



ELECTRONIC TUBE REFERENCE

6E13N

Nuvistor Tubes (all numbers) electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION

CONSTRUCTION

TETRODE

Russian low-voltage tetrode for amplification and oscillation. Its operating characteristics suit compact RF or general electronic circuits at modest supply voltage.

GENERAL CHARACTERISTICS

BASE DESIGNATION	—	BASE PINS	9
NOMINAL HEATER	6.3 V / 140 mA	PARALLEL HEATER	— / —
HEATING	Indirect	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION 1 Tetrode	
TRANSCONDUCTANCE	0.0085 S
MAXIMUM PLATE VOLTAGE	200 V
MAXIMUM SCREEN VOLTAGE	70 V
MAXIMUM PLATE DISSIPATION	2 W
MAXIMUM SCREEN DISSIPATION	0.2 W
MAXIMUM CATHODE CURRENT	16 mA
Representative section row from the complete filename-matched Russian datasheet content only; neighboring-tube fragments excluded.	

6E13N / 6Э13H — Low-Voltage Metal-Ceramic Amplifier and Oscillator Tetrode

A compact Soviet high-frequency tetrode designed for voltage amplification and oscillation in equipment with low-voltage power supplies.

Overview

The **6E13N**, written **6Э13Н** in the original Russian documentation, is a **metal-ceramic tetrode** intended for **voltage amplification and generation of oscillations in equipment using low-voltage power supplies**. This application is stated directly in the 1981 Russian tube reference.

The tube is a compact four-electrode device with an indirectly heated cathode, control grid, screen grid, and anode. The manufacturer lists a mass of approximately **4 g**. Its principal characteristic test point uses only **27 V anode** and **27 V screen-grid voltage**, distinguishing its intended operating region from high-voltage receiving-tube amplifiers.

Construction and Electrode Arrangement

The original drawing identifies **A** as anode, **C1** as first/control grid, **C2** as second/screen grid, **K** as cathode, and **II** as heater.

The grouped electrode connections are shown as **1, 2, 3** for the screen grid, **4, 5, 6** for the control grid, **7, 8, 9** for the cathode, and **10 and 12** for the heater, with a separate anode connection.

The metal-ceramic construction is appropriate to the manufacturer's compact, high-frequency low-voltage application.

Heater and Typical Operating Conditions

The manufacturer defines its basic test conditions as **6.3 V heater**, **27 V anode**, **27 V screen grid**, and **68 Ω cathode resistance**.

Parameter	Published value
Heater voltage	6.3 V
Heater current	140 $\pm$ 20 mA
Anode current	7 $\pm$ 3 mA
Screen-grid current	$\leq$3.6 mA
Transconductance	8.5 $\pm$ 3 mA/V
Anode current at -7 V control-grid bias	$\leq$50 μA

The relatively high transconductance at low electrode voltages is central to the tube's documented purpose. The low-current cutoff-region test indicates how strongly negative grid bias suppresses anode current.

Low-Voltage Amplification and Oscillation

The manufacturer describes the 6E13N as suitable for both **voltage amplification** and **oscillation generation** in equipment with a low supply voltage.

The published plate-current characteristics are plotted at **6.3 V heater** and **27 V screen-grid voltage**, with several control-grid biases. The curves show the anode-current response as plate voltage rises from low values.

The transfer curves also show anode current versus first-grid voltage for several screen-grid voltages, including **20 V**, **27 V**, and **34 V**, at the specified anode-voltage condition. This demonstrates that screen voltage materially affects the current available at a given grid bias.

The datasheet does not prescribe one universal oscillator circuit or specify a maximum oscillator frequency; those should not be inferred from the device's classification alone.

Interelectrode Capacitances

Measurement	Published value
Input capacitance	7 ± 1 pF
Output capacitance	1.9 ± 0.6 pF
Feedthrough capacitance	≤ 0.025 pF

The small feedthrough capacitance is relevant to limiting unwanted input-output coupling in high-frequency amplifier and oscillator circuits.

Microphonics and Service Life

The reference specifies **≤ 50 mV vibration-induced noise voltage** with a **2 k Ω anode load**, **50 Hz vibration**, and **2.5 g acceleration**.

It also gives a minimum operating life of **5,000 hours** and a transconductance acceptance criterion of **at least 4 mA/V**.

These figures are distinct from the normal operating-current and capacitance specifications and are part of the manufacturer's performance and endurance assessment.

Limiting Operating Conditions

Parameter	Limit
Heater voltage	5.7-7.0 V
Anode voltage	200 V
Anode voltage at cutoff	300 V
Screen-grid voltage	70 V
Negative control-grid voltage	55 V

Parameter	Limit
Anode dissipation	2 W
Screen-grid dissipation	0.2 W
Control-grid dissipation	0.01 W
Cathode current	15 mA
Cathode-to-heater voltage	100 V
Control-grid circuit resistance	1 MΩ
Envelope temperature	200°C
Ambient operating range	−60°C to +125°C

The high maximum anode-voltage figures are limiting ratings, not the recommended low-voltage operating conditions. The **27 V** characteristic test point remains the principal example for the tube's intended application.

Technical Summary

The **6E13N / 6913H** is a compact **6.3 V metal-ceramic tetrode** for **low-voltage amplification and oscillator service**. Its published 27 V anode / 27 V screen operating point gives approximately **7 mA anode current** and **8.5 mA/V transconductance**, with small input-output feedthrough capacitance.

Its distinctive combination of **low-voltage operation, high transconductance, 5,000-hour minimum service life**, and **−60°C to +125°C ambient rating** characterizes it as a specialized high-frequency amplifier and oscillator device.

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1981 Russian Tubes Katsnelson and Larionov

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

1981 RUSSIAN TUBES KATSNELSON AND LARIONOV

Section 1 · Tetrode

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater voltage nominal	6.3 V	Published heater operating voltage
Heater current nominal	140 mA	Nominal or midpoint of published heater-current tolerance
Plate current	7 mA	Plate 27 V, screen 21 V
Screen current	3.6 mA	Maximum
Transconductance	8.5 mA/V	Published nominal
Vibration noise voltage	50 mV	2 kOhm load, 50 Hz vibration
Service life	5000 h	Minimum

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Input capacitance	7 pF	Published nominal
Output capacitance	1.9 pF	Published nominal
Transfer capacitance	0.095 pF	Maximum

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage limit	200 V	Published
Screen voltage limit	70 V	Published

TUBE TINKER

An independent reference for electronic tubes, vacuum tubes, and their source documents.

