



## ELECTRONIC TUBE REFERENCE

## GU61B

Power - Tetrode (NOT beam) (over 1000V 100W) electronic tube

CONSOLIDATED TECHNICAL  
DATA

**1 SECTION**  
CONSTRUCTION  
**TETRODE**

High-power Soviet tetrode for RF amplification to approximately 70 MHz with 25 kW plate dissipation.

## GENERAL CHARACTERISTICS

|                     |                   |                      |               |
|---------------------|-------------------|----------------------|---------------|
| BASE DESIGNATION    | —                 | BASE PINS            | —             |
| NOMINAL HEATER      | 6.3 V / —         | PARALLEL HEATER      | — / —         |
| HEATING             | Direct            | SERIES OPERATION     | Not specified |
| CATHODE ARRANGEMENT | Separate cathodes | SECTION CONSTRUCTION | Similar       |

## SECTION RATINGS

|                                                                                                                                                                                                                                             |         |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| <b>SECTION 1</b> Tetrode                                                                                                                                                                                                                    |         |
| MAXIMUM PLATE VOLTAGE                                                                                                                                                                                                                       | 10000 V |
| MAXIMUM SCREEN VOLTAGE                                                                                                                                                                                                                      | 1500 V  |
| MAXIMUM PLATE DISSIPATION                                                                                                                                                                                                                   | 25000 W |
| MAXIMUM SCREEN DISSIPATION                                                                                                                                                                                                                  | 700 W   |
| MAXIMUM GRID DISSIPATION                                                                                                                                                                                                                    | 300 W   |
| <i>Promoted-field audit performed from English ratings/characteristics; detailed electrical values retained in parameter table. REDO promoted-field audit completed from English Limit Operating Values / Electrical Parameters tables.</i> |         |

The GU-61B tetrode is used for RF power amplification at frequencies up to 70 MHz. It has a directly heated carbonized thoriated-tungsten cathode, metal-ceramic envelope, and forced-air cooling.

## SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

# 1968 Electronintorg

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

## 1968 ELECTRONINTORG

## Section 1 · Tetrode

| OTHER                              |                 |                                                                                                          |
|------------------------------------|-----------------|----------------------------------------------------------------------------------------------------------|
| PARAMETER                          | PUBLISHED VALUE | CONDITION / NOTE                                                                                         |
| power                              | 61 W            | The I'Y-61b tetrode is used for RF power                                                                 |
| amplification at frequencies up to | 70              | amplification at frequencies up to 70 MHz.                                                               |
| anode [1]                          | 1               | K1, K2 — cathode; C1 — grid 1; C2 — grid 2; A — anode;                                                   |
| anode [2]                          | 2               | K1, K2 — cathode; C1 — grid 1; C2 — grid 2; A — anode;                                                   |
| temperature, °C                    | -60 C           | HavmMeHbLIan TemnepaTypa oKpyxaiotem<br>Lowest permissible ambient temperature, °C . ...<br>... —60      |
| voltage (ACorDC),V [1]             | 63 V            | HanpsxeHue Hakana (~wam=),B ..... 6,3<br>Filament voltage (ACorDC),V ..... 6.3                           |
| voltage (ACorDC),V [2]             | 6.3 V           | HanpsxeHue Hakana (~wam=),B ..... 6,3<br>Filament voltage (ACorDC),V ..... 6.3                           |
| cathode, Q@ [1]                    | 5 ohm           | ConpoTuBneHue HeHakaneHHoro katoga, Om<br>... .. 0,005 Resistance of unheated cathode, Q@<br>..... 0.005 |
| cathode, Q@ [2]                    | 0.005 ohm       | ConpoTuBneHue HeHakaneHHoro katoga, Om<br>... .. 0,005 Resistance of unheated cathode, Q@<br>..... 0.005 |
| current, A, atleast [1]            | 5 A             | ToxkaHopa, A, HEMEHEE . . . .....ccounn. 5<br>Anode current, A, atleast ..... 5                          |
| current, A, atleast [2]            | 5 A             | ToxkaHopa, A, HEMEHEE . . . .....ccounn. 5<br>Anode current, A, atleast ..... 5                          |
| voltage [1]                        | 2 A             | Tok ceTkv BTOPOW (Npy Hanpsi>keHnn aHoaa<br>2 KB, Grid 2 current (at anode voltage 2kV,                  |
| voltage [2]                        | 2 A             | Tok ceTkv BTOPOW (Npy Hanpsi>keHnn aHoaa<br>2 KB, Grid 2 current (at anode voltage 2kV,                  |

