

# Medium-Mu Triode— Sharp-Cutoff Pentode

## 9-Pin Miniature Type

For Use as a Burst Amplifier and General-Purpose-  
Amplifier Tube in Color- and Black-and-White TV  
Receivers

### ELECTRICAL CHARACTERISTICS — Bogey Values <sup>a</sup>

Heater Voltage, ac or dc . . . . .	$E_h$	6.3	V
Heater Current . . . . .	$I_h$	600	mA
Direct Interelectrode Capacitances: <sup>b</sup>		<i>Without External Shield</i>	<i>With External Shield</i> <sup>c</sup>
<i>Triode Unit:</i>			
Grid to plate . . . . .	$c_{g-p}$	2.2	2.2 pF
Input: $G_T$ to ( $K_T$ , $G_{3p}$ + $K_p$ + IS, H) . . . . .	$c_i$	3.0	3.2 pF
Output: $P_T$ to ( $K_T$ , $G_{3p}$ + $K_p$ + IS, H) . . . . .	$c_o$	2.2	2.4 pF
Heater to cathode . . . . .	$c_{h-k}$	4.4	4.8 <sup>d</sup> pF
<i>Pentode Unit:</i>			
Grid No. 1 to plate . . . . .	$c_{gl-p}$	0.05	0.05 pF
Input: $G_{1p}$ to ( $K_p$ + $G_{3p}$ + IS, $G_{2p}$ , H) . . . . .	$c_i$	9.0	9.0 pF
Output: $P_p$ to ( $K_p$ + $G_{3p}$ + IS, $G_{2p}$ , H) . . . . .	$c_o$	3.6	4.4 pF
Heater to cathode . . . . .	$c_{h-k}$	5.5	7.5 <sup>d</sup> pF
Pentode grid No. 1 to triode plate . . . . .	$P_{gl-Tp}$	0.17max.	0.2max. pF
Pentode plate to triode plate . . . . .	$P_p-Tp$	0.09max.	0.008max pF
<i>For the following characteristics, see</i>			
<b>Conditions</b>		<i>Triode Unit</i>	<i>Pentode Unit</i>
Amplification Factor . . . . .	$\mu$	35	-
Plate Resistance (Approx.)	$r_p$	5.8	165 k $\Omega$
Transconductance . . . . .	$g_m$	6000	9000 $\mu$ mho
DC Plate Current . . . . .	$I_b$	11.5	19 mA
DC Grid-No.2 Current . . . . .	$I_{c2}$	-	4.2 mA
Cutoff DC Grid-No.1 Voltage (Approx.):			
For $I_b=10\mu A$ . . . . .	$E_{c1(co)}$	-5.8	- V
For $I_b=20\mu A$ . . . . .	$E_{c1(co)}$	-	-9.5 V

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Conditions		Triode Unit	Pentode Unit	
Heater Voltage . . . . .	$E_h$	6.3	6.3	V
DC Plate Voltage . . . . .	$E_b$	125	150	V
DC Grid-No.2 voltage . . . . .	$E_{c2}$	-	150	V
DC Grid-No.1 voltage . . . . .	$E_{c1}$	-1	-	V
Cathode Resistance . . . . .	$R_k$	-	150	$\Omega$

## MECHANICAL CHARACTERISTICS

Maximum Overall Length . . . . .	2.625 in (66.67 mm)
Maximum Seated Length . . . . .	2.375 in (60.32 mm)
Maximum Diameter ( <i>See Dimensional Outline</i> ) . . . . .	0.875 in (22.12 mm)
Envelope . . . . .	JEDEC T6-1/2
Base . . . . .	Small-Button Noval 9-Pin(JEDEC E9-1)
Dimensional Outline . . . . .	JEDEC 6-3
Terminal Diagram . . . . .	JEDEC 9AE
Type of Cathodes . . . . .	Coated Unipotential
Operating Position . . . . .	Any

