



ELECTRONIC TUBE REFERENCE

18GD6

Voltage Pentode - Sharp Cutoff (single) electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION

CONSTRUCTION

PENTODE

Sharp-cutoff miniature pentode for RF and IF amplification in AC/DC receivers using 100 mA series-heater strings.

GENERAL CHARACTERISTICS

BASE DESIGNATION	—	BASE PINS	7
NOMINAL HEATER	18 V / 100 mA	PARALLEL HEATER	— / —
HEATING	Indirect	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION 1 Pentode	
PLATE RESISTANCE	500000 Ω
TRANSCONDUCTANCE	0.0043 S
MAXIMUM PLATE VOLTAGE	150 V
MAXIMUM PLATE DISSIPATION	2.5 W
MAXIMUM SCREEN DISSIPATION	0.6 W
<i>Sharp-cutoff RF/IF pentode; screen voltage governed by rating chart.</i>	

18GD6 — Sharp-Cutoff Pentode

The **18GD6** is a miniature, sharp-cutoff pentode featuring a coated unipotential cathode. It is designed primarily for radio frequency (RF) and intermediate frequency (IF) amplifier applications in AC/DC type radio receivers.

Mechanical Design and Pinout

The 18GD6 is constructed in a compact T-5 1/2 glass envelope with a miniature button 7-pin base (designated 7BK). The physical dimensions of the tube are characterized by a maximum diameter of 3/4 inch, a maximum bulb height of 1 7/8 inches, and a maximum overall height of 2 1/8 inches. The tube is designed to operate reliably in any mounting position.

The 7BK base pinout configuration, viewed from the bottom of the tube, is assigned as follows:

Pin Number	Electrode Connection
Pin 1	Grid #1 (Control Grid, G1)
Pin 2	Cathode (K)
Pin 3	Heater (H)
Pin 4	Heater (H)
Pin 5	Plate (Anode, P)
Pin 6	Grid #2 (Screen Grid, <u>G2</u>)
Pin 7	Grid #3 (Suppressor Grid, G3) & Internal Shield (I.S.)

Heater Specifications and Design-Maximum Ratings

The 18GD6 is designed for series-string or AC/DC receiver applications, utilizing an 18-volt heater. The electrical ratings and maximum limits are established under the Design-Maximum System.

Heater Ratings

- **Heater Voltage:** 18 V
- **Heater Current:** 0.10 A (100 mA)
- **Calculated Heater Power:** 1.8 W (derived from 18 V multiplied by 0.10 A)

Design-Maximum Limits

- **Maximum Plate Voltage:** 150 V
- **Maximum Grid #2 (Screen Grid) Supply Voltage:** 150 V
- **Maximum Grid #2 Voltage:** Subject to the limits of the manufacturer's rating chart
- **Maximum Plate Dissipation:** 2.5 W
- **Maximum Grid #2 Dissipation:** 0.6 W
- **Maximum Heater-Cathode Voltage:** 100 V

Typical Operating Conditions and Characteristics

In typical Class A1 amplifier service, the suppressor grid (Grid #3) is connected directly to the cathode at the tube socket. Under these conditions, the tube exhibits the following typical operating parameters:

Parameter	Value
Heater Voltage	18 V
Plate Voltage	100 V
Grid #2 Voltage	100 V
Grid #3 Voltage	Connected to cathode at socket
Cathode Bias Resistor	150 Ω
Plate Current	5 mA
Grid #2 Current	2.0 mA
Transconductance	4300 μmhos
Plate Resistance (Approximate)	0.5 M Ω
Grid #1 Voltage for Plate Current of 10 μA (Approximate)	-4.7 V

Direct Interelectrode Capacitances

The high-frequency performance of the 18GD6 is enhanced by its low internal capacitances. The following values are measured with an external shield (specifically shield #316) connected to Pin 7 (Grid #3 and Internal Shield):

- **Grid #1 to Plate (Maximum):** 0.0035 μF
- **Input Capacitance [G1 to (H + K + G2 + G3 + I.S.)]:** 6.0 μF
- **Output Capacitance [P to (H + K + G2 + G3 + I.S.)]:** 5.0 μF

The extremely low grid-to-plate capacitance of 0.0035 μF is a critical parameter for sharp-cutoff pentodes in RF and IF stages, as it minimizes feedback and helps prevent unwanted oscillations in high-gain amplifier circuits.



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 · Pentode

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

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
TransconductancePublished	4300 μ S	—



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 · Pentode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid 1-to-plate capacitance maximum	0.0035 pF	WholeTube
Input capacitance	6 pF	WholeTube
Output capacitance	5 pF	WholeTube
Grid 1 voltage for 10 μ A plate current	-4.7 V	WholeTube

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum plate voltage	150 V	WholeTube
Maximum screen supply voltage	150 V	WholeTube
Maximum plate dissipation	2.5 W	WholeTube
Maximum screen dissipation	0.6 W	WholeTube
Screen voltage	100 V	TypicalOperation
Cathode bias resistor	150 ohm	TypicalOperation
Plate current	5 mA	TypicalOperation
Screen current	2 mA	TypicalOperation
Transconductance	4300 μ S	TypicalOperation
Plate resistance	500000 ohm	TypicalOperation