| PARAMETER   | PUBLISHED VALUE | CONDITION / NOTE                                                                                            |
|-------------|-----------------|-------------------------------------------------------------------------------------------------------------|
| voltage [3] | <b>2 A</b>      | Tok ceTkv BTOPOW (Npy Hanpsi>keHnn aHoaa 2 KB, Grid 2 current (at anode voltage 2kV,                        |
| current [1] | <b>1 A</b>      | HanpspkeHun ceTku BTopor 1 kB, Toke aHopa 5 A), grid 2 voltage 1 kV, anode current 5 A), A, at most . . 0.7 |
| current [2] | <b>5 A</b>      | HanpspkeHun ceTku BTopor 1 kB, Toke aHopa 5 A), grid 2 voltage 1 kV, anode current 5 A), A, at most . . 0.7 |
| current [3] | <b>2 A</b>      | HanpspkeHun ceTku BTopor 1 kB, Toke aHopa 5 A), grid 2 voltage 1 kV, anode current 5 A), A, at most . . 0.7 |
| current [4] | <b>1 A</b>      | HanpspkeHun ceTku BTopor 1 kB, Toke aHopa 5 A), grid 2 voltage 1 kV, anode current 5 A), A, at most . . 0.7 |
| current [5] | <b>5 A</b>      | HanpspkeHun ceTku BTopor 1 kB, Toke aHopa 5 A), grid 2 voltage 1 kV, anode current 5 A), A, at most . . 0.7 |
| current [6] | <b>700 mA</b>   | HanpspkeHun ceTku BTopor 1 kB, Toke aHopa 5 A), grid 2 voltage 1 kV, anode current 5 A), A, at most . . 0.7 |
| voltage [1] | <b>7 V</b>      | AHebonee ..... 0,7 Negative grid 1 cutoff voltage (at anode voltage                                         |
| voltage [2] | <b>1 V</b>      | AHebonee ..... 0,7 Negative grid 1 cutoff voltage (at anode voltage                                         |
| current [1] | <b>3 A</b>      | Hanpsxexmne 3anupaHusa CeTKu NepBow, 10kV, grid 2 voltage 1.5 kV, anode current 0.1 A),                     |
| current [2] | <b>10 A</b>     | Hanpsxexmne 3anupaHusa CeTKu NepBow, 10kV, grid 2 voltage 1.5 kV, anode current 0.1 A),                     |
| current [3] | <b>2 A</b>      | Hanpsxexmne 3anupaHusa CeTKu NepBow, 10kV, grid 2 voltage 1.5 kV, anode current 0.1 A),                     |
| current [4] | <b>1.5 A</b>    | Hanpsxexmne 3anupaHusa CeTKu NepBow, 10kV, grid 2 voltage 1.5 kV, anode current 0.1 A),                     |
| current [5] | <b>100 mA</b>   | Hanpsxexmne 3anupaHusa CeTKu NepBow, 10kV, grid 2 voltage 1.5 kV, anode current 0.1 A),                     |
| grid [1]    | <b>15 uS</b>    | Hanps»XeHun ceTkun BTopon 1,5 KB, Toke Mutual conductance (at anode voltage 2 kV, grid 2                    |
|             |                 |                                                                                                             |

| PARAMETER     | PUBLISHED VALUE | CONDITION / NOTE                                                                         |
|---------------|-----------------|------------------------------------------------------------------------------------------|
| grid [2]      | 2 uS            | Hanps»XeHun ceTkun BTopon 1,5 KB, Toke Mutual conductance (at anode voltage 2 kV, grid 2 |
| grid [3]      | 2 uS            | Hanps»XeHun ceTkun BTopon 1,5 KB, Toke Mutual conductance (at anode voltage 2 kV, grid 2 |
| currents [1]  | 1 mA            | aHopa 0,1 A),B,Hebonee ..... 330 voltage 1.25 kV, anode currents 5 and 7 A), mA/V . .    |
| currents [2]  | 330 mA          | aHopa 0,1 A),B,Hebonee ..... 330 voltage 1.25 kV, anode currents 5 and 7 A), mA/V . .    |
| currents [3]  | 1.25 mA         | aHopa 0,1 A),B,Hebonee ..... 330 voltage 1.25 kV, anode currents 5 and 7 A), mA/V . .    |
| currents [4]  | 5 mA            | aHopa 0,1 A),B,Hebonee ..... 330 voltage 1.25 kV, anode currents 5 and 7 A), mA/V . .    |
| currents [5]  | 7 mA            | aHopa 0,1 A),B,Hebonee ..... 330 voltage 1.25 kV, anode currents 5 and 7 A), mA/V . .    |
| anode [1]     | 1               | KpyTnaHa xapakTepucTUKy (Npy Hanpsi>KeHuu Gain coefficient (grid 1—grid 2) (at anode     |
| anode [2]     | 2               | KpyTnaHa xapakTepucTUKy (Npy Hanpsi>KeHuu Gain coefficient (grid 1—grid 2) (at anode     |
| voltages [1]  | 2 kV            | aHoga 2 kB, ranpsxeHuu ceTku sTopon 1,25 kB, voltage 2 kV, grid 2 voltages 1.25and 1 kV, |
| voltages [2]  | 125 kV          | aHoga 2 kB, ranpsxeHuu ceTku sTopon 1,25 kB, voltage 2 kV, grid 2 voltages 1.25and 1 kV, |
| voltages [3]  | 2 kV            | aHoga 2 kB, ranpsxeHuu ceTku sTopon 1,25 kB, voltage 2 kV, grid 2 voltages 1.25and 1 kV, |
| voltages [4]  | 2 kV            | aHoga 2 kB, ranpsxeHuu ceTku sTopon 1,25 kB, voltage 2 kV, grid 2 voltages 1.25and 1 kV, |
| voltages [5]  | 1.25 kV         | aHoga 2 kB, ranpsxeHuu ceTku sTopon 1,25 kB, voltage 2 kV, grid 2 voltages 1.25and 1 kV, |
| voltages [6]  | 1 kV            | aHoga 2 kB, ranpsxeHuu ceTku sTopon 1,25 kB, voltage 2 kV, grid 2 voltages 1.25and 1 kV, |
| power (at [1] | 70 kW           | KoathduumeHT ycuneHuns ceTku nepson Oscillatory power (at 70 MHz), kW . . . . . 30       |
|               |                 |                                                                                          |

