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# TWIN DIODE—MEDIUM-MU TRIODE

9-PIN MINIATURE TYPE

Intended for use in equipment having series heater-string arrangement

## 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:<sup>o</sup>

#### Triode Unit:

Grid to plate . . . . .	2.6	$\mu\text{mf}$
Grid to heater and cathode . . . . .	2.8	$\mu\text{mf}$
Plate to heater and cathode. . . . .	0.31	$\mu\text{mf}$

#### Diode Units:

Diode-No.1 plate to triode grid. . . . .	0.07 max.	$\mu\text{mf}$
Diode-No.2 plate to triode grid. . . . .	0.11 max.	$\mu\text{mf}$
Diode-No.1 cathode to all other electrodes . . . . .	4.8	$\mu\text{mf}$
Diode-No.2 cathode to all other electrodes . . . . .	4.8	$\mu\text{mf}$
Diode-No.1 plate to diode-No.2 plate . . . . .	0.06 max.	$\mu\text{mf}$
Diode-No.1 plate to diode-No.1 cathode and heater . . . . .	1.9	$\mu\text{mf}$
Diode-No.2 plate to diode-No.2 cathode and heater . . . . .	1.9	$\mu\text{mf}$
Diode-No.1 cathode to diode-No.1 plate and heater . . . . .	4.6	$\mu\text{mf}$
Diode-No.2 cathode to diode-No.2 plate and heater . . . . .	4.6	$\mu\text{mf}$
Diode-No.1 plate to all other electrodes . . . . .	3	$\mu\text{mf}$
Diode-No.2 plate to all other electrodes . . . . .	3	$\mu\text{mf}$

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

Plate Voltage. . . . .	90	250	volts
Grid Voltage . . . . .	0	-9	volts
Amplification Factor . . . . .	22	20	
Plate Resistance (Approx.) . . . . .	4700	7150	ohms
Transconductance . . . . .	4700	2800	$\mu\text{mhos}$
Plate Current. . . . .	13.5	8	ma
Plate Current for grid volts = -12.5. . . . .	-	1.7	ma
Grid Voltage (Approx.) for plate $\mu\text{a.} = 10$ . . . . .	-7	-18	volts

<sup>o</sup>: See next page.



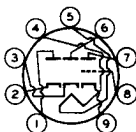
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## TWIN DIODE—MEDIUM-MU TRIODE

**Mechanical:**

Operating Position . . . . .	Any
Maximum Overall Length . . . . .	2-5/8"
Maximum Seated Length . . . . .	2-3/8"
Length, Base Seat to Bulb Top (Excluding tip) . . . . .	2" ± 3/32"
Maximum Diameter . . . . .	7/8"
Dimensional Outline . . . . .	See General Section
Bulb . . . . .	T6-1/2
Base . . . . .	Small-Button Noval 9-Pin (JETEC No. E9-1)
Basing Designation for BOTTOM VIEW . . . . .	9ER

Pin 1—Diode—No. 2  
Plate  
Pin 2—Diode—No. 2  
Cathode  
Pin 3—Diode—No. 1  
Cathode  
Pin 4—Heater



Pin 5—Heater  
Pin 6—Diode—No. 1  
Plate  
Pin 7—Triode Plate  
Pin 8—Triode Grid  
Pin 9—Triode  
Cathode

**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
AVERAGE CATHODE CURRENT . . . . .	20 max.	ma
PLATE DISSIPATION . . . . .	3.5 max.	watts
PEAK HEATER-CATHODE VOLTAGE:		
Heater negative with respect to cathode . . . . .	200 max.	volts
Heater positive with respect to cathode . . . . .	200 <sup>▲</sup> max.	volts

**Maximum Circuit Values:**

Grid-Circuit Resistance . . . . .	1 max.	megohm
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**TRIODE UNIT — VERTICAL DEFLECTION AMPLIFIER****Maximum Ratings, Design-Center Values Except as Noted:**

For operation in a 525-line, 30-frame system<sup>□</sup>

DC PLATE VOLTAGE . . . . .	300 max.	volts
PEAK POSITIVE-PULSE PLATE VOLTAGE (Absolute maximum)* . . . . .	1200 <sup>■</sup> max.	volts
PEAK NEGATIVE-PULSE GRID VOLTAGE . . . . .	250 max.	volts
CATHODE CURRENT:		
Peak . . . . .	70 max.	ma
Average . . . . .	20 max.	ma
PLATE DISSIPATION . . . . .	3.5 max.	watts
PEAK HEATER-CATHODE VOLTAGE:		
Heater negative with respect to cathode . . . . .	200 max.	volts
Heater positive with respect to cathode . . . . .	200 <sup>▲</sup> max.	volts

○, ▲, □, \* : See next page.



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# TWIN DIODE—MEDIUM-MU TRIODE

## Maximum Circuit Values:

Grid-Circuit Resistance:

For cathode-bias operation. . . . . 2.2 max. megohms

## DIODE UNITS — Two

### Maximum Ratings, Design-Center Values:

Values are for Each Unit

PEAK PLATE CURRENT. . . . . 54 max. ma

DC PLATE CURRENT. . . . . 9 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

○ without external shield.

