



ELECTRONIC TUBE REFERENCE

14G6

Voltage - Triode (with diode, heptode or hexode) electronic tube

CONSOLIDATED TECHNICAL
DATA

3 SECTIONS

CONSTRUCTION

DIODE-DIODE-TRIODE

Rogers 14G6 indirectly heated double-diode high-mu triode for detector and voltage amplifier service, with shared cathode, 14 V 0.1 A heater and 9Z miniature base.

GENERAL CHARACTERISTICS

BASE DESIGNATION	9Z	BASE PINS	9
NOMINAL HEATER	14 V / 100 mA	PARALLEL HEATER	– / –
HEATING	Indirect	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Common cathode	SECTION CONSTRUCTION	Dissimilar

SECTION RATINGS

SECTION1 Diode	
PEAK INVERSE VOLTAGE	350 V
NOMINAL OUTPUT CURRENT	0.8 mA
PEAK FORWARD CURRENT	5 mA
MAXIMUM HEATER-CATHODE VOLTAGE	150 V
<p>Rogers 14G6 diode 1, shared cathode with triode. Per-diode design-center maximum PIV 350 V, DC anode current 0.8 mA (stored as nominal output current field as closest matching rectifier scalar, but actually maximum DC anode current), peak anode current 5 mA, heater-cathode voltage 150 V, max external heater-cathode resistance 20 kΩ. Diode1 plate-to-cathode capacitance 0.8 pF. Diode plate connection pin 6, shared cathode pin3.</p>	

SECTION2 Diode	
PEAK INVERSE VOLTAGE	350 V
NOMINAL OUTPUT CURRENT	0.8 mA
PEAK FORWARD CURRENT	5 mA
MAXIMUM HEATER-CATHODE VOLTAGE	150 V
<p>Rogers 14G6 diode 2, shared cathode with triode. Per-diode design-center maximum PIV 350 V, DC anode current 0.8 mA (stored as nominal output current field as closest matching rectifier scalar, but actually maximum DC anode current), peak anode current 5 mA, heater-cathode voltage 150 V, max external heater-cathode resistance 20 kΩ. Diode2 plate-to-cathode capacitance 0.75 pF. Diode plate connection pin 8, shared cathode pin3.</p>	

SECTION3 Triode	
PLATE RESISTANCE	42000 Ω
TRANSCONDUCTANCE	0.00165 S
AMPLIFICATION FACTOR	70
MAXIMUM PLATE VOLTAGE	250 V
MAXIMUM PLATE DISSIPATION	0.5 W
MAXIMUM CATHODE CURRENT	5 mA
<p>Rogers 14G6 high-mu triode with common cathode. Max operating plate 250 V, no-current plate 550 V, plate dissipation 0.5 W, cathode current 5 mA. Typical at Va 170 V, Vg -1.59 V: Ia 1.5 mA, mu 70, rp 42 kΩ, gm 0.00165 A/V; at Va 100 V, Vg -1 V: Ia 0.8 mA, mu 70, rp 50 kΩ, gm 0.0014 A/V. Heater-cathode max 150 V, grid-cathode external resistance max 3 MΩ normally or 22 MΩ if grid-current biased, external heater-cathode resistance max 20 kΩ. Capacitances triode plate-cathode 1.3 pF, grid-cathode 2.4 pF, grid-plate 1.3 pF, grid-heater max 0.05 pF. Triode plate pin1, grid pin2, shared cathode pin3.</p>	

14G6 — Double Diode High-Mu Triode Vacuum Tube

The **14G6** is a multi-unit vacuum tube containing a high-mu triode and two independent diodes in a single miniature envelope. Sponsored by Rogers Majestic Electronics, Ltd. and registered under JETEC release number 1909 in April 1957, this tube is designed with a coated unipotential cathode. It is primarily intended for use in radio receivers and audio-frequency amplification systems where detection, automatic volume control (AVC), and voltage amplification are combined in a single stage. The device features a 14-volt heater, making it suitable for series-string heater arrangements or specific mobile and mains-powered equipment.