| PARAMETER              | PUBLISHED VALUE | CONDITION / NOTE                                                                                       |
|------------------------|-----------------|--------------------------------------------------------------------------------------------------------|
| power (at [2])         | <b>30 kW</b>    | KoathduumeHT ycuneHuns ceTku nepson<br>Oscillatory power (at 70 MHz), kW . . . . . 30                  |
| grid [1]               | <b>2</b>        | aHopa 2 kB, HanpsixeHusAx ceTku BTopoi 1,25<br>1 1 kB, common-cathode common-grid                      |
| grid [2]               | <b>125</b>      | aHopa 2 kB, HanpsixeHusAx ceTku BTopoi 1,25<br>1 1 kB, common-cathode common-grid                      |
| grid [3]               | <b>1</b>        | aHopa 2 kB, HanpsixeHusAx ceTku BTopoi 1,25<br>1 1 kB, common-cathode common-grid                      |
| grid [4]               | <b>1</b>        | aHopa 2 kB, HanpsixeHusAx ceTku BTopoi 1,25<br>1 1 kB, common-cathode common-grid                      |
| input,atmost [1]       | <b>320</b>      | KonebaTtensHas MOLWHOCTbL (Ha HacToTe<br>input,atmost . . . . . 320 150                                |
| input,atmost [2]       | <b>150</b>      | KonebaTtensHas MOLWHOCTbL (Ha HacToTe<br>input,atmost . . . . . 320 150                                |
| output,atmost [1]      | <b>30</b>       | JOMIU)Y, kBT ... 30 output,atmost . . . . . 38<br>38                                                   |
| output,atmost [2]      | <b>38</b>       | JOMIU)Y, kBT ... 30 output,atmost . . . . . 38<br>38                                                   |
| output,atmost [3]      | <b>38</b>       | JOMIU)Y, kBT ... 30 output,atmost . . . . . 38<br>38                                                   |
| voltage (ACorDC),V [1] | <b>79 V</b>     | HanpsikeHue Hakana (~wm=),B . . . . . 7,9-<br>8,7 Filament voltage (ACorDC),V . . . . . 7.9-<br>8.7    |
| voltage (ACorDC),V [2] | <b>-87 V</b>    | HanpsikeHue Hakana (~wm=),B . . . . . 7,9-<br>8,7 Filament voltage (ACorDC),V . . . . . 7.9-<br>8.7    |
| voltage (ACorDC),V [3] | <b>7.9 V</b>    | HanpsikeHue Hakana (~wm=),B . . . . . 7,9-<br>8,7 Filament voltage (ACorDC),V . . . . . 7.9-<br>8.7    |
| voltage (ACorDC),V [4] | <b>-8.7 V</b>   | HanpsikeHue Hakana (~wm=),B . . . . . 7,9-<br>8,7 Filament voltage (ACorDC),V . . . . . 7.9-<br>8.7    |
| current, A [1]         | <b>190 A</b>    | Haunbonblinil nyckoBon TOK HakKana, A<br>. . . . . 190 Filament startingcurrent, A ..<br>. . . . . 190 |
| current, A [2]         | <b>190 A</b>    | Haunbonblinil nyckoBon TOK HakKana, A<br>. . . . . 190 Filament startingcurrent, A ..<br>. . . . . 190 |
| voltage (DC), kV       | <b>10 kV</b>    | Haunbonblee HanpsbkeHne, KB: Anode voltage<br>(DC), kV . . . . . 10                                    |
|                        |                 |                                                                                                        |

| PARAMETER                                        | PUBLISHED VALUE | CONDITION / NOTE                                                                                   |
|--------------------------------------------------|-----------------|----------------------------------------------------------------------------------------------------|
| voltage (DC), kV [1]                             | <b>10 kV</b>    | AHOAA (=) o v it 10 Grid 2 voltage (DC), kV . . .<br>... .. 1.5                                    |
| voltage (DC), kV [2]                             | <b>2 kV</b>     | AHOAA (=) o v it 10 Grid 2 voltage (DC), kV . . .<br>... .. 1.5                                    |
| voltage (DC), kV [3]                             | <b>1.5 kV</b>   | AHOAA (=) o v it 10 Grid 2 voltage (DC), kV . . .<br>... .. 1.5                                    |
| Dissipation, kW                                  | <b>15 kW</b>    | CETKUBTOPOA (Z) ..o v ie i 1,5 Dissipation, kW:                                                    |
| grid [1]                                         | <b>7</b>        | CETKOM BTOPOM . ..o iitieie it cnans 0,7 grid 1<br>.. 0.3                                          |
| grid [2]                                         | <b>1</b>        | CETKOM BTOPOM . ..o iitieie it cnans 0,7 grid 1<br>.. 0.3                                          |
| grid [3]                                         | <b>0.3</b>      | CETKOM BTOPOM . ..o iitieie it cnans 0,7 grid 1<br>.. 0.3                                          |
| output                                           | <b>3 Hz</b>     | COTKOM MEPBOA . . v oivenie e e 0,3<br>Operating frequency at oscillator power output              |
| Temperature at stem and metal-to-ceramic [1]     | <b>30 C</b>     | konebartensHoi MoWHOCTU 30 KBT, MINy ...<br>... .. 70 Temperature at stem and metal-to-ceramic     |
| Temperature at stem and metal-to-ceramic [2]     | <b>70 C</b>     | konebartensHoi MoWHOCTU 30 KBT, MINy ...<br>... .. 70 Temperature at stem and metal-to-ceramic     |
| temperature, °C .. ... L [1]                     | <b>175 C</b>    | HOXXKY U CNaes KepaMuKy C MeTaNMom<br>..... 175 Anode temperature, °C .. ... L 250                 |
| temperature, °C .. ... L [2]                     | <b>250 C</b>    | HOXXKY U CNaes KepaMuKy C MeTaNMom<br>..... 175 Anode temperature, °C .. ... L 250                 |
| Anode Characteristic Curves: CeT04YHO-aHOAHbIe ( | <b>0</b>        | Averaged Anode Characteristic Curves:<br>CeTO4YHO-aHOAHbIe (0 CeTKe BTOPOW)                        |
| anode                                            | <b>1</b>        | grid 1-anode;                                                                                      |
| anode                                            | <b>2</b>        | grid 2-anode                                                                                       |
| Grid Characteristic Curves: Ur= [1]              | <b>83</b>       | Averaged Anode-Grid Characteristic Curves:<br>Ur=83B; Uy =1.5xB Ui=83B;U; =158                     |
| Grid Characteristic Curves: Ur= [2]              | <b>1.5</b>      | Averaged Anode-Grid Characteristic Curves:<br>Ur=83B; Uy =1.5xB Ui=83B;U; =158                     |
| Grid Characteristic Curves: Ur= [3]              | <b>83</b>       | Averaged Anode-Grid Characteristic Curves:<br>Ur=83B; Uy =1.5xB Ui=83B;U; =158                     |
| Grid Characteristic Curves: Ur= [4]              | <b>158</b>      | Averaged Anode-Grid Characteristic Curves:<br>Ur=83B; Uy =1.5xB Ui=83B;U; =158                     |
| Grid [1]                                         | <b>83</b>       | Ur=83V;Up=15kV Averaged Grid 1<br>Characteristic Curves: Averaged Grid 2<br>Characteristic Curves: |

| PARAMETER | PUBLISHED VALUE | CONDITION / NOTE                                                                                   |
|-----------|-----------------|----------------------------------------------------------------------------------------------------|
| Grid [2]  | <b>15</b>       | Ur=83V;Up=15kV Averaged Grid 1<br>Characteristic Curves: Averaged Grid 2<br>Characteristic Curves: |
| Grid [3]  | <b>1</b>        | Ur=83V;Up=15kV Averaged Grid 1<br>Characteristic Curves: Averaged Grid 2<br>Characteristic Curves: |
| Grid [4]  | <b>2</b>        | Ur=83V;Up=15kV Averaged Grid 1<br>Characteristic Curves: Averaged Grid 2<br>Characteristic Curves: |

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