



ELECTRONIC TUBE REFERENCE

18FY6

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

CONSOLIDATED TECHNICAL
DATA

3 SECTIONS

CONSTRUCTION

DIODE-DIODE-TRIODE

Double-diode high-mu triode for detector, AVC, and voltage-amplifier service in series-heater receivers. The paired diodes provide signal and control-voltage rectification while the triode supplies substantial gain for the recovered audio signal.

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.

SECTION 3 Triode	
PLATE RESISTANCE	77000 Ω
TRANSCONDUCTANCE	0.0013 S
AMPLIFICATION FACTOR	100
MAXIMUM PLATE VOLTAGE	150 V
MAXIMUM PLATE DISSIPATION	0.5 W
<i>High-mu triode section.</i>	

18FY6 — Miniature High-Mu Triode Double Diode

A miniature multi-unit vacuum tube containing a high-mu triode and two independent diodes, designed for detector and amplifier applications in AC/DC radio receivers.

Overview

The **18FY6** is a miniature, multi-unit vacuum tube featuring a high-mu triode and two diodes within a single T-5½ glass envelope. It is designed primarily for detector-amplifier service in AC/DC-type radio receivers. The tube utilizes a miniature button 7-pin base (7BT) and is equipped with a coated unipotential cathode. Its physical design allows it to be mounted and operated in any position.

Heater and Electrical Ratings

The 18FY6 is designed for series-string or parallel heater circuits, requiring a nominal heater supply of 18 volts (AC or DC) at a current of 0.10 amperes (100 mA).

The design-maximum ratings for the tube, interpreted according to the Design-Maximum System, establish the limits within which the device must be operated to ensure reliability:

Parameter	Rating
Heater Voltage	18 V
Maximum Plate Voltage	150 V
Maximum Plate Dissipation	0.5 W
Maximum Positive Grid Voltage	0 V
Maximum Diode Plate Current (Each Diode)	1.0 mA
Maximum Heater-Cathode Voltage	100 V

Pinout and Base Connections

The 18FY6 uses a miniature button 7-pin base (7BT). Published specifications describe two distinct pinout configurations (viewed from the bottom of the base). Designers must verify the specific pinout of the target device:

Configuration A

In this layout, the heater connections are located on adjacent pins near the center of the sequence:

- **Pin 1:** Grid (G)
- **Pin 2:** Cathode (K)
- **Pin 3:** Heater (H)
- **Pin 4:** Heater (H)
- **Pin 5:** Diode 2 Plate (P2)
- **Pin 6:** Diode 1 Plate (P1)
- **Pin 7:** Triode Plate (P)

Configuration B

In this alternative layout, the heater pins are shifted, and the cathode and diode connections are rearranged:

- **Pin 1:** Grid (G)
- **Pin 2:** Diode #2 Plate (P2)
- **Pin 3:** Diode #1 Plate (P1)
- **Pin 4:** Heater (H)
- **Pin 5:** Heater (H)
- **Pin 6:** Cathode (K)
- **Pin 7:** Plate (P)

In both configurations, Pin 1 remains the control grid of the triode section, and Pin 7 remains the triode plate.

Direct Interelectrode Capacitances

The direct interelectrode capacitances of the 18FY6 vary depending on whether an external shield is employed. The values below are measured with and without Shield #316 (connected to Pin #2):

- **Grid to Plate:** 1.8 μF (with shield) / 1.8 μF (without shield)
- **Input:** 2.4 μF (with shield) / 2.4 μF (without shield)
- **Output:** 2.0 μF (with shield) / 0.22 μF (without shield)
- **Grid to Diode #2 Plate (Maximum):** 0.2 μF (with shield) / 0.2 μF (without shield)

The significant reduction in output capacitance when operating without a shield (from 2.0 μF down to 0.22 μF) highlights the impact of external shielding on the RF/IF characteristics of the triode plate

circuit.

Typical Operating Conditions and Characteristics

For Class A1 amplifier service, the typical operating parameters and characteristics of the triode section are as follows:

- **Heater Voltage:** 18 V
- **Heater Current:** 0.10 A
- **Plate Voltage:** 100 V
- **Grid Voltage:** -1 V
- **Plate Current:** 0.6 mA
- **Plate Resistance:** 77,000 Ω
- **Transconductance:** 1,300 μmhos
- **Amplification Factor (μ):** 100

The high amplification factor of 100 makes the triode section highly suitable for high-gain voltage preamplification.

Diode Characteristics

The two diode sections are intended for detection and automatic volume control (AVC) or automatic gain control (AGC) functions. Under a specific test condition with 10 volts applied, each diode exhibits an average diode current of 2.0 mA. This is a test condition only and does not represent a continuous operating rating; the maximum continuous diode plate current is limited to 1.0 mA per diode.

Technical Summary

The **18FY6** is a versatile **miniature high-mu triode double diode** housed in a **T-5½ glass envelope** with a **7-pin miniature button base (7BT)**. Operating with an **18 V, 0.10 A heater**, it combines a high-gain triode (amplification factor of 100) with two independent detector diodes. The triode section is optimized for Class A1 voltage amplification, featuring a transconductance of **1,300 μmhos** and a plate resistance of **77,000 Ω** at a typical plate voltage of 100 V. With its dual-diode structure and high-mu triode, the 18FY6 serves as a compact, single-tube solution for signal detection, AVC/AGC generation, and audio preamplification in AC/DC radio receivers.



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;10VApplied

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	0.6 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	0.8 mA	TypicalOperation
Triode transconductance	1300 μ S	TypicalOperation
Triode plate resistance	77000 ohm	TypicalOperation
Triode amplification factor	100	TypicalOperation

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