1P24B

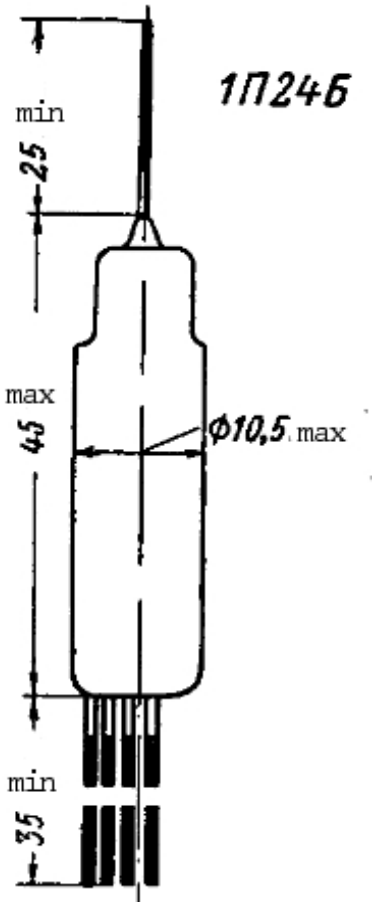
Output Power Pentode

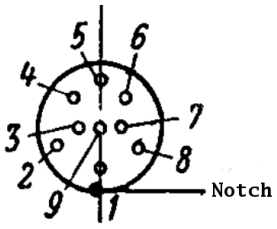
Main applications:

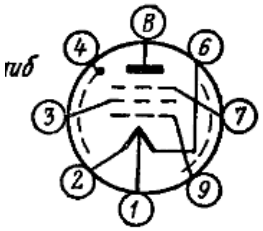
Generation and Amplification of High-Frequency Power.
Pulsed Operation.

General Data:

Package	–	glass, sub-miniature, with flexible leads.
Cathode	–	directly heated oxide cathode.
Maximum weight	–	5g
Operating orientation	–	any







1 — heater (pos) 2 — heater (neg) 3 — 2nd grid 4 — screen 5 — n/c 6 — heater (neg) 7 — 3rd grid 8 — n/c 9 — 1st grid B — anode (top pin)

Typical Operating Characteristics

Heater voltage	1.2V or 2.4V
Anode voltage	150V
2^{nd} grid voltage	125V
3^{rd} grid voltage	0V
1^{st} grid voltage	-14V

Electrical Parameters

Electrical Parameter	Unit	Min	Typ	Max
Heater current at heater voltage 1.2V	mA	230	255	280
Anode current	mA	12	17	24
2^{nd} grid current	mA			3
1^{st} grid reverse current	uA			0.5
Slope of characteristic (transfer fct.)	mA/V	2.1	2.8	3.5
Slope of characteristic at heater voltage 20% less than normal	mA/V	1.7		
Output power into 50Ohm load at 45MHz	W	1.3		
Input impedance at 60MHz	KOhm	50		
Equivalent impedance of internal tube noise	KOhm			7
Input capacitance	pF	6.6	7.5	7.7
Transition capacitance	pF			0.008
Output capacitance	pF	3.5	4	4.5
Anode-cathode capacitance	pF			0.03
Amplitude of microphonics across 2KOhm under vibration at 10g acceleration and 50Hz frequency	mV (rms)			150
Amplitude of microphonics across 2KOhm under vibration at 10g acceleration and frequency below 200Hz	mV (rms)			150
Amplitude of microphonics across 2KOhm under vibration at 10g acceleration and frequency below 600Hz	mV (rms)			600
Heater warm-up time	sec			1

