### 6BY8

#### DIODE—SHARP-CUTOFF PENTODE

**9-PIN MINIATURE TYPE**

*Intended for use in equipment having series heater-string arrangement*

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**GENERAL DATA**

**Electrical:**
- **Heater, for Unipotential Cathodes:**
  - Voltage ............. 6.3 ....... ac or dc volts
  - Current ............. 0.6 .............. amp
  - Warm-up time (Average) ......... 11 ....... sec

  *For definition of heater warm-up time and method of determining it, see sheet HEATER WARM-UP TIME MEASUREMENT at front of this Section.*

**Direct Interelectrode Capacitances:**
- **Diode Unit:**
  - Plate to cathode, pentode plate, pentode grid No.3 & internal shield, pentode grid No.2, pentode grid No.1, pentode cathode, and heater ............. 4.8* μμf

- **Pentode Unit:**
  - Grid No.1 to plate .......... 0.0035 max. μμf
  - Grid No.1 to cathode, grid No.3 & internal shield, grid No.2, and heater ............. 5.5 μμf
  - Plate to cathode, grid No.3 & internal shield, grid No.2, and heater ............. 5 μμf

**Characteristics, Class A1 Amplifier (Pentode Unit):**
- **Plate—Supply Voltage:**
  - 100 250 volts
- **Grid No.3 (Suppressor Grid):**
  - Connected to cathode at socket
- **Grid-No.2 (Screen-Grid):**
  - Supply Voltage ............. 100 150 volts
  - Cathode Resistor ............. 150 68 ohms
  - Plate Resistance (Approx.) ......... 0.5 1 megohm
  - Transconductance ............. 3900 5200 μmhos
  - Plate Current ............. 5 10.6 ma
  - Grid-No.2 Current ............. 2.1 4.3 ma
  - Grid-No.1 (Control-Grid) Voltage (Approx.) for plate μa = 10 ............. -4.2 -6.5 volts

**Mechanical:**
- **Operating Position:**
  - Any
- **Maximum Overall Length:**
  - 2-5/8" 2-3/8"
- **Maximum Seated Length:**
  - 2-3/8" 2-3/8"
- **Length, Base Seat to Bulb Top (Excluding tip):**
  - 2" ± 3/32" 0.750" to 0.875"
- **Diameter:**
  - See General Section
- **Dimensional Outline:**
  - See General Section
- **Bulb:**
  - T6-1/2
- **Base:**
  - Small-Button Noval 9-Pin (JETEC No.E9-1)

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*See next page.*
DIODE—SHARP-CUTOFF PENTODE

Basing Designation for BOTTOM VIEW ................. 9FN
Pin 1—Pentode
Grid No.1
Pin 2—Pentode
Grid No.3, Internal Shield
Pin 3—Diode Cathode
Pin 4—Heater
Pin 5—Heater
Pin 6—Diode Plate
Pin 7—Pentode Plate
Pin 8—Pentode Grid No.2
Pin 9—Pentode Cathode

PENTODE UNIT — AMPLIFIER — Class A₁

Maximum Ratings, Design-Center Values:

PLATE VOLTAGE .................. 300 max. volts
GRID-No.3 (SUPPRESSOR-GRID) VOLTAGE .. 0 max. volts
GRID-No.2 (SCREEN-GRID) SUPPLY VOLTAGE . 300 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 150 volts. 0.65 max. watt
For grid-No.2 voltages between 150 and 300 volts. .... See Grid-No.2 Input Rating Chart at front of Receiving Tube Section
PLATE DISSIPATION .............. 3 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 fixed-bias operation ............ 0.25 max. megohm
For cathode-bias operation ........ 1 max. megohm

DIODE UNIT

Maximum Ratings, Design-Center Values:

PEAK INVERSE PLATE VOLTAGE ........ 430 max. volts
PLATE CURRENT:
Peak .................................. 180 max. ma
DC ................................... 45 max. ma
PEAK HEATER—CATHODE VOLTAGE:
Heater negative with respect to cathode. 200 max. volts
Heater positive with respect to cathode. 200 max. volts

° with external shield JETEC No.315 connected to pentode cathode (pin 9) except as noted.
° with external shield JETEC No.315 connected to ground.
▲ The dc component must not exceed 100 volts.
CURVES shown under Type 6AU6 also apply to the pentode unit of the 6BY8

AVERAGE PLATE CHARACTERISTIC
DIODE UNIT

\[ E_f = 6.3 \text{ VOLTS} \]

PLATE MILLIAMPERES

0 2 4 6 8 10 12
DC PLATE VOLTS

92CS-9616