



ELECTRONIC TUBE REFERENCE

309A

Voltage Pentode - Remote Cutoff (single) electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION

CONSTRUCTION

PENTODE

Western Electric heater-cathode general-purpose pentode, cross-referenced by the manufacturer to type 24A.

GENERAL CHARACTERISTICS

BASE DESIGNATION	—	BASE PINS	5
NOMINAL HEATER	10 V / 320 mA	PARALLEL HEATER	— / —
HEATING	Indirect	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION 1 Pentode	
PLATE RESISTANCE	1000000 Ω
TRANSCONDUCTANCE	0.0011 S
AMPLIFICATION FACTOR	1100
MAXIMUM PLATE VOLTAGE	250 V
MAXIMUM SCREEN VOLTAGE	100 V

Western Electric 309A indirectly heated variable-mu suppressor-grid pentode for extremely low-noise AF and RF voltage amplification; control gain via grid bias. Heater 10 V 0.32 A, AC or DC; DC heating may lower audio noise. Suppressor grid permanently connected internally to cathode. Absolute published catalog limits plate 250 V, screen 100 V; heater-to-cathode voltage must not exceed 150 V. Typical operating points at screen 75 V and grid -1.5 V: plate 135 V, I_a 4.75 mA, screen 1.1 mA, μ 760, r_p 0.7 M Ω , g_m 1.09 mA/V; plate 180 V, I_a 4.80 mA, screen 1.1 mA, μ 1100, r_p 1.0 M Ω , g_m 1.10 mA/V (promoted values); plate 250 V, I_a 4.85 mA, screen 1.1 mA, μ 1450, r_p 1.3 M Ω , g_m 1.11 mA/V. Direct interelectrode capacitances published: grid-to-plate 0.007 pF, grid-input 5.8 pF, plate-output 14 pF. Manufacturer states small five-pin base with top-cap control-grid terminal, Western Electric 141A five-contact socket; parent socket code UX4 retained pending master-code reconciliation. At very low signals, improved shielding and noise precautions recommended.

Heater-cathode general-purpose pentode; Western Electric table cross-references type 24A.



SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1956 Western Electric Tubes

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1956 WESTERN ELECTRIC TUBES

Section 1 · Pentode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
HeaterOrFilamentVoltage	6.3 V	—
HeaterOrFilamentCurrent	320 mA	—



SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

2026 Western Electric 300s

Published test conditions and operating points. Values on this page are preserved as reported by this source.

2026 WESTERN ELECTRIC 300S

Section 1 · Pentode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater voltage	10 volt	Heater voltage 10.0 volts, a.c. or d.c.
Nominal heater current	0.32 ampere	Nominal heater current 0.32 ampere
are shown in Figures	3 volt	are shown in Figures 3 and 4, respectively, as functions of plate voltage for several values of control-
grid voltage and a screen-grid voltage of	75 volt	grid voltage and a screen-grid voltage of 75 volts. Corresponding amplification factor, plate resis
Figures	8 volt	Figures 8 and 9 respectively, for a screen-grid voltage of 75 volts and a plate voltage of 180 volts.
For other plate voltages between	135 volt	For other plate voltages between 135 and 250 volts, the transconductance of a typical tube, for

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
shown in Figures	10 volt	shown in Figures 10 and 11, respectively, for a screen-grid voltage of 75 volts and several values of
Microphonic Noise—With a plate voltage of	180 volt	Microphonic Noise—With a plate voltage of 180 volts, a screen-grid voltage of 75 volts, a
control-grid bias of	-1.5 volts	control-grid bias of —1.5 volts, and a load resistance of 100,000 ohms, the mean microphonic noise
output level of the	309 volt	output level of the 309A tube, measured in a laboratory reference test set, is 17 db below 1 volt.
Published value	180 volts	180 volts, a screen-grid voltage of 75 volts, a control-grid bias of —1.5 volts, and a load resistance
tubes extends from	112 volt	tubes extends from 112 to 119 db below 1 volt. By reducing the control-grid bias to —1.0 volt and
the screen-grid voltage to	18 volt	the screen-grid voltage to 18 volts, the mean fluctuation noise level may be reduced by about 2.5 db.
HEATER VOLTAGE =	10 VOLT	HEATER VOLTAGE = 10.0 VOLTS
PLATE VOLTAGE =	180 VOLT	PLATE VOLTAGE = 180 VOLTS
SCREEN-GRID VOLTAGE =	75 VOLT	SCREEN-GRID VOLTAGE = 75 VOLTS