

# DOUBLE TETRODE

# GU-19-1

The GU-19-1 double tetrode is used as an oscillator, power amplifier, frequency multiplier and modulator tube in RF equipment.

### GENERAL

Cathode: indirectly heated, oxide-coated.  
 Envelope: glass, with base.  
 Height: at most 100 mm.  
 Diameter: at most 40 mm.  
 Mass: at most 100 g.

### OPERATING ENVIRONMENTAL CONDITIONS

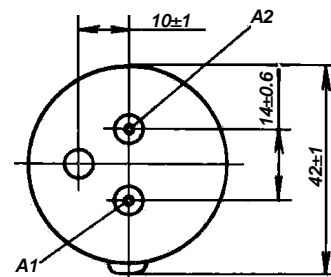
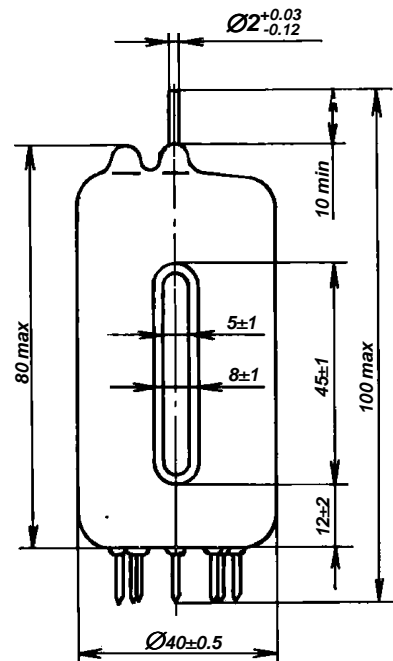
Vibration loads:	
frequencies, Hz	1-200
acceleration, m/s <sup>2</sup>	49
Multiple impacts with acceleration, m/s <sup>2</sup>	392
Relative humidity at up to 35 °C, %	98

### BASIC DATA Electrical Parameters

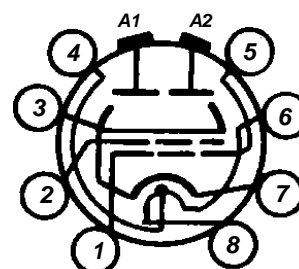
Heater voltage, V:	
with series connection	12.6
with parallel connection	6.3
Heater current, A:	
with series connection	0.75-0.95
with parallel connection	1.5-1.9
Mutual conductance (at anode voltage 350 V, grid 2 voltage 250 V, grid 1 changing voltage of first tetrode and grid 1 voltage 100 V of second tetrode, anode current 40 mA), mA/V, at least	4
Anode current (at anode voltage 350 V, grid 2 voltage 250 V, grid 1 voltage 17 V of first tetrode, grid 1 voltage 100 V of second tetrode), mA	18-75
Output power at 500 MHz (at anode voltage 350 V, grid 2 voltage 250 V, voltage 55 V of grids 1, grid 2 currents not above 26 mA, anode current 240 mA), W, at least	40
Interelectrode capacitance, pF:	
input	7.5-12.5
output	2.8-4.2
transfer, at most	0.8

### Limit Operating Values

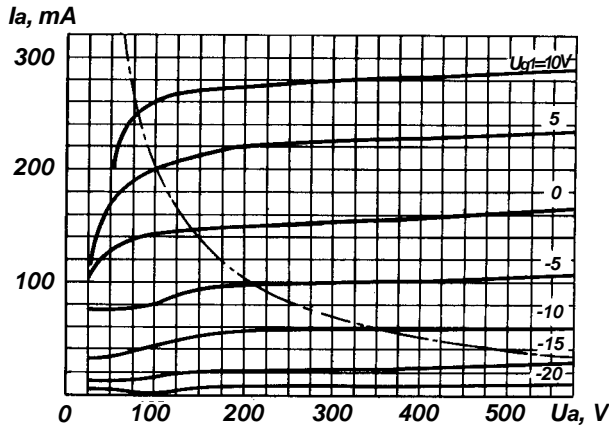
Heater voltage (AC or DC), V:	
with series connection	11.4-13.8
with parallel connection	5.7-6.9
Anode voltage (DC), V	750
Grid 2 voltage (DC), V	250
Cathode-heater voltage (DC), V	100
Cathode current (DC component), mA	280
Dissipation, W:	
anode	40
grid 2	60
grids 1	1.0
Operating frequency, MHz	500
Bulb temperature, °C	250



