

ELECTRONIC TUBE REFERENCE

18GE6

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

CONSOLIDATED TECHNICAL DATA

3 SECTIONS
CONSTRUCTION
DIODE-DIODE-TRIODE

Double-diode high-mu triode combining radio detection, control-voltage rectification, and audio voltage amplification in compact receiving equipment. The paired diodes handle signal and AVC functions while the triode supplies subsequent gain.

GENERAL CHARACTERISTICS

BASE DESIGNATION	—	BASE PINS	7
NOMINAL HEATER	18 V / 100 mA	PARALLEL HEATER	— / —
HEATING	Indirect	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Common cathode	SECTION CONSTRUCTION	Dissimilar

SECTION RATINGS

SECTION1 Diode
No fixed ratings recorded.
Detector diode section; maximum continuous plate current 1 mA.
SECTION2 Diode
No fixed ratings recorded.
Second detector diode section; maximum continuous plate current 1 mA.

SECTION3 Triode	
PLATE RESISTANCE	40000 Ω
TRANSCONDUCTANCE	0.0017 S
AMPLIFICATION FACTOR	70
MAXIMUM PLATE VOLTAGE	150 V
MAXIMUM PLATE DISSIPATION	0.5 W
<i>High-mu triode section.</i>	

18GE6 — High-Mu Triode Double Diode

The **18GE6** is a miniature, high-mu triode double diode vacuum tube designed primarily for detector-amplifier applications in AC/DC radio receivers. It features a coated unipotential cathode and is housed in a small T-5½ glass envelope with a 7-pin miniature button base (7BT). The tube is designed to operate with an 18-volt heater supply, making it suitable for series-string heater arrangements.

Physical Construction and Base Configuration

The 18GE6 is constructed in a miniature T-5½ glass bulb. It has a maximum overall length of 2 ⅛ inches, a maximum seated or bulb length of 1 ⅞ inches, and a maximum diameter of ¾ inch. The tube can be mounted in any position.

The electrical connections are made through a miniature button 7-pin base (7BT). There are two documented pinout configurations for this base, which differ in the assignment of the cathode and the first diode plate:

Pinout Configuration A

Pin	Connection
1	Triode Grid (G)
2	Cathode (K)
3	Heater (H)
4	Heater (H)
5	Diode #2 Plate (<u>P2</u>)
6	Diode #1 Plate (P1)
7	Triode Plate (P)

Pinout Configuration B

Pin	Connection
1	Triode Grid (G)
2	Diode #1 Plate (P1)
3	Heater (H)
4	Heater (H)
5	Diode #2 Plate (<u>P2</u>)
6	Cathode (K)
7	Triode Plate (P)

In both configurations, the heater pins (3 and 4), the triode grid (pin 1), the second diode plate (pin 5), and the triode plate (pin 7) remain identical.

Heater Ratings

The heater is designed for series-string or direct-voltage operation with the following ratings:

Heater Parameter	Value
Heater Voltage	18 V
Heater Current	0.10 A (100 mA)
Heating Method	Indirectly heated, coated unipotential cathode

Direct Interelectrode Capacitances

The direct interelectrode capacitances of the 18GE6 are measured without an external shield. The typical values are:

Capacitance Parameter	Value
Grid to Plate (C_{gp})	1.8 μF
Input: Grid to (Heater + Cathode)	2.4 μF
Output: Plate to (Heater + Cathode)	0.2 μF
Grid to Diode #2 Plate (Maximum)	0.2 μF

Maximum Ratings (Design-Maximum System)

The limiting values for the 18GE6 are established under the Design-Maximum System. Operating the tube beyond these limits may impair its performance or lifetime.

Rating	Limit
Heater Voltage	18 V
Maximum Plate Voltage	150 V
Maximum Plate Dissipation	0.5 W
Maximum Diode Plate Current (Each Diode)	1.0 mA
Maximum Heater-Cathode Voltage	100 V

Typical Operating Conditions and Electrical Characteristics

Under typical Class A1 amplifier operating conditions, the triode section of the 18GE6 exhibits a high amplification factor of 70, making it highly effective for voltage amplification.

Triode Section (Class A1 Amplifier)

Parameter	Value
Plate Voltage	100 V
Grid Voltage	-1 V
Plate Current	1.0 mA
Plate Resistance	40,000 Ω
Transconductance	1,700 μmhos
Amplification Factor	70

Diode Sections

The two diode sections are intended for detection and automatic volume control (AVC) or automatic gain control (AGC) functions. Under a specific test condition, the average diode current is characterized as follows:

- **Average Diode Current (Each Diode):** 2.0 mA (measured with 10 V DC applied; this is a test condition only and does not represent a continuous operating rating).

Intended Applications

The 18GE6 is specifically designed for detector-amplifier applications in AC/DC type radio receivers. The combination of a high-mu triode and two independent diodes in a single miniature envelope allows the tube to perform multiple functions simultaneously. The diode sections are typically used for AM signal detection and generating automatic volume control (AVC) bias, while the high-mu triode section provides the subsequent audio-frequency voltage amplification. The 18-volt, 100 mA heater rating is optimized for integration into series-connected heater strings of compact line-powered receivers.

Technical Summary

The **18GE6** is a miniature, high-mu triode double diode featuring a coated unipotential cathode, housed in a T-5½ glass envelope with a 7-pin miniature button base. Operating with an 18 V, 0.10 A heater, it is designed for series-string AC/DC radio receivers. The triode section provides an amplification factor of 70, a transconductance of 1,700 μmhos , and a plate resistance of 40,000 Ω at a typical plate voltage of 100 V. The two independent diode plates are rated for a maximum continuous current of 1.0 mA each, with a test-point current of 2.0 mA at 10 V DC. With a maximum plate voltage rating of 150 V and a plate dissipation limit of 0.5 W, the 18GE6 serves as a compact and efficient detector-amplifier solution.



SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1961 Tung Sol

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

1961 TUNG SOL

Section 1 · Diode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Average Diode Current	2 mA	EachDiode;40VApplied

1961 TUNG SOL

Section 3 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Voltage	100 V	ClassA

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate Current	1 mA	ClassA



SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1966 Tung Sol Electronic Tubes 3 of 4

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

1966 TUNG SOL ELECTRONIC TUBES 3 OF 4

Section 1 · Diode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum diode plate current	1 mA	WholeTube
Average diode current with 10 V applied	2 mA	Section2

Section 2 · Diode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum diode plate current	1 mA	WholeTube
Average diode current with 10 V applied	2 mA	Section3

Section 3 · Triode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Triode grid-to-plate capacitance	1.8 pF	WholeTube
Triode input capacitance	2.4 pF	WholeTube
Grid-to-diode plate capacitance maximum	0.2 pF	WholeTube

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum triode plate voltage	150 V	WholeTube
Maximum triode plate dissipation	0.5 W	WholeTube
Triode grid voltage	-1 V	TypicalOperation
Triode plate current	1 mA	TypicalOperation
Triode transconductance	1700 μ S	TypicalOperation
Triode plate resistance	40000 ohm	TypicalOperation
Triode amplification factor	70	TypicalOperation

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