

MICROWAVE TRIODE GS-9B (GS-90B)

The GS-9B (GS-90B) microwave triode is used for RF voltage generation in external-feedback oscillators designed for continuous operation in the decimetric wavelength range. The triode is available in two variants of cooling: with a heat sink, suitable for forced air cooling (GS-9B), and without a heat sink, for other types of cooling (GS-90B).

GENERAL

Cathode: indirectly heated, oxide-coated.

Envelope: metal-ceramic.

Cooling: forced air.

Height:

at most 110.5 mm with a heat sink,

at most 97 mm with no heat sink.

Diameter:

at most 65 mm with a heat sink,

at most 36.3 mm with no heat sink.

Mass:

at most 330 g with a heat sink,

at most 170 g with no heat sink.

OPERATING ENVIRONMENTAL CONDITIONS

Vibration loads:

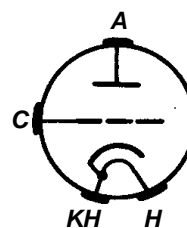
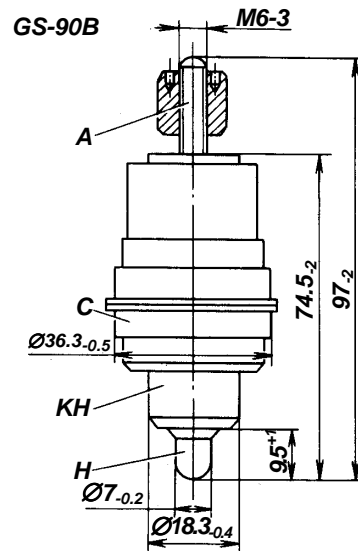
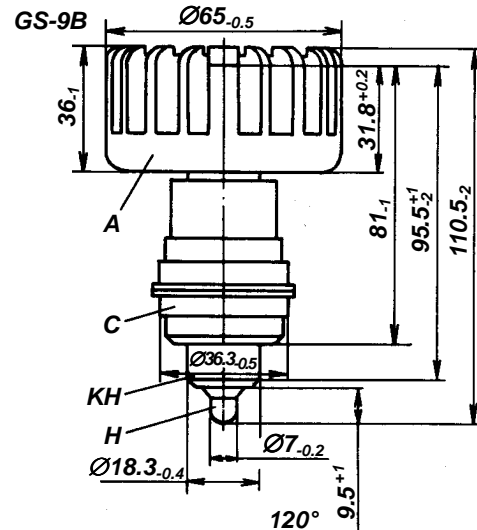
frequency, Hz	5-600
acceleration, m/s ²	59
Multiple impacts with acceleration, m/s ²	343
Single impacts with acceleration, m/s ²	1470
Linear loads with acceleration, m/s ²	490
Ambient temperature, °C	-60 to +100
Relative humidity at up to +40 °C, %	98

BASIC DATA Electrical Parameters

Heater voltage, V	12.6
Heater current, A	1-1.2
Mutual conductance (at anode voltage 1.3 kV and anode current 120 mA), mA/V	15-24
Penetration factor (at anode voltage 1.3 kV, anode voltage change +200 V, anode current 120mA), %	0.6-1.2
Interelectrode capacitance, pF:	
input	7.2-9.6
output, at most	0.04
transfer	2.8-3.5
Warm up time, s, at most	90
Output power (continuous operation at anode voltage 1.5 kV, anode current 175 mA, wavelength 18 cm), W, at least	40
Output power over 200 h of service, W, at least	32

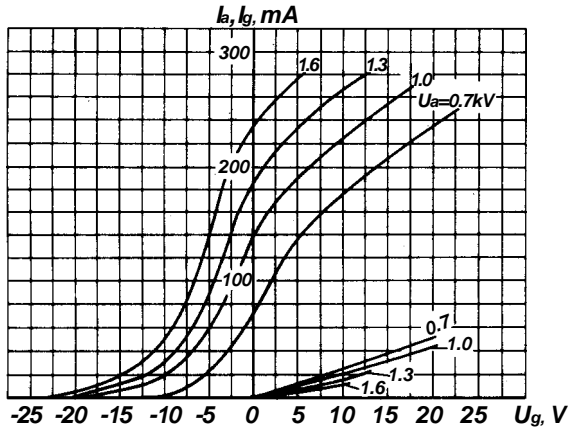
Limit Operating Values

Heater voltage, V	11.7-13
Anode voltage, kV:	
DC voltage in continuous operation	2.5
DC voltage at cold cathode	3
instantaneous value in continuous operation	5
Grid voltage (instantaneous value), V	-200 to +50
Cathode current, mA:	
r.m.s. value	330
DC component at frequency doubling	190
instantaneous value under class B conditions	700
Dissipation, W:	
anode	300
grid, neglecting the grid thermal current	5
grid with grid thermal current at most 5 mA	2.2
Temperature, °C:	
anode heat sink	130
grid lead	200
cathode lead	100
external ceramic parts	250
Resistance in the grid circuit, kΩ	10

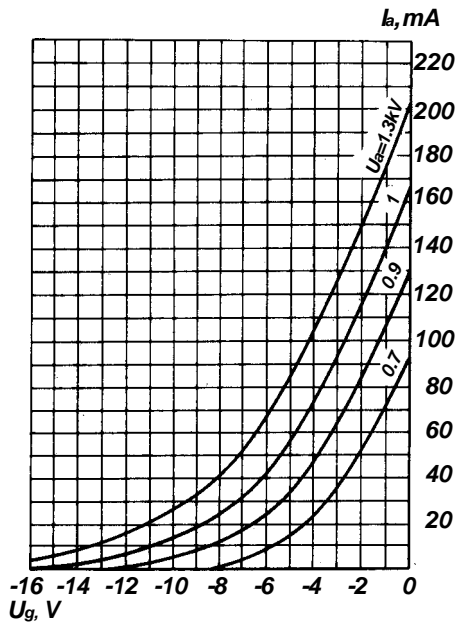


CONNECTION OF ELECTRODES WITH LEADS

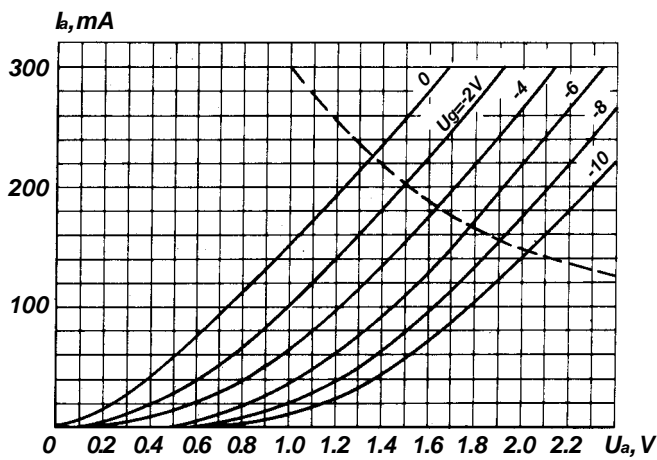
A - anode; C - grid;
KH - cathode and heater;
H - heater



Averaged Anode-Grid Characteristic Curves



Averaged Anode-Grid Characteristic Curves:
 $U_1 = 12.6V$



Averaged Characteristic Curves:
 — anode;
 - - - $P_a \max$