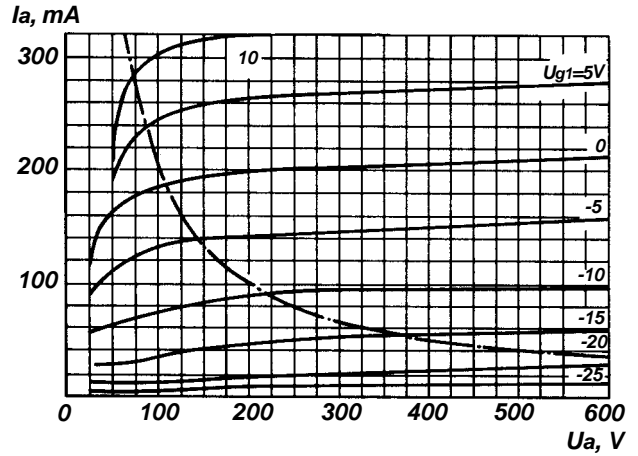
CONNECTION OF ELECTRODES WITH LEADS



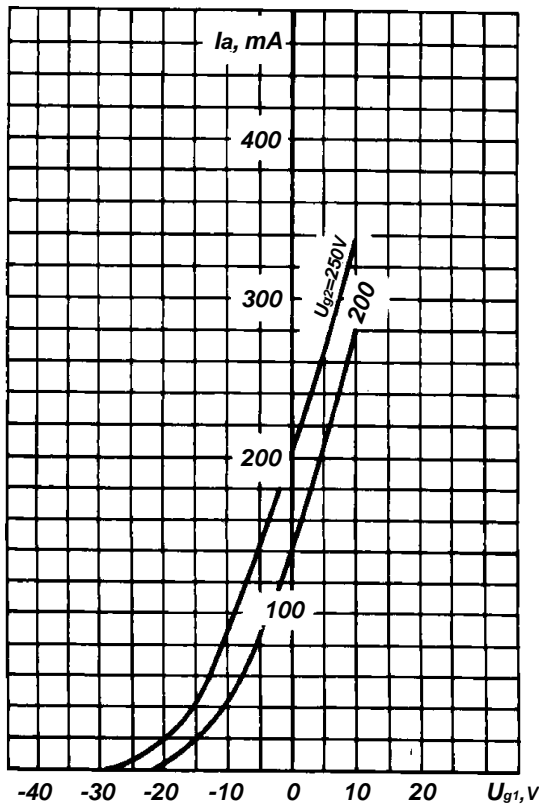
- 1 - grid 1 of first tetrode;
- 2 - grid 2;
- 3 - cathode and beam forming plates;
- 4 - heater (centre tap);
- 5 - grid 1 of second tetrode;
- 6 - heater;
- 7 - cathode;
- 8 - heater;
- A1 - anode of first tetrode - top lead;
- A2 - anode of second tetrode - top lead



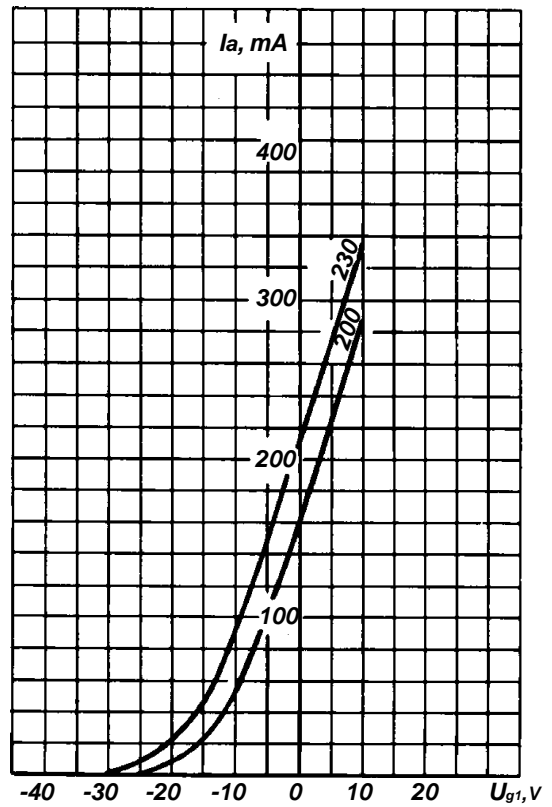
Averaged Anode Characteristic Curves  
(Each Tetrode):  
 $U_1 = 12.6V$ ;  $U_{g2} = 200V$ ;  
-----  $P_{a\max}$



Averaged Anode Characteristic Curves  
(Each Tetrode):  
 $U_1 = 12.6V$ ;  $U_{g2} = 250V$ ;  
-----  $P_{a\max}$



Averaged Anode-Grid Characteristic Curves  
(Each Tetrode)



Averaged Anode-Grid Characteristic Curves  
(Each Tetrode):  
 $U_1 = 12.6V$ ;  $U_a = 550V$