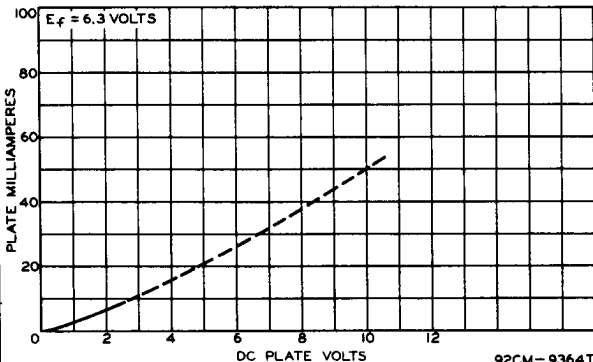
▲ The dc component must not exceed 100 volts.

□ As described in "Standards of Good Engineering Practice Concerning Television Broadcast stations," Federal Communications Commission.

\* This rating is applicable where the duration of the voltage pulse does not exceed 15 per cent of one vertical scanning cycle. In a 525-line, 30-frame system, 15 per cent of one vertical scanning cycle is 2.5 milliseconds.

■ Under no circumstances should this absolute value be exceeded.

## AVERAGE PLATE CHARACTERISTIC EACH DIODE UNIT



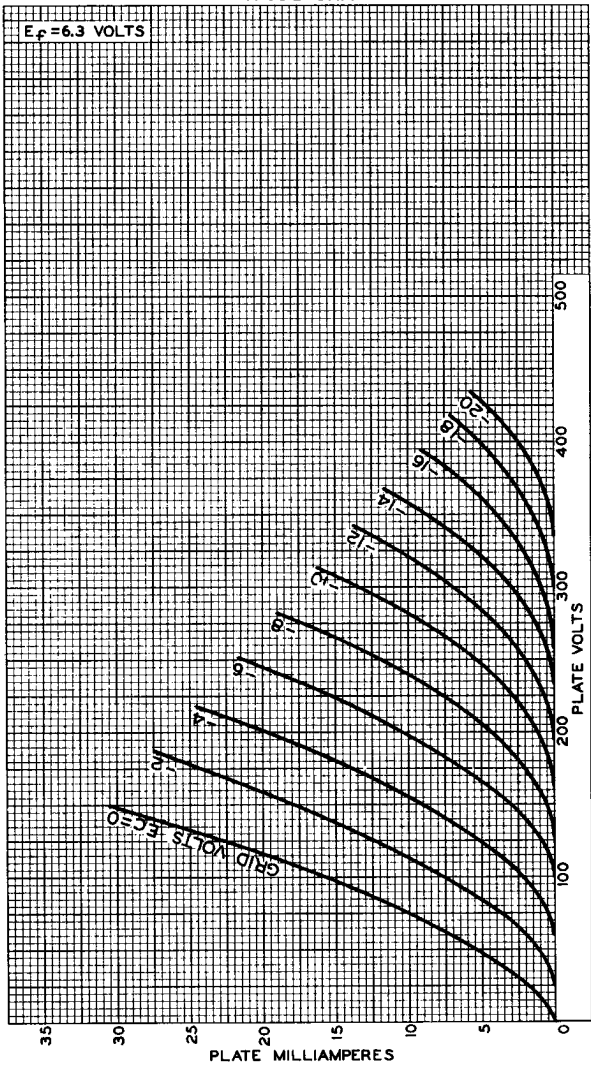
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### AVERAGE PLATE CHARACTERISTICS TRIODE UNIT



ELECTRON TUBE DIVISION

92CM-9531

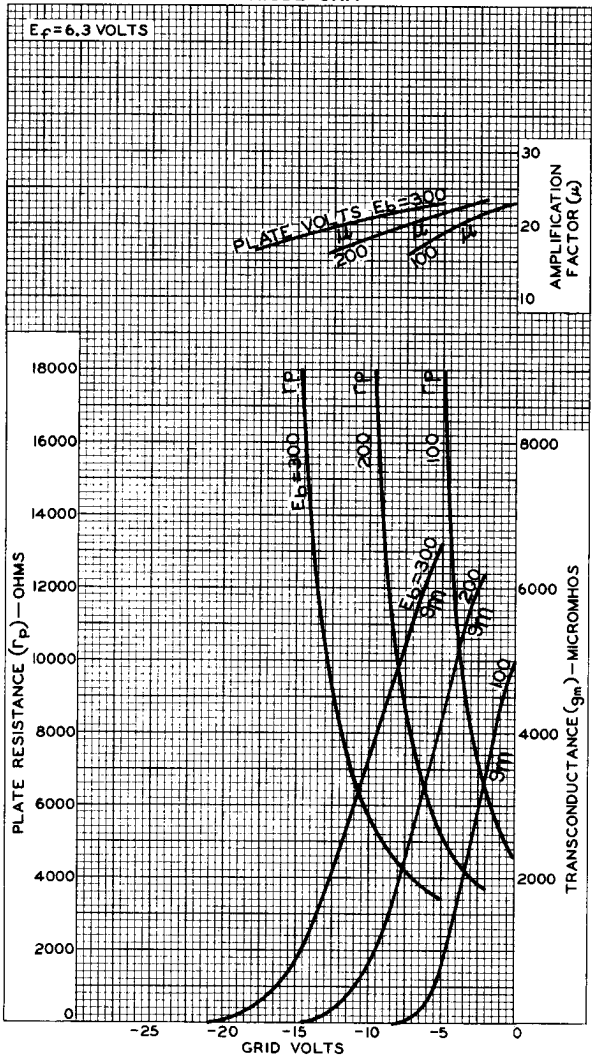
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY



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### AVERAGE CHARACTERISTICS TRIODE UNIT



ELECTRON TUBE DIVISION

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RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY