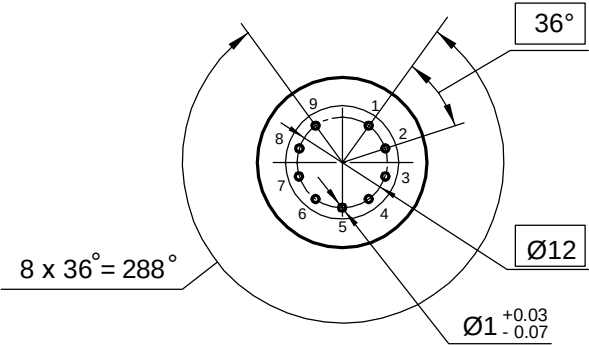


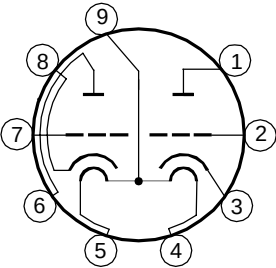
12AT7EH

Vacuum tube 12AT7EH is a miniature twin triode with equipotential cathodes, designed to amplify low frequency voltage in radio engineering devices.

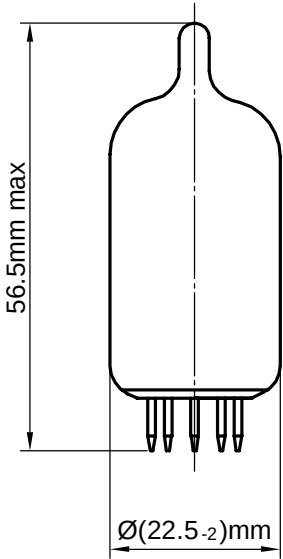
Pin arrangement



Electrode -to - lead connection diagram



Dimensions



Lead designation	Name of electrode
1	Second triode plate
2	Second triode grid
3	Second triode cathode
4,5,9	Heater
6	First triode plate
7	First triode grid
8	First triode cathode

