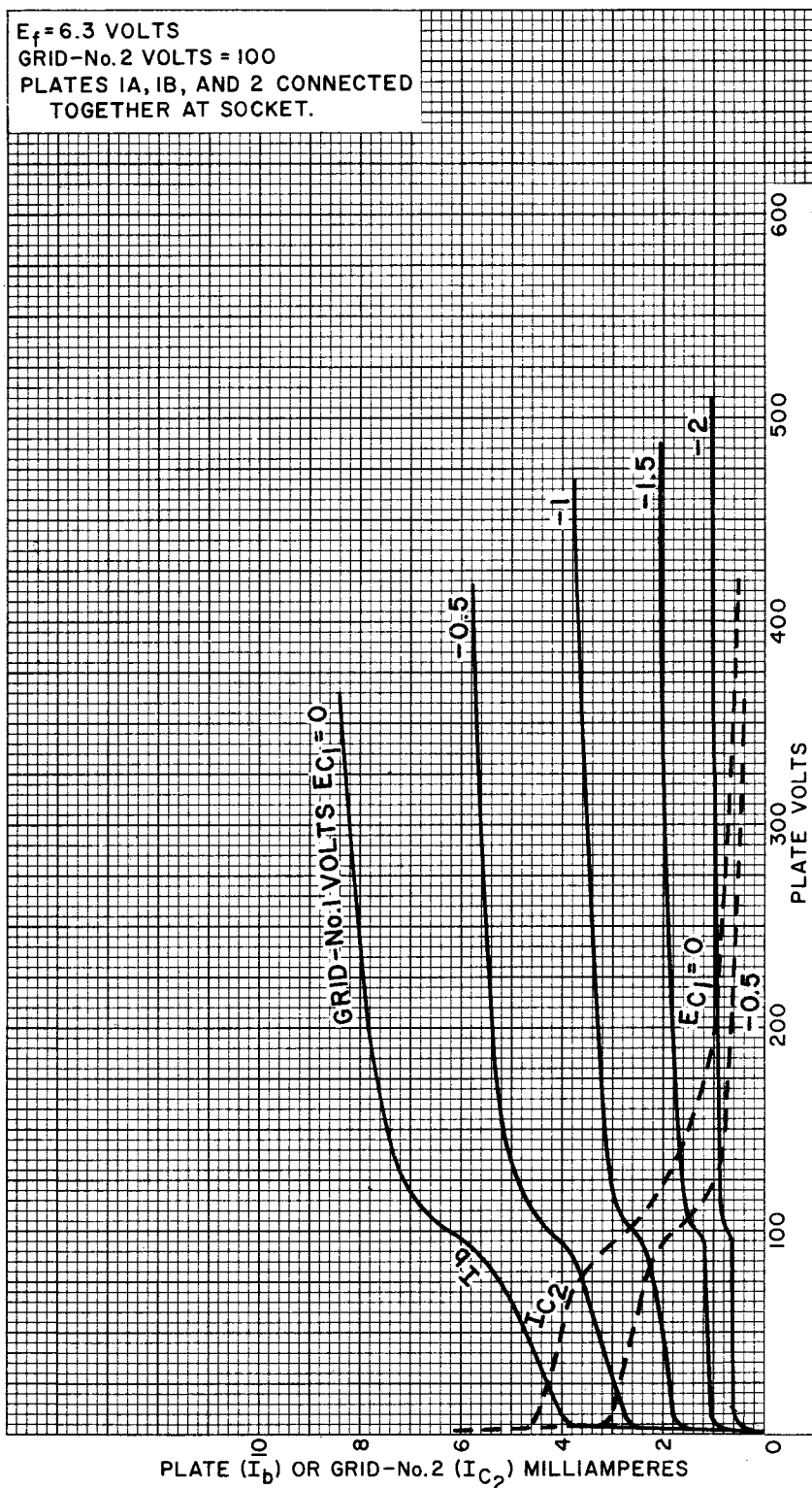
^b without external shield.



