



ELECTRONIC TUBE REFERENCE

6S52N

Nuvistor Tubes (all numbers) electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION

CONSTRUCTION

TRIODE

Superminiature metal-ceramic high-frequency triode for voltage amplification and oscillation; 6S52N family.

GENERAL CHARACTERISTICS

BASE DESIGNATION	—	BASE PINS	—
NOMINAL HEATER	6.3 V / 130 mA	PARALLEL HEATER	— / —
HEATING	Indirect	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION 1 Triode	
TRANSCONDUCTANCE	0.007 S
AMPLIFICATION FACTOR	64
MAXIMUM PLATE VOLTAGE	120 V
MAXIMUM PLATE DISSIPATION	1.2 W
MAXIMUM GRID DISSIPATION	0.2 W
MAXIMUM CATHODE CURRENT	15 mA
MAXIMUM HEATER-CATHODE VOLTAGE	100 V
<i>Electrical data extracted only from filename-designated Russian tube block; identical dual sections compressed where applicable.</i>	

6S52N / 6C52H — Superminiature Metal-

Ceramic High-Frequency Triode

A compact Soviet triode for voltage amplification and oscillation, with a separately specified ruggedized 6S52NV / 6C52H-B variant.

Overview

The **6S52N**, written **6C52H** in the Russian technical reference, is a **superminiature metal-ceramic triode** intended for **voltage amplification and generation of oscillations**. The same source also documents the **6S52NV** / **6C52H-B**, a related version with enhanced vibration, shock, and ambient-temperature qualifications.

The manufacturer describes a compact device weighing approximately **3 g**. Its characteristic data include relatively high amplification factor, appreciable transconductance, and high-frequency input resistance, making it distinct from ordinary low-frequency glass receiving triodes.

Construction and Connections

The tube has an anode, control grid, and indirectly heated cathode. The Russian electrode drawing labels **a** for anode, **c** for grid, **к** for cathode, and **h** for heater.

The illustrated connection groups are **1, 2, 3** for the anode, **4, 5, 6** for the grid, **7, 8, 9** for the cathode, and **10 and 12** for the heater. This is a metal-ceramic superminiature construction, not an ordinary noval receiving-tube socket arrangement.

Heater and Basic Characteristics

The manufacturer specifies measurements at **6.3 V heater**, **120 V anode**, and **130 Ω cathode resistance**.

Characteristic	6S52N	<u>6S52NV</u>
Heater current	130 $\pm$ 20 mA	130 $\pm$ 20 mA
Anode current	8 $\pm$ 2.5 mA	8 $\pm$ 2.5 mA
Anode current at -7 V grid voltage	≤ 50 μA	≤ 50 μA
Grid reverse current	≤ 0.1 μA	≤ 0.1 μA
Cathode-to-heater leakage current	≤ 20 μA	≤ 20 μA
Transconductance	≥ 7 mA/V	10 $\pm$ 2.5 mA/V
Amplification factor	64 $\pm$ 20	60 $\pm$ 15

Characteristic	6S52N	<u>6S52NV</u>
Input resistance at 60 MHz	$\geq 6 \text{ k}\Omega$	$\geq 6 \text{ k}\Omega$
Vibration-induced noise voltage	$\leq 40 \text{ mV}$	$\leq 40 \text{ mV}$

For the ruggedized version, the source additionally specifies **transconductance $\geq 6.5 \text{ mA/V}$ at 5.7 V heater voltage, equivalent noise resistance $\leq 0.4 \text{ k}\Omega$** , and a manufacturer acceptance criterion limiting transconductance change to **35%**.

The grid-current and cathode-to-heater leakage values are separately defined tests and should not be confused with the normal anode current.

High-Frequency Amplification

The source explicitly describes the 6S52N as a triode for **voltage amplification** and **oscillation generation**. It specifies an **input resistance at 60 MHz** and includes plate and transfer curves for the ruggedized version.

The published amplification factor near **60-64** and transconductance near **7-10 mA/V** support its high-gain receiving-amplifier role. These are characteristic values, not a guarantee of a particular loaded-stage gain at all frequencies.

Interelectrode Capacitances

Capacitance	6S52N	<u>6S52NV</u>
Input	$4.2 \pm 1.3 \text{ pF}$	$4.35 \pm 0.95 \text{ pF}$
Output	$1.9 \pm 0.6 \text{ pF}$	$2.1 \pm 0.7 \text{ pF}$
Feedthrough	$\leq 1.3 \text{ pF}$	$1.0 \pm 0.3 \text{ pF}$
Cathode to heater	$1.4 \pm 0.4 \text{ pF}$	$1.4 \pm 0.4 \text{ pF}$

The manufacturer distinguishes the two versions' capacitance tolerances. These are relevant to the loading and feedback behavior of high-frequency amplifier and oscillator circuits.

Maximum Operating Ratings

The reference gives the following limiting conditions for the family:

Parameter	Limit
Heater voltage	5.7-7.0 V
Anode voltage	120 V

Parameter	Limit
Anode voltage at cutoff	330 V
Maximum negative grid voltage	55 V
Cathode-to-heater voltage	100 V
Cathode current	15 mA
Anode dissipation	1.2 W
Grid dissipation	0.2 W
Grid-circuit resistance	1 MΩ
Maximum envelope temperature	250°C

The **330 V** figure applies to the cutoff condition, not unrestricted conducting operation. The normal anode-voltage limit is **120 V**.