Electrical parameters

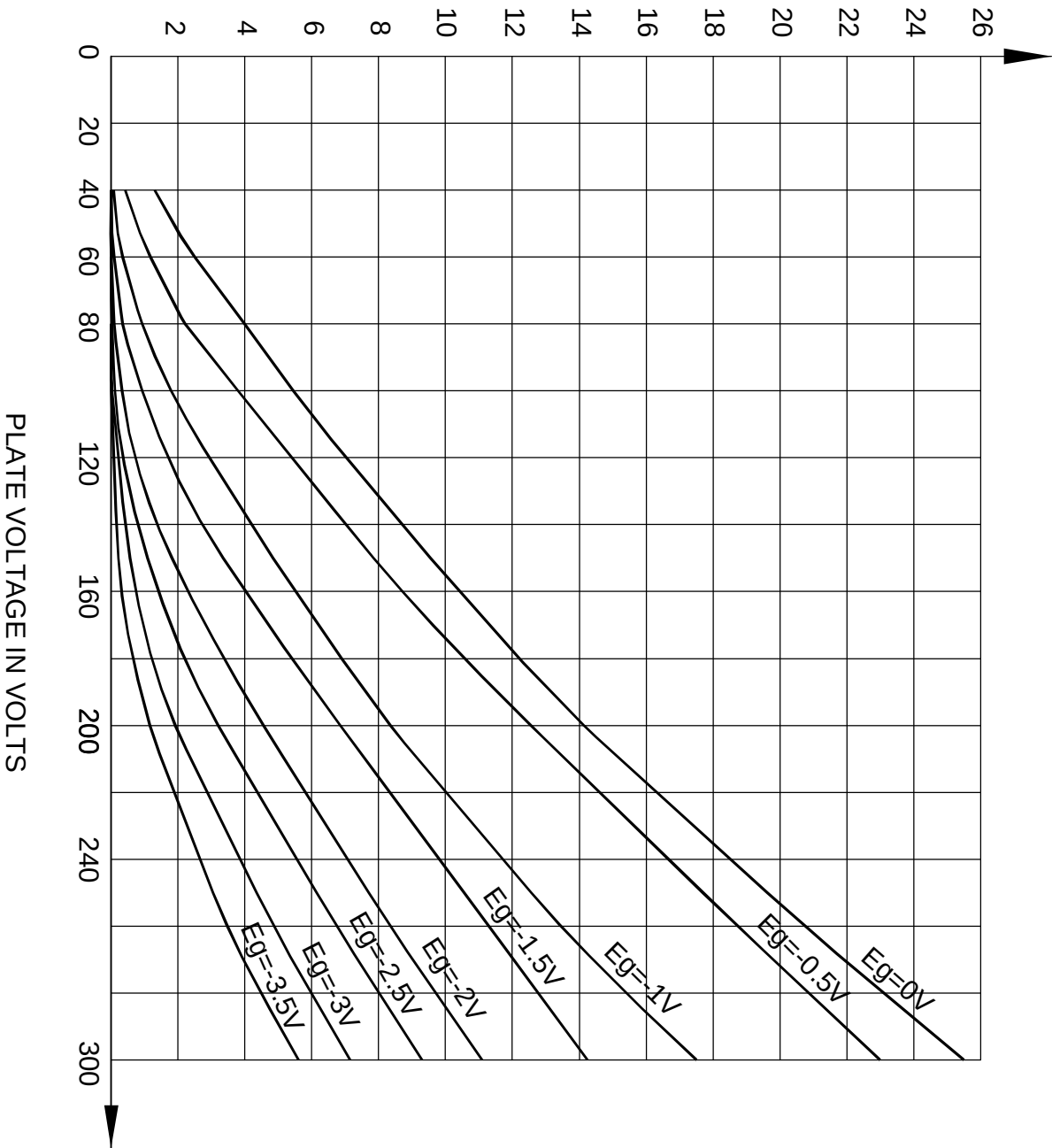
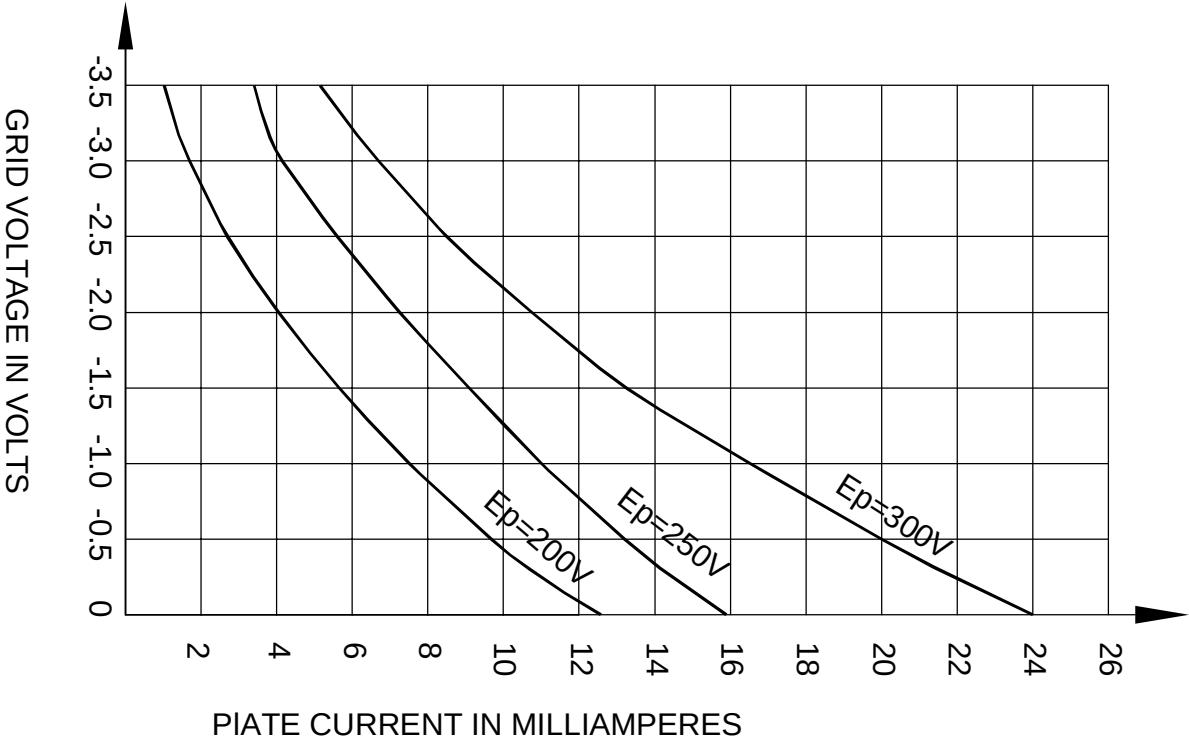
Parameters, conditions and units	Nominal	
	min	max
Heater current, mA at: filament voltage 6.3 V at: filament voltage 12.6 V	350 175	390 195
Grid back current, μA , (at: filament voltage 6.3 V or 12.6 V, plate voltage 250 V, grid voltage minus 2.0 V, resistance in grid circuit 0.25 M Ω)	—	0.5
Plate current, mA, (at: filament voltage 6.3 V or 12.6 V, plate voltage 250 V, grid voltage minus 2.0 V)	7.0	14.0
First and second triodes plate current difference, % (at: filament voltage 6.3 V or 12.6 V, plate voltage 250 V, grid voltage minus 2.0 V)	—	± 40
Slope of characteristic, mA/V (at: filament voltage 6.3 V or 12.6 V, plate voltage 250 V, grid voltage minus 2.0 V)	4.3	6.5
Amplification factor (at: filament voltage 6.3 V or 12.6 V, plate voltage 250 V, grid voltage minus 2.0 V)	45	—
Cathode - heater insulation resistance, M Ω (at: filament voltage 6.3 V or 12.6 V, cathode - heater voltage ± 200 V)	20	—
Plate current at the beginning of the characteristic, μA (at: filament voltage 6.3 V or 12.6 V, plate voltage 250 V, grid voltage minus 12.0 V)	—	30