Mechanical Specifications, Basing, and Physical Dimensions

The 14G6 is constructed in a T6 1/2 glass bulb and utilizes a small 9-pin miniature base (E9-1 outline). The physical dimensions are compact, allowing for high-density chassis layouts:

- **Maximum Diameter:** 7/8 inch
- **Maximum Overall Length:** 2 13/32 inches
- **Seated Height:** 1 25/32 inches to 2 3/32 inches
- **Maximum Seated Height:** 2 5/32 inches

The tube conforms to the RETMA 9Z basing designation. The pin connections, viewed from the bottom of the base, are assigned as follows:

Pin Number	Electrode Element
1	Triode plate
2	Grid
3	Cathode
4	Heater
5	Heater
6	Diode No. 1 plate
7	Internal shield
8	Diode No. 2 plate
9	Internal connection

An internal shield connected to pin 7 helps minimize capacitive coupling between the diode plates and the sensitive triode grid, ensuring stable operation in combined detector-amplifier circuits.

Heater Data and Direct Interelectrode Capacitances

The heater is designed for operation at a nominal voltage of 14 volts with a current draw of 0.1 amperes.

Direct Interelectrode Capacitances

The direct interelectrode capacitances of the 14G6, measured without an external shield, are detailed below:

Capacitance Parameter	Value
Triode plate to cathode	1.3 pF

Capacitance Parameter	Value
Triode grid to cathode	2.4 pF
Triode grid to triode plate	1.3 pF
Triode grid to heater (Maximum)	0.05 pF
Diode No. 1 plate to cathode	0.8 pF
Diode No. 2 plate to cathode	0.75 pF
Diode No. 1 plate to heater (Maximum)	0.3 pF
Diode No. 2 plate to heater (Maximum)	0.05 pF
Diode No. 1 plate to triode grid (Maximum)	0.01 pF
Diode No. 2 plate to triode grid (Maximum)	0.01 pF
Diode No. 1 plate to diode No. 2 plate (Maximum)	0.05 pF
Diode No. 1 plate to triode plate (Maximum)	0.005 pF
Diode No. 2 plate to triode plate (Maximum)	0.015 pF

These low cross-coupling capacitances, particularly between the diode plates and the triode grid or plate, prevent high-frequency signal leakage and intermediate-frequency feedthrough into the audio amplifier section.

Maximum Ratings (Design Center Values)

The maximum ratings for the triode and diode sections are established under the Design Center system. Operating the tube beyond these limits may impair performance and reduce service life.

Triode Section Ratings

- **Plate Voltage (without current):** 550 V
- **Plate Voltage:** 250 V
- **Plate Dissipation:** 0.5 W
- **Cathode Current:** 5 mA
- **Voltage between Cathode and Heater:** 150 V
- **External Resistance between Cathode and Heater:** 20,000 Ω
- **External Resistance between Grid and Cathode:**
 - With cathode bias: 3 M Ω
 - With grid current biasing only: 22 M Ω

Diode Section Ratings (Each Diode)

- **Peak Inverse Plate Voltage:** 350 V (notated as peak inverse plate current in some records)
- **Plate Current:** 0.8 mA
- **Peak Plate Current:** 5 mA
- **Voltage between Heater and Cathode:** 150 V
- **External Resistance between Heater and Cathode:** 20,000 Ω

Typical Characteristics and Class A Operation

Under typical Class A amplifier conditions, the triode section exhibits a high amplification factor of 70, making it highly effective for voltage preamplification. The typical operating parameters at two different plate voltages are summarized below:

Parameter	Operating Point I	Operating Point II
Plate Voltage	100 V	170 V
Grid Voltage	-1.0 V	-1.55 V
Plate Current	0.8 mA	1.5 mA
Transconductance	1400 μ mhos	1650 μ mhos
Amplification Factor (μ)	70	70
Plate Resistance	50,000 Ω	42,000 Ω

Audio-Frequency (A.F.) Amplifier Operating Characteristics

The triode section of the 14G6 is optimized for resistance-coupled audio-frequency amplifier service. It can be configured using either conventional cathode resistor bias or grid current (zero-bias) operation.