Reliability Testing

Frequency range in which there are no structural mechanical resonances	Hz	5 – 600
Lifetime (min)	hr	1000
Non-failure criterion: slope of characteristic not less than	mA/V	1.7
Non-failure criterion: 1st grid reverse current not more than	uA	0.5
Percentage of non-failed devices after 500hrs	%	98
Percentage of non-failed devices after 1000hrs	%	90
Lifetime under constant vibration at 10g acceleration not less than	hr	100
Non-failure criterion: slope of characteristic not less than	mA/V	1.7
Non-failure criterion: amplitude of microphonics not more than	mV (rms)	150

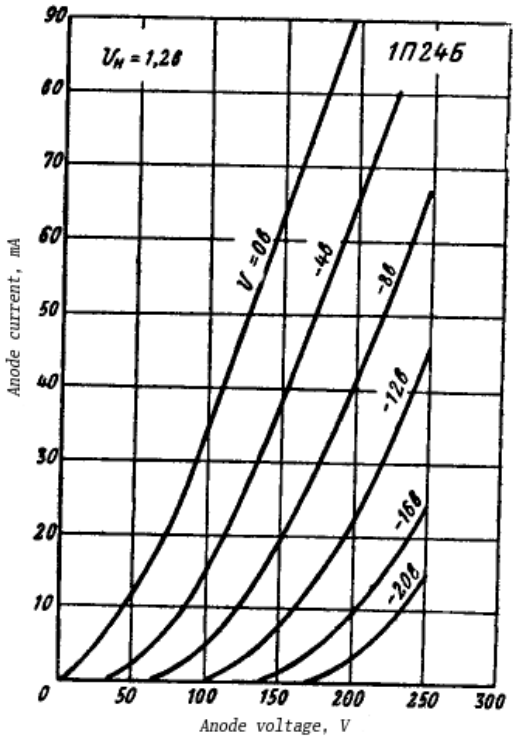
Maximum Ratings

Minimum heater voltage under parallel heater connections	V	1.08; 0.95*
Maximum heater voltage under parallel heater connections	V	1.34; 1.4*
Minimum heater voltage under series heater connections	V	2.18; 1.95*
Maximum heater voltage under series heater connections	V	2.64; 2.8*
Maximum anode voltage	V	300
Maximum 2nd grid voltage	V	200
Maximum 1st grid resistance	MOhm	0.5
Maximum power dissipated in anode	W	2.5
Maximum power dissipated in 2nd grid	W	1
Maximum cathode current	mA	25
Maximum constant acceleration	g	100
Maximum single impact acceleration (up to 10 impacts)	g	500
Maximum repetitive impact acceleration (up to 4000 impacts)	g	150
Maximum environment temperature	C	85
Minimum environment temperature	C	-60
Minimum atmospheric pressure	mmHg	5
Maximum atmospheric pressure	atm	3

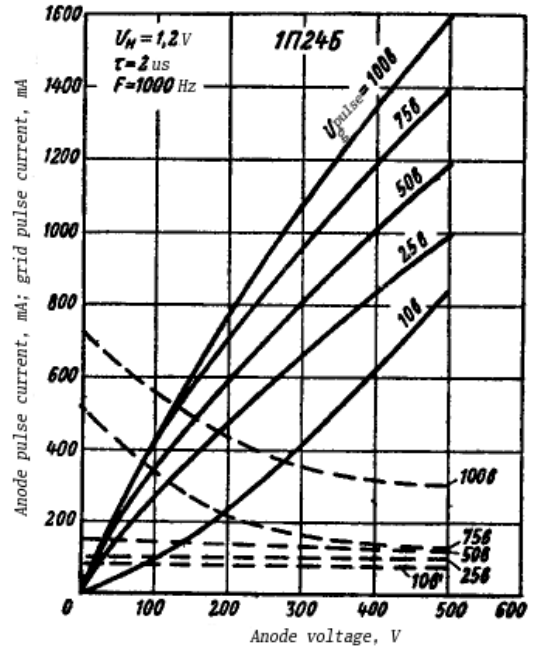
* Maximum heater voltage ratings when powered from dry-cell batteries at cyclical discharge.

