



6CN7

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# TWIN DIODE—HIGH-MU TRIODE

9-PIN MINIATURE TYPE

With heater having controlled warm-up time

## GENERAL DATA

### Electrical:

Heater, for Unipotential Cathodes:

	Series	Parallel	
Heater arrangement			
Voltage (AC or DC) . . . . .	6.3	3.15	volts
Current . . . . .	0.3	0.6	amp
Warm-up time (Average) . . . . .	—	11	sec

Direct Interelectrode Capacitances (Approx.):<sup>o</sup>

*Triode Unit:*

Grid to plate . . . . .	1.8	$\mu\text{f}$
Grid to cathode and heater. . . . .	1.5	$\mu\text{f}$
Plate to cathode and heater . . . . .	0.5	$\mu\text{f}$

*Diode Units:*

Diode—No.1 plate to cathode of diodes No.1 and No.2 & internal shield, and heater. . . . .	3.6	$\mu\text{f}$
Diode—No.2 plate to cathode of diodes No.1 and No.2 & internal shield, and heater. . . . .	3.6	$\mu\text{f}$
Triode grid to either diode plate . . . . .	0.006	$\mu\text{f}$

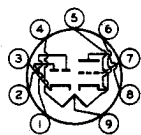
### Characteristics, Class A<sub>1</sub> Amplifier (Triode Unit):

Plate Voltage . . . . .	100	250	volts
Grid Voltage . . . . .	-1	-3	volts
Amplification Factor . . . . .	70	70	
Plate Resistance (Approx.) . . . . .	54000	58000	ohms
Transconductance . . . . .	1300	1200	$\mu\text{mhos}$
Plate Current . . . . .	0.8	1	ma

### Mechanical:

Operating Position . . . . .	Any
Maximum Overall Length . . . . .	2-3/16"
Maximum Seated Length . . . . .	1-15/16"
Length, Base Seat to Bulb Top (Excluding tip) . . . . .	1-9/16" $\pm$ 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 . . . . .	9EN

Pin 1 - Diode-No.2 Plate	Pin 4 - Heater
Pin 2 - Diode-No.1 Plate	Pin 5 - Heater
Pin 3 - Cathode of Diodes No.1 & No.2, Internal Shield	Pin 6 - Triode Cathode
	Pin 7 - Triode Grid
	Pin 8 - Triode Plate
	Pin 9 - Heater Mid-Tap



← indicates a change.

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## TWIN DIODE—HIGH-MU TRIODE

### TRIODE UNIT — AMPLIFIER — Class A<sub>1</sub>

#### Maximum Ratings, Design-Center Values:

PLATE VOLTAGE. . . . .	300 max.	volts
GRID VOLTAGE:		
Positive-bias value. . . . .	0 max.	volts
PLATE DISSIPATION. . . . .	1 max.	watt
PEAK HEATER-CATHODE VOLTAGE:		
Heater negative with respect to cathode . . . . .	200 max.	volts
Heater positive with respect to cathode . . . . .	200 <sup>▲</sup> max.	volts

#### Typical Operation as Resistance-Coupled Amplifier:

See *RESISTANCE-COUPLED AMPLIFIER CHART No. 7*  
at front of this Section

### DIODE UNITS — Two

Values are for Each Unit

#### Maximum Ratings, Design-Center Values:

PLATE CURRENT. . . . .	5 max.	ma
PEAK HEATER-CATHODE VOLTAGE:		
Heater negative with respect to cathode . . . . .	200 max.	volts
Heater positive with respect to cathode . . . . .	200 <sup>▲</sup> max.	volts

#### Characteristics:

→ Plate Current for plate volts = 5 . . . . . 20 ma

○ Without external shield.

▲ The dc component must not exceed 100 volts.

→ Curves shown under Type 6T8-A also apply to the 6CN7

→ Indicates a change.

## Twin Diode—High-Mu Triode

## 9-PIN MINIATURE TYPE

With Heater Having Controlled Warm-Up Time

## GENERAL DATA

## Electrical:

Heater Characteristics and Ratings (*Design-Maximum Values*):

Heater-section arrangement	Parallel	Series	Series	
Voltage (AC or DC)	3.15 <sup>a</sup>	6.3 <sup>b</sup>	6.3 ± 0.6	volts
Current . . .	0.600 ± 0.040	0.300 ± 0.020	0.300 <sup>c</sup>	amp
Warm-up time (Average)	11	11	—	sec
Peak heater-cathode voltage (Each unit):				
Heater negative with respect to cathode . . . . .			200 max.	volts
Heater positive with respect to cathode . . . . .			200 <sup>d</sup> max.	volts

Direct Interelectrode Capacitances (Approx):<sup>e</sup>

## Triode Unit:

Grid to plate . . . . .	1.8	pf
Grid to cathode and heater . . . . .	1.5	pf
Plate to cathode and heater . . . . .	0.5	pf

## Diode Units:

Diode-No.1 plate to cathode of diodes No.1 and No.2 & internal shield, and heater.	3.6	pf
Diode-No.2 plate to cathode of diodes No.1 and No.2 & internal shield, and heater.	3.6	pf
Triode grid to either diode plate . . . . .	0.006	pf

Characteristics, Class A<sub>1</sub> Amplifier (Triode Unit):

Plate Voltage . . . . .	100	250	volts
Grid Voltage . . . . .	-1	-3	volts
Amplification Factor . . . . .	70	70	
Plate Resistance (Approx.) . . . . .	54000	58000	ohms
Transconductance . . . . .	1300	1200	μmhos
Plate Current . . . . .	0.8	1	ma

## Mechanical:

Operating Position . . . . .	Any
Type of Cathodes . . . . .	Coated Unipotential
Maximum Overall Length . . . . .	2-3/16"
Maximum Seated Length . . . . .	1-15/16"
Length, Base Seat to Bulb Top (Excluding tip) . . . . .	1-9/16" ± 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)

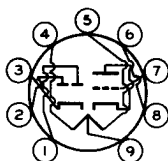
← Indicates a change.



# 6CN7

Basing Designation for BOTTOM VIEW. . . . . 9EN

- Pin 1 - Diode-No.2  
Plate
- Pin 2 - Diode-No.1  
Plate
- Pin 3 - Cathode of  
Diodes No.1  
& No.2,  
Internal  
Shield



- Pin 4 - Heater
- Pin 5 - Heater
- Pin 6 - Triode  
Cathode
- Pin 7 - Triode Grid
- Pin 8 - Triode Plate
- Pin 9 - Heater Tap

## TRIODE UNIT — AMPLIFIER — Class A<sub>1</sub>

### Maximum Ratings, Design-Maximum Values:

PLATE VOLTAGE . . . . .	330 max.	volts
GRID VOLTAGE:		
Positive-bias value . . . . .	0 max.	volts
PLATE DISSIPATION . . . . .	1.1 max.	watts

### Typical Operation as Resistance-Coupled Amplifier:

See *RESISTANCE-COUPLED AMPLIFIER CHART No.7*  
at front of this section

## DIODE UNITS — Two

*Values are for Each Unit*

### Maximum Ratings, Design-Maximum Values:

PLATE CURRENT . . . . .	5.5 max.	ma
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### Characteristics, Instantaneous Value:

Plate Current for plate volts = 5 . . . . .	20	ma
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- <sup>a</sup> At heater amperes = 0.600.
- <sup>b</sup> At heater amperes = 0.300.
- <sup>c</sup> At heater volts = 6.3
- <sup>d</sup> The dc component must not exceed 100 volts.
- <sup>e</sup> Without external shield.

## CURVES

For Triode shown under Type 6T8A also apply to the 6CN7

