

ELECTRONIC TUBE REFERENCE

1634

Voltage - Dual Triode (similar) electronic tube

CONSOLIDATED TECHNICAL DATA

2 SECTIONS

CONSTRUCTION

TRIODE-TRIODE

Special-quality high-mu twin triode related to the 12SC7 family, intended for low-level voltage amplification where two similar triode sections are required in one envelope.

GENERAL CHARACTERISTICS

BASE DESIGNATION	8S	BASE PINS	8
NOMINAL HEATER	12.6 V / 150 mA	PARALLEL HEATER	– / –
HEATING	Indirect	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

8S - TERMINAL PINOUT

TERMINAL	SECTION	ELEMENT	STATUS
PIN1 – SH	A	SH – Internal Shield	CONNECTED
PIN2 – 2P	B	P – Plate (Anode)	CONNECTED
PIN3 – 2G1	B	G1 – Control Grid	CONNECTED
PIN4 – 1G1	A	G1 – Control Grid	CONNECTED
PIN5 – 1P	A	P – Plate (Anode)	CONNECTED
PIN6 – K	A	K – Cathode	CONNECTED
PIN7 – H	–	H – Heater	CONNECTED
PIN8 – H	–	H – Heater	CONNECTED

SECTION RATINGS

SECTION1 Triode	
PLATE RESISTANCE	53000 Ω
TRANSCONDUCTANCE	0.001325 S
AMPLIFICATION FACTOR	70
MAXIMUM PLATE VOLTAGE	250 V
<i>Promoted from printed maximum-rating/characteristic columns; additional published values retained in TUBE_SECTION_PARAMETER.</i>	

SECTION2 Triode	
PLATE RESISTANCE	53000 Ω
TRANSCONDUCTANCE	0.001325 S
AMPLIFICATION FACTOR	70
MAXIMUM PLATE VOLTAGE	250 V
<i>Physical section restored under current one-row-per-physical-section policy.</i>	

1634 — High-Mu Twin Triode Vacuum Tube

Overview

The **1634** is a specialized high-mu twin triode vacuum tube designed primarily for Class A voltage amplification. It features two triode sections in a single envelope and is designated as a "Special [12SC7](#)", indicating its relationship to the standard [12SC7](#) twin triode. The tube is constructed with an indirectly heated cathode, requiring a nominal 12.6 V heater supply. It is rated for a maximum plate voltage of 250 V and is optimized for applications requiring high voltage gain, as evidenced by its high amplification factor of 70.

Heater and Physical Specifications

The 1634 is designed with an indirectly heated cathode system. The heater is engineered for series or parallel operation in 12-volt systems, drawing a low current. The physical and electrical characteristics of the heater and envelope include:

- **Heater Voltage:** 12.6 V
- **Heater Current:** 0.15 A
- **Calculated Heater Power:** 1.89 W (calculated as 12.6 V * 0.15 A)
- **Cathode Type:** Coated unipotential (indirectly heated)
- **Base Connection Designation:** 8S
- **Outline Drawing Reference:** 8-1

The 8S base configuration and 8-1 outline define its physical dimensions and pin layout, though specific pin-to-electrode mapping is not detailed in the primary reference.

Electrical Characteristics and Class A Operating Points

The 1634 is characterized by high amplification capability combined with a relatively high plate resistance, typical of high-mu triodes designed for voltage preamplification. The manufacturer-specified operating conditions for Class A amplifier service (tabulated per individual triode section) are as follows:

Parameter	Value
Plate Voltage	250 V
Negative Grid Voltage	-2 V
Plate Current	2.0 mA
Plate Resistance (r_p)	53,000 Ω (approximate)
Transconductance (g_m)	1,325 μmhos
Amplification Factor (μ)	70

Parameter Verification

The fundamental triode relationship relates amplification factor (μ), transconductance (g_m), and plate resistance (r_p) through the formula:

$$\mu \approx g_m \times r_p$$

Using the published typical values for the 1634:

$$1,325 \times 10^{-6} \text{ S} \times 53,000 \, \Omega = 70.225$$

This calculated value closely aligns with the documented amplification factor of 70, confirming the internal consistency of the tube's electrical specifications.

Related Designations and Applications

The 1634 is explicitly classified alongside the [12SC7](#) as a "Special [12SC7](#)". This designation indicates that the 1634 shares the fundamental electrical characteristics and high-mu twin-triode architecture of the [12SC7](#), but may feature specialized ruggedization, tighter tolerances, or specific testing protocols suited for industrial, military, or critical communications applications.

As a high-mu twin triode, its primary application is Class A voltage amplification, where it can provide significant voltage gain in preamplifier stages, phase inverters, or instrument input stages. The maximum plate voltage rating of 250 V must be strictly observed during circuit design to ensure reliable operation.

Technical Summary

The **1634** is an octal-type, indirectly heated high-mu twin triode with a 12.6 V, 0.15 A heater. It is designed for Class A voltage amplifier service, providing an amplification factor of 70, a transconductance of 1,325 μmhos , and an approximate plate resistance of 53,000 Ω per section when operated at a plate voltage of 250 V and a grid bias of -2 V. Identified as a "Special [12SC7](#)", the 1634 offers a compact, dual-triode solution for high-gain amplification circuits requiring reliable performance under standard operating limits.

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

195X General Electric Essential Characteristics

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

195X GENERAL ELECTRIC ESSENTIAL CHARACTERISTICS

Section 1 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage	250 V	ClassA;EachSection
Control-grid voltage	-2 V	ClassA;EachSection
Plate current	2 mA	ClassA;EachSection

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate resistance	53000 Ω	EachSection
Transconductance	1325 μS	EachSection
Amplification factor	70	EachSection

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