Maximum Ratings for pulsated operation at lifetime of 50hrs

Minimum heater voltage under parallel heater connections	V	0.95
Maximum heater voltage under parallel heater connections	V	1.4
Maximum anode voltage	V	400
Maximum 2nd grid voltage	V	300
Maximum 1st grid negative voltage	V	-60
Maximum cathode pulse current	mA	800
Maximum pulse duration	us	3

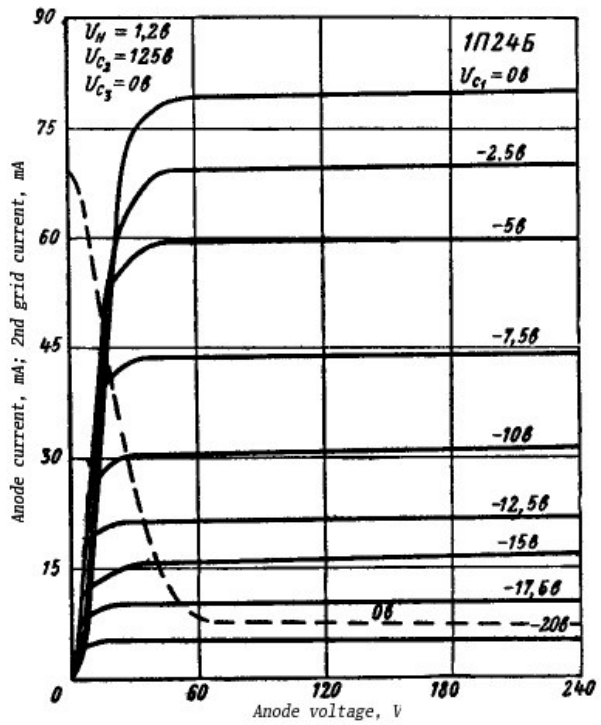


Anode characteristics in triode connection



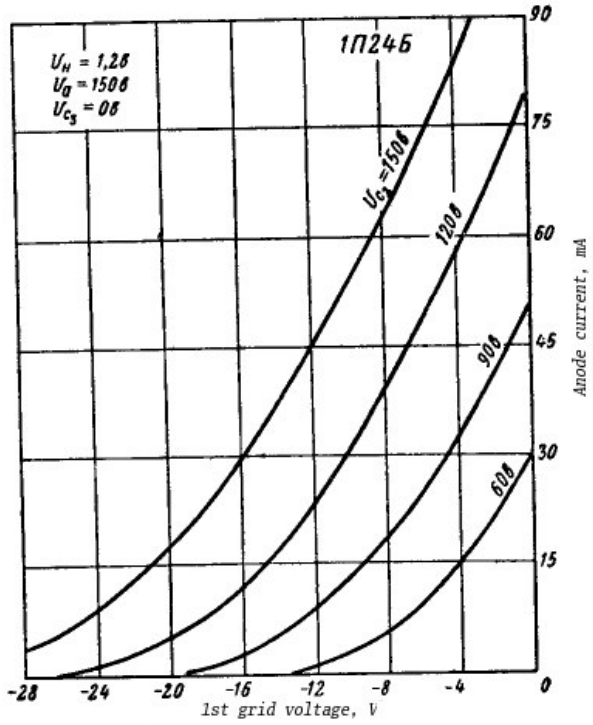
Pulsed characteristics in triode connection

