



TECHNICAL DATA

Electronic Tubes

56R9

COMPACTRON TRIODE - PENTODE

The 56R9 is a compactron containing a high- μ triode and a beam-power pentode. The triode is intended for audio-frequency voltage-amplifier service and the pentode for power-amplifier service.

A feature of the 56R9 is the incorporation of separate heaters for the two sections.

GENERAL

Electrical

Cathode - Coated Unipotential

Heater Characteristics and Ratings	Triode Section	Pentode Section	
Heater Voltage, AC or DC	14*	42+	Volts
Heater Current†	0.15±0.01	0.15±0.01	Amperes
Direct Interelectrode Capacitances‡			

Pentode Section

Grid-Number 1 to Plate: (Pg1 to Pp)	0.36	pf
Input: Pg1 to (h + Pk + Pg2 + b.p.)	12	pf
Output: Pp to (h + Pk + Pg2 + b.p.)	6.5	pf

Triode Section

Grid to Plate: (Tg to Tp)	3.0	pf
Input: Tg to (h + Tk)	3.4	pf
Output: Tp to (h + Tk)	0.6	pf

Mechanical

Mounting Position - Any

Envelope - T-9, Glass

Base - E12-70, Burton 12-Pin

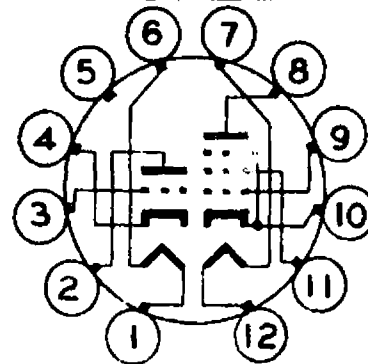
Outline Drawing - EIA 9-58

Maximum Diameter	1.188	Inches
Maximum Over-all Length	2.375	Inches
Maximum Seated Height	2.000	Inches

from JEDEC release #4002, Dec. 3, 1962

TERMINAL CONNECTIONS

Pin 1 - Triode Heater
 Pin 2 - Triode Plate
 Pin 3 - Triode Grid
 Pin 4 - Triode Cathode
 Pin 5 - No Connection
 Pin 6 - Triode Heater
 Pin 7 - Pentode Heater
 Pin 8 - Pentode Plate
 Pin 9 - Pentode Grid Number 1
 Pin 10 - Pentode Cathode and Beam Plates
 Pin 11 - Pentode Grid Number 2 (Screen)
 Pin 12 - Pentode Heater

BASING DIAGRAM

EIA 12EN

MAXIMUM RATINGS

Design-Maximum Values	Pentode Section	Triode Section	
Plate Voltage	150	150	Volts
Screen Voltage	135	---	Volts
Plate Dissipation	6.5	1.0	Watts
Screen Dissipation	1.8	---	Watts
DC Cathode Current	65	---	Milliamperes
Heater-Cathode Voltage			
Heater Positive with Respect to Cathode			
DC Component	100	100	Volts
Total DC and Peak	200	200	Volts
Heater Negative with Respect to Cathode			
Total DC and Peak	200	200	Volts
Grid-Number 1 Circuit Resistance			
With Fixed Bias	1.0	---	Megohms
With Cathode Bias	2.2	---	Megohms

Design-Maximum ratings are limiting values of operating and environmental conditions applicable to a bogey electron tube of a specified type as defined by its published data and should not be exceeded under the worst probable conditions.

The tube manufacturer chooses these values to provide acceptable serviceability of the tube, making allowance for the effects of changes in operating conditions due to variations in the characteristics of the tube under consideration.

The equipment manufacturer should design so that initially and throughout life no design-maximum value for the intended service is exceeded with a bogey tube under the worst probable operating conditions with respect to supply-voltage variation, equipment component variation, equipment control adjustment, load variation, signal variation, environmental conditions, and variations in the characteristics of all other electron devices in the equipment.

CHARACTERISTICS AND TYPICAL OPERATIONClass A₁ Amplifier

	Pentode Section (Power Amplifier)	Triode Section (Voltage Amplifier)	
Plate Voltage	120	100	Volts
Screen Voltage	110	---	Volts
Grid-Number 1 Voltage	-8.0	---	Volts
Cathode-Bias Resistor	---	1500	Ohms
Peak AF Grid-Number 1 Voltage	8.0	---	Volts
Amplification Factor	---	100	
Plate Resistance, Approx.	10000	55500	Ohms
Transconductance	7500	1800	Micromhos
Plate Current	---	0.6	Milliamperes
Zero-Signal Plate Current	49	---	Milliamperes
Maximum-Signal Plate Current	50	---	Milliamperes
Zero-Signal Screen Current	4.0	---	Milliamperes
Maximum-Signal Screen Current	8.5	---	Milliamperes
Load Resistance	2500	---	Ohms
Total Harmonic Distortion, Approx.	10	---	Percent
Maximum-Signal Power Output	2.3	---	Watts

- * Heater voltage for the triode section of a bogey tube at $I_f = 0.15$ amperes.
- + Heater voltage for the pentode section of a bogey tube at $I_f = 0.15$ amperes.
- # The equipment designer should design the equipment so that heater current is centered at the specified bogey value, with heater supply variations restricted to maintain heater current within the specified tolerance.
- § Without external shield.

11/12/62 (E)

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