The following table outlines the operating characteristics for various supply voltages (E_{bb}), plate load resistors (R_p), grid resistors (R_g), and grid-leak resistors of the following stage (R'_g):

E_{bb} (V)	R_g (M Ω)	R_p (M Ω)	R'_g (M Ω)	R_k (Ω)	I_b (mA)	Voltage Gain (E_o/E_{sig})	THD (%) at $E_o = 3$ V	THD (%) at $E_o = 5$ V	THD (%) at $E_o = 8$ V
170	1	0.22	0.68	5600	0.28	44	1.1	1.3	1.9
170	1	0.10	0.33	3900	0.45	37	1.1	1.7	2.6
170	22	0.22	0.68	0	0.46	48	1.0	1.1	1.3

E_{bb} (V)	R_g (M Ω)	R_p (M Ω)	R'_g (M Ω)	R_k (Ω)	I_b (mA)	Voltage Gain (E_o/E_{sig})	THD (%) at $E_o = 3$ V	THD (%) at $E_o = 5$ V	THD (%) at $E_o = 8$ V
170	22	0.10	0.33	0	0.82	42	0.8	1.0	1.2
100	1	0.22	0.68	5600	0.18	41	1.4	1.9	—
100	1	0.10	0.33	3900	0.28	34	2.0	3.5	—
100	22	0.22	0.68	0	0.21	41	1.5	2.0	—
100	22	0.10	0.33	0	0.35	35	1.6	2.8	—

Microphonic Considerations

In practical receiver designs utilizing a loudspeaker with an acoustical efficiency of 5%, the 14G6 can be employed without special precautions against microphonic effects, provided that the input voltage required to produce an output of 50 milliwatts from the power output stage is greater than 10 millivolts.

Analysis of Characteristic Curves

The electrical behavior of the triode section is further illustrated by its transfer and plate characteristics:

- **Transfer Characteristics:** At a plate voltage of 170 V, the transconductance rises from near zero at a grid bias of -3.5 V to approximately 2300 μ hos at zero bias, with the plate current reaching nearly 4.7 mA. At a plate voltage of 100 V, the cutoff occurs near -2.3 V, and the transconductance reaches approximately 2100 μ hos at zero bias, with a corresponding plate current of 2.6 mA.
- **Plate Characteristics:** The plate family curves show the relationship between plate current and plate voltage for grid bias steps from 0 V down to -5 V. A critical boundary is the 0.5-watt plate dissipation curve, which restricts the permissible operating region at higher plate voltages. For example, at a plate voltage of 250 V, the plate current must be kept below 2.0 mA to remain within the 0.5 W limit ($250 \text{ V} \times 2.0 \text{ mA} = 0.5 \text{ W}$).

Technical Summary

The **14G6** is a versatile, 9-pin miniature double diode high-mu triode designed for compact audio and radio receiver applications. Featuring a 14 V, 0.1 A heater and a unipotential cathode, it combines a high-mu triode ($\mu = 70$) with two independent diode detectors. The triode section is highly optimized for resistance-coupled Class A voltage amplification, delivering voltage gains up to 48 with low harmonic distortion. With its built-in internal shield and low interelectrode capacitances, the 14G6 provides an integrated, space-saving solution for detection, AVC, and preamplification.



SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1959 Rogers

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

1959 ROGERS

Section 1 · Diode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
HeaterOrFilamentVoltage	14 V	—
HeaterOrFilamentCurrent	100 mA	—

TUBE TINKER

An independent reference for electronic tubes, vacuum tubes,
and their source documents.

[Catalog](#) [Tube types](#) [Full books](#) [Blog](#) [Feedback & corrections](#)

© 2026 Tube Tinker