



ELECTRONIC TUBE REFERENCE

19RLL1

Voltage - Dual Triode (similar) electronic tube

CONSOLIDATED TECHNICAL DATA

2 SECTIONS

CONSTRUCTION

TRIODE-TRIODE

Long-life twin triode intended for oscillator and amplifier service in wire-communication equipment, providing two similar triode sections for dependable continuous-duty electronic circuitry.

GENERAL CHARACTERISTICS

BASE DESIGNATION	E9-1	BASE PINS	9
NOMINAL HEATER	19 V / 150 mA	PARALLEL HEATER	– / –
HEATING	Indirect	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION1 Triode	
PLATE RESISTANCE	55000 Ω
TRANSCONDUCTANCE	0.0055 S
AMPLIFICATION FACTOR	30
MAXIMUM PLATE VOLTAGE	275 V
MAXIMUM PLATE DISSIPATION	2.8 W
MAXIMUM CATHODE CURRENT	22 mA
Repeated identical physical sections represented by one populated row.	

SECTION2 Triode	
PLATE RESISTANCE	55000 Ω
TRANSCONDUCTANCE	0.0055 S
AMPLIFICATION FACTOR	30
MAXIMUM PLATE VOLTAGE	275 V
MAXIMUM PLATE DISSIPATION	2.8 W
MAXIMUM CATHODE CURRENT	22 mA
Second physical triode section; electrically identical twin section.	

19RLL1 — Medium-Mu Twin Triode

The **19RLL1** (also designated as **19R-LL1**) is a multi-purpose, long-life miniature twin triode designed for use in wire communication equipment. It is classified as a medium-mu device and is typically employed in oscillator and amplifier applications.

A notable operating constraint of the 19RLL1 is that it is not suitable for applications where the heater circuit is subjected to frequent "On and Off" switching.

Mechanical Specifications and Pinout

The 19RLL1 is constructed in a T6 1/2 glass envelope and utilizes an E9-1 Small Button Noval 9-pin base. The tube can be mounted and operated in any position.

Physical Dimensions

- **Maximum Diameter:** 7/8 inch
- **Maximum Overall Height:** 2-3/16 inches
- **Maximum Seated Height:** 1-15/16 inches

Pin Connections

The 9-pin base layout provides separate connections for the two triode units, along with an internal shield. The pinout configuration is as follows:

Pin	Connection
Pin 1	Heater (H)
Pin 2	Cathode (Unit 2) (Kt2)
Pin 3	Grid (Unit 2) (Gt2)
Pin 4	Plate (Unit 2) (Pt2)

Pin	Connection
Pin 5	Internal Shield (IS)
Pin 6	Plate (Unit 1) (Pt1)
Pin 7	Grid (Unit 1) (<u>Gt1</u>)
Pin 8	Cathode (Unit 1) (Kt1)
Pin 9	Heater (H)

Heater and Absolute Maximum Ratings

The heater is designed for series or dedicated supply operation with a relatively high nominal voltage and low current draw.

Heater Specifications

- **Heater Voltage:** 19.0 V
- **Heater Current:** 0.15 A

Absolute Maximum Ratings

Operating the tube beyond these limits may impair its long-life characteristics or cause permanent damage:

- **Maximum Plate Voltage:** 275 V
- **Maximum Plate Dissipation:** 2.8 W
- **Maximum Total Cathode Current:** 22 mA
- **Maximum Peak Heater-Cathode Voltage (Heater negative with respect to cathode):** 100 V
- **Maximum Peak Heater-Cathode Voltage (Heater positive with respect to cathode):** 100 V

Typical Operating Characteristics

Under typical Class A operating conditions, each triode unit exhibits the following electrical characteristics:

Parameter	Value
Plate Voltage	120 V
Cathode-Bias Resistor	180 Ω
Plate Current	8.5 mA
Transconductance	5,500 μ mos

Parameter	Value
Plate Resistance (Approx.)	5.5 kΩ
Amplification Factor	30

Direct Interelectrode Capacitances

The direct interelectrode capacitances are measured without an external shield. Both triode units exhibit identical capacitance values:

Capacitance Parameter	Unit 1	Unit 2
Grid No. 1 to Plate	1.6 pF	1.6 pF
Input	2.1 pF	2.1 pF
Output	1.4 pF	1.4 pF

Technical Summary

The **19RLL1** is a specialized, long-life medium-mu twin triode housed in a Noval 9-pin miniature envelope. Featuring a 19.0 V, 0.15 A heater, it is optimized for stable, continuous-duty applications such as oscillators and amplifiers in wire communication equipment. With an amplification factor of 30, a transconductance of 5,500 μmhos, and an internal shield connected to Pin 5, the 19RLL1 provides reliable dual-triode performance under steady-state thermal conditions, provided frequent power cycling of the heater is avoided.



SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1963 Hitachi

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

1963 HITACHI

Section 1 · Triode

CAPACITANCE

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Interelectrode capacitances published	1	See source table

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