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AVERAGE CHARACTERISTICS Tetrode Unit

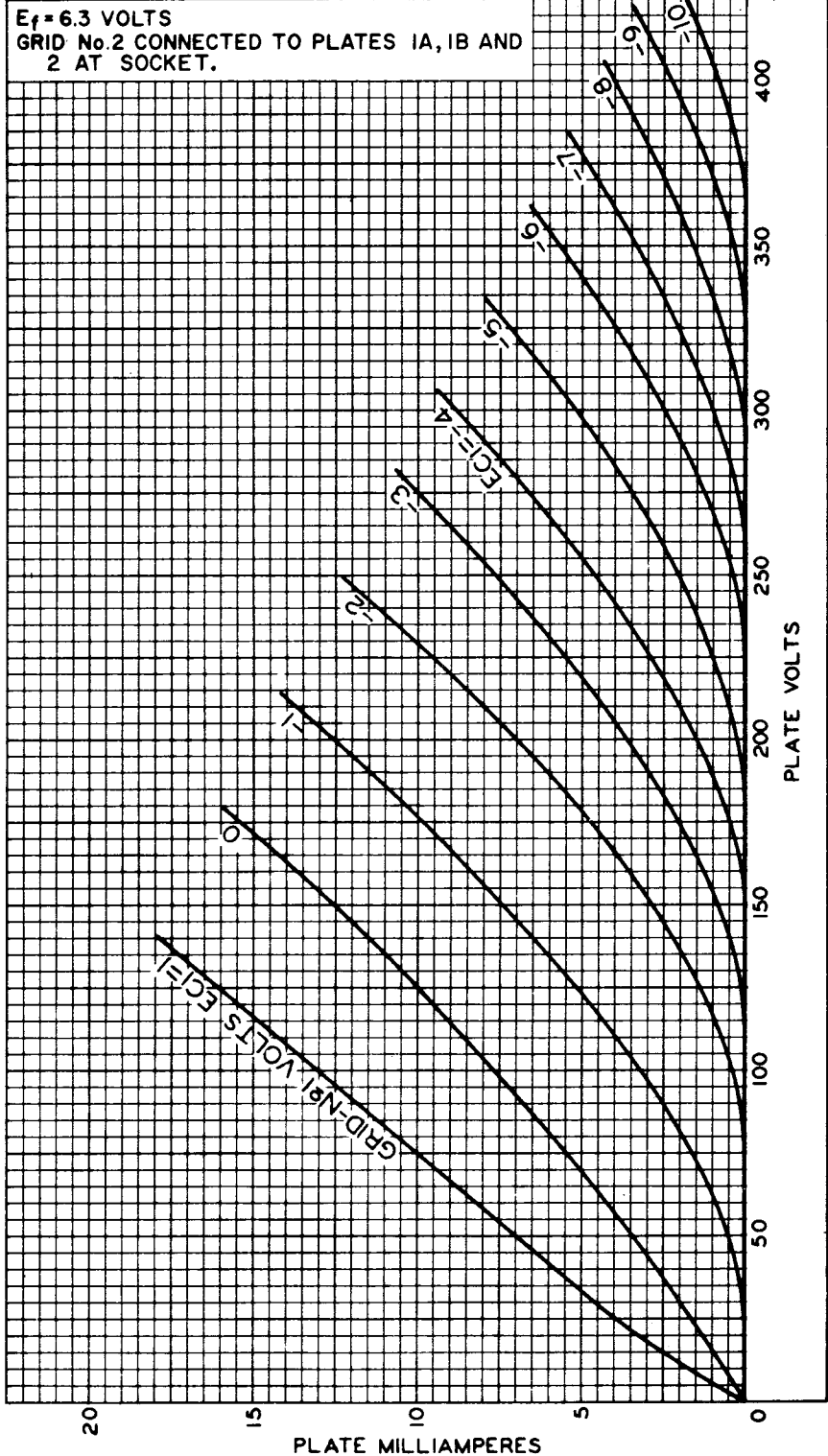
$E_f = 6.3$ VOLTS
GRID-No.2 VOLTS = 100
PLATES 1A, 1B, AND 2 CONNECTED
TOGETHER AT SOCKET.



92CM-11713R1



AVERAGE PLATE CHARACTERISTICS Tetrode Unit—Triode Connection



92CM-11748