Environmental and Endurance Characteristics

The manufacturer specifies **at least 5,000 hours** of operating life for both variants.

Condition	6S52N	<u>6S52NV</u>
Vibration acceleration	2.5 g	15 g
Vibration-frequency range	10-150 Hz	5-5,000 Hz
Repeated-shock acceleration	35 g	150 g
Single-shock acceleration	Not separately listed	1,000 g
Sustained acceleration	Not separately listed	150 g
Ambient temperature	-60°C to +125°C	-60°C to +200°C

These distinctions identify the -B variant as the more extensively qualified version for mechanical and thermal stresses.

Characteristic Curves

The Russian reference includes anode-current curves for the 6S52NV at different control-grid voltages, along with transfer curves for different anode voltages. These show how plate current changes with grid bias and plate voltage and supplement the tabulated gain and transconductance characteristics.

Technical Summary

The **6S52N / 6C52H** is a **6.3 V superminiature metal-ceramic triode** intended for **high-frequency voltage amplification and oscillation**, drawing approximately **130 mA heater current** and providing approximately **8 mA anode current** at the specified 120 V operating point.

Its documented **high amplification factor**, **60 MHz input-resistance specification**, small interelectrode capacitances, and compact **3 g construction** distinguish it from conventional glass receiving triodes. The related [6S52NV](#) adds separately qualified vibration, shock, and high-temperature endurance.

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 · Triode

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Published electrical parameter	20 %	о 20 %0 60 60 00 8—5 -4 -# -2 —!
Published electrical parameter	130 Ω	при Он=6,3 В, (4=120 В, Вк=130 Ом
Published electrical parameter	—50 μA	Anode current at grid voltage −7 V: ≤50 μA; source p.124.
Resistance	6— kΩ	Input resistance at 60 MHz ≥6 kΩ; source p.124.
Published electrical parameter	—40 mV	Vibration-induced noise voltage at Ra=2 kΩ ≤40 mV; source p.124.
Plate voltage	120 V	Напряжение анода . й РЕРЕ 120В
Published electrical parameter	330 V	То же при запертой лампе. . з 330 В
Published electrical parameter	55 V	Напряжение сетки отрицательное . й 55 В
Published electrical parameter	100 V	Напряжение между катодом н подогревателем 100 В
Cathode current	15 mA	Ток катода . ВВ 15 мА
Dissipation / power	1.2 W	Maximum plate dissipation 1.2 W; source p.125.
Dissipation / power	0.2 W	Maximum grid dissipation 0.2 W; source p.125.
Resistance	1 MΩ	Сопротивление в цепи сетки . 1 МОм
Published electrical parameter	740 a	20 #0 60 80 700 120 740 a] =8 -2 =7 @
Published electrical parameter	110–150 mA	Heater current, 6S52N; 1981 Katsnelson Larionov pages 124–125.

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Published electrical parameter	5.5–10.5 mA	Anode current, 6S52N; 1981 Katsnelson Larionov pages 124–125.
Published electrical parameter	—0.1 μA	Reverse grid current, 6S52N; 1981 Katsnelson Larionov pages 124–125.
Published electrical parameter	—20 μA	Cathode heater leakage, 6S52N; 1981 Katsnelson Larionov pages 124–125.
Published electrical parameter	7— mA/V	Transconductance, 6S52N; 1981 Katsnelson Larionov pages 124–125.
Published electrical parameter	44–84	Amplification factor, 6S52N; 1981 Katsnelson Larionov pages 124–125.
Published electrical parameter	2.9–5.5 pF	Input capacitance, 6S52N; 1981 Katsnelson Larionov pages 124–125.
Published electrical parameter	1.3–2.5 pF	Output capacitance, 6S52N; 1981 Katsnelson Larionov pages 124–125.
Published electrical parameter	—1.3 pF	Feedthrough capacitance, 6S52N; 1981 Katsnelson Larionov pages 124–125.
Published electrical parameter	1–1.8 pF	Cathode heater capacitance, 6S52N; 1981 Katsnelson Larionov pages 124–125.
Published electrical parameter	5000— h	Service life, 6S52N; 1981 Katsnelson Larionov pages 124–125.
Published electrical parameter	5.7–7 V	Heater voltage range, 6S52N; 1981 Katsnelson Larionov pages 124–125.
Published electrical parameter	—250 $^{\circ}$C	Envelope temperature max, 6S52N; 1981 Katsnelson Larionov pages 124–125.
Published electrical parameter	—1 MΩ	Grid circuit resistance max, 6S52N; 1981 Katsnelson Larionov pages 124–125.
Published electrical parameter	-60— $^{\circ}$C	Ambient temperature min, 6S52N; 1981 Katsnelson Larionov pages 124–125.
Published electrical parameter	—125 $^{\circ}$C	Ambient temperature max, 6S52N; 1981 Katsnelson Larionov pages 124–125.

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