## MAXIMUM RATINGS - Design-Maximum Values

		Triode Unit	Pentode Unit	
DC Plate Voltage . . . . .	$E_b$	330	330	V
DC Grid-No.2 Supply Voltage . . . . .	$E_{c2}$	-	330	V
DC Grid-No.2 Voltage . . . . .	<i>See Grid-No.2 Input Rating Chart at front of Receiving Tube Section</i>			
DC Grid-No.1 Voltage: Positive-bias value . . . . .	$E_{c1}$	0	0	V
Heater-Cathode Voltage: Peak . . . . .	$e_{hkm}$	$\pm 200$	$\pm 200$	V
DC . . . . .	$E_{hk}$	100	100	V
Heater Voltage, ac or dc . . . . .	$E_h$	5.7	to 6.9	V
Grid-No.2 Input: For grid-No.2 voltages up to 165 volts . . . . .	$P_{g2}$	-	1.1	W
For grid-No.2 voltages between 165 and 330 volts . . . . .	<i>See Grid-No.2 Input Rating Chart at front of Receiving Tube Section</i>			
Plate Dissipation . . . . .	$P_b$	2.5	3.75	W

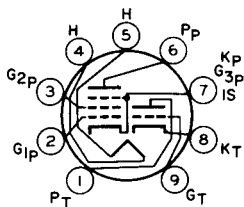
## MAXIMUM CIRCUIT VALUES

Grid-No.1 Circuit Resistance: For fixed-bias operation . . . . .	$R_{g1}$	0.5	0.25	M $\Omega$
For cathode-bias operation . . . . .	$R_{g1}$	1.0	1.0	M $\Omega$



- a Unless otherwise specified.
- b Measured in accordance with the current issue of EIA Standard RS-191.
- c With external shield JEDEC No. 315 connected to cathode of unit under test except as noted.
- d With external shield JEDEC No. 315 connected to ground.
- e As defined in the current issue of EIA Standard RS-239.

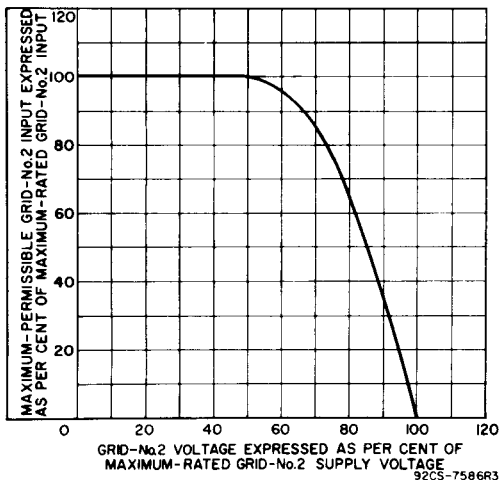
### TERMINAL DIAGRAM(Bottom View)



JEDEC 9AE

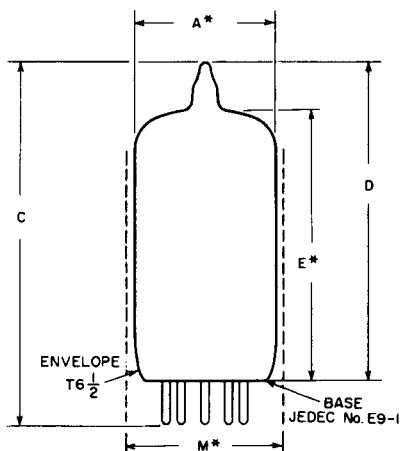
- Pin 1 - Triode Plate
- Pin 2 - Pentode Grid No.1
- Pin 3 - Pentode Grid No.2
- Pin 4 - Heater
- Pin 5 - Heater
- Pin 6 - Pentode Plate
- Pin 7 - Pentode Cathode,  
Grid No.3 and  
Internal Shield
- Pin 8 - Triode Cathode
- Pin 9 - Triode Grid

### GRID-NO. 2 INPUT RATING CHART



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## DIMENSIONAL OUTLINE JEDEC 6-3



92CS-11893R2

DIMENSION	INCHES			MILLIMETERS		
	Min.	Nom.	Max.	Min.	Nom.	Max.
A*	0.800	-	0.845	20.32	-	21.46
C	-	-	2.625	-	-	66.67
D	-	-	2.375	-	-	60.32
E*	1.906	2.000	2.094	48.41	50.80	53.19
M*	-	-	0.875	-	-	22.22
MILLIMETER DIMENSION DERIVED FROM INCH DIMENSION						
* As defined in the current issue of EIA standards RS-209-A1						