——— Pulsed anode current — — Pulsed grid current

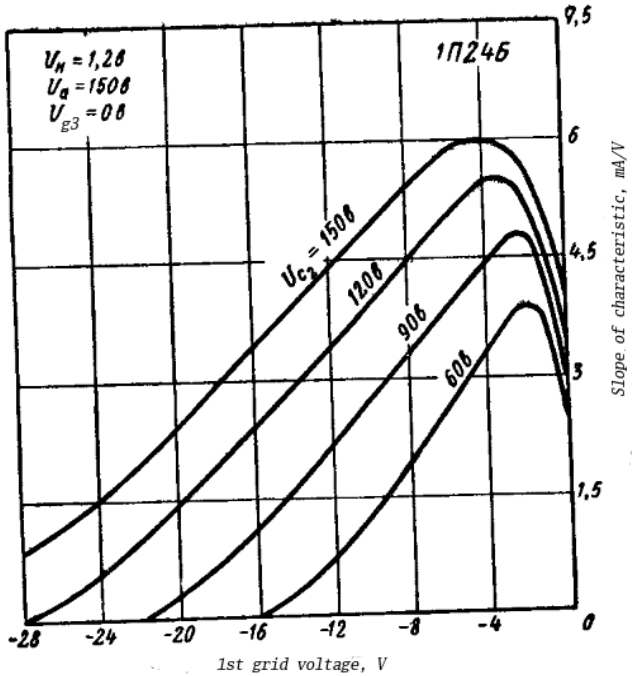


Anode and grid-anode characteristics

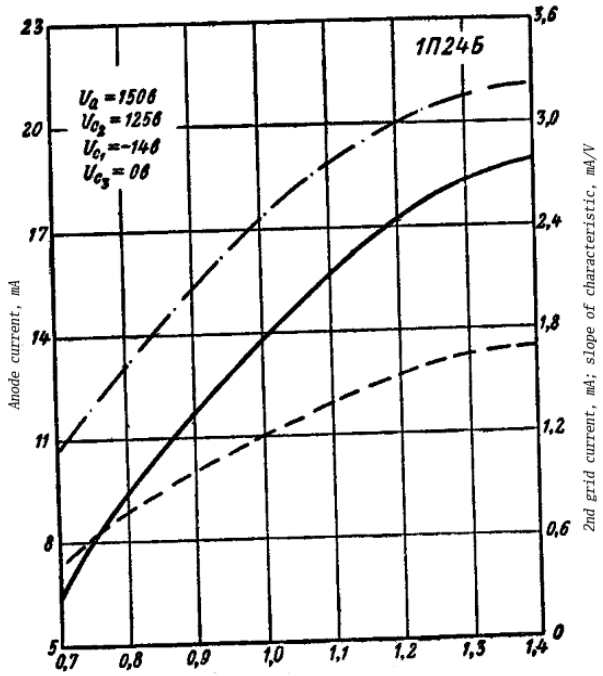
anode current — 2nd grid current



Anode-grid characteristics

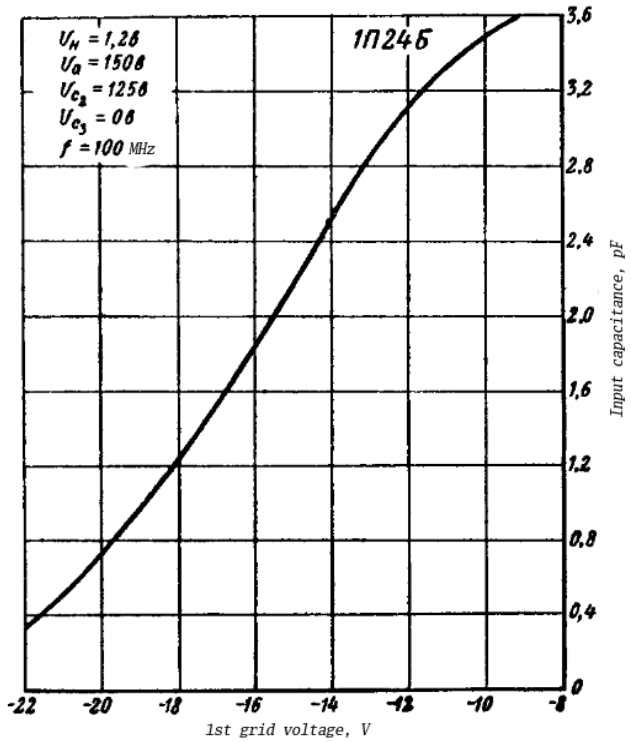


Slope of characteristic dependence on 1st grid voltage

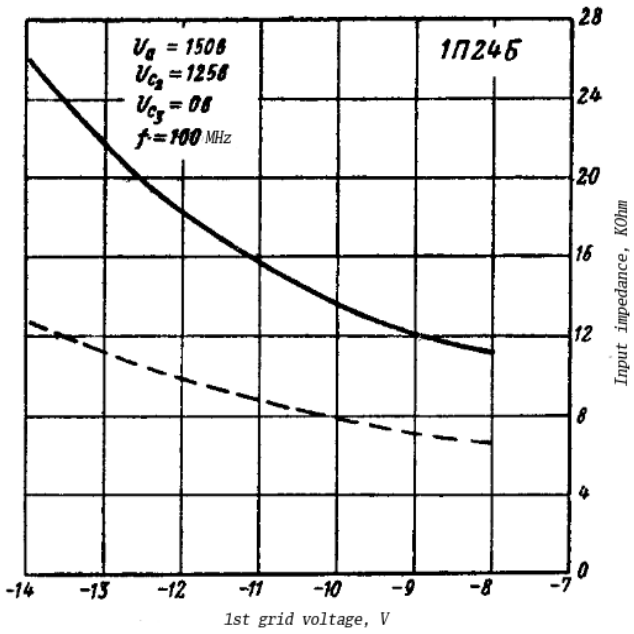


Anode current, slope of characteristic and 2nd grid current dependence on heater voltage

Anode current — slope of characteristic
2nd grid current



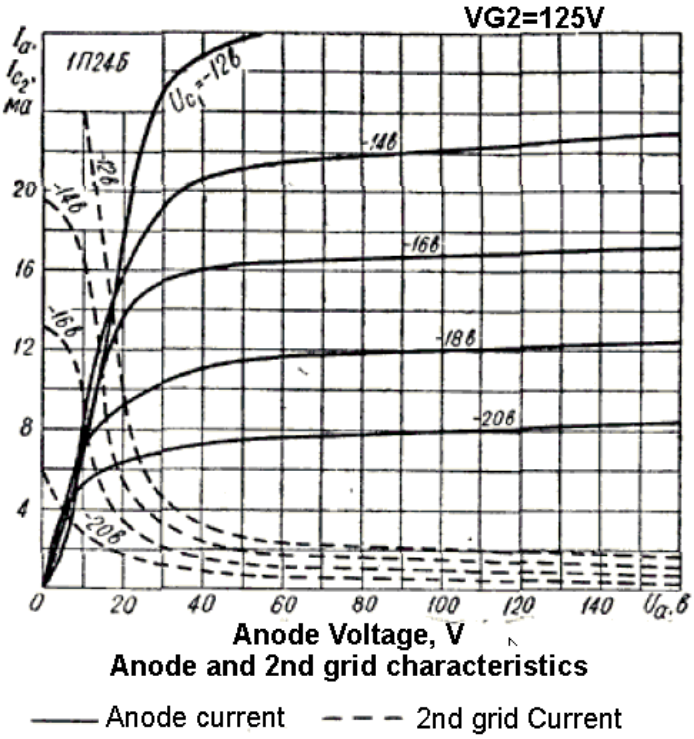
Input (hot) capacitance dependence on 1st grid voltage



Input impedance dependence on 1st grid voltage

——— for heater voltage 1.2V and 2.4V with center heater terminal grounded over high frequencies.

– – – for heater voltage 2.4V with center heater terminal not grounded over high frequencies.



Anode and 2nd grid characteristics

——— Anode current – – – 2nd grid Current

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Kindly translated from the original Russian by MIT Electrical Engineering Student:

Dimitri Turbiner