Limiting Values

Parameters, units	Nominal	
	min	max
Filament voltage, V for parallel connection for series connection	6 12	6.6 13.2
Plate voltage, V	—	330
Cathode - heater voltage, V	—	± 200
Power dissipation at the plate of each triode, W	—	3.25
Cathode current, mA	—	18
Grid circuit resistance for each of the triodes, M Ω fixed bias self - bias	— —	0.25 1.0

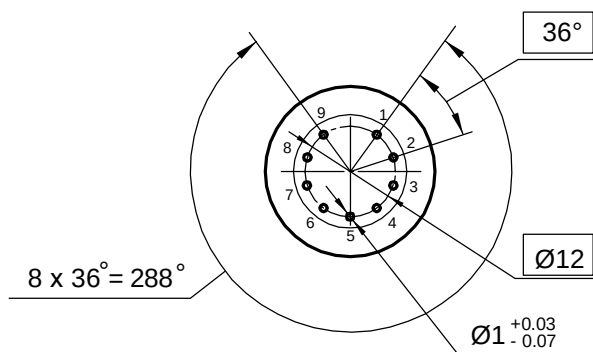
$I_p = f(E_g)$
 $E_f = 6.3V$

$I_p(mA)$ $I_p(mA)$

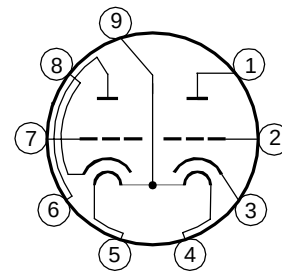


Vacuum tube 12AT7WCEH is a miniature twin triode with equipotential cathodes, designed to amplify low frequency voltage in radio engineering devices.

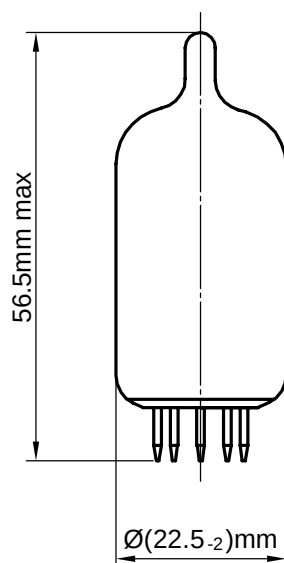
Pin arrangement



Electrode -to - lead connection diagram



Dimensions



Lead designation	Name of electrode
1	Second triode plate
2	Second triode grid
3	Second triode cathode
4,5,9	Heater
6	First triode plate
7	First triode grid
8	First triode cathode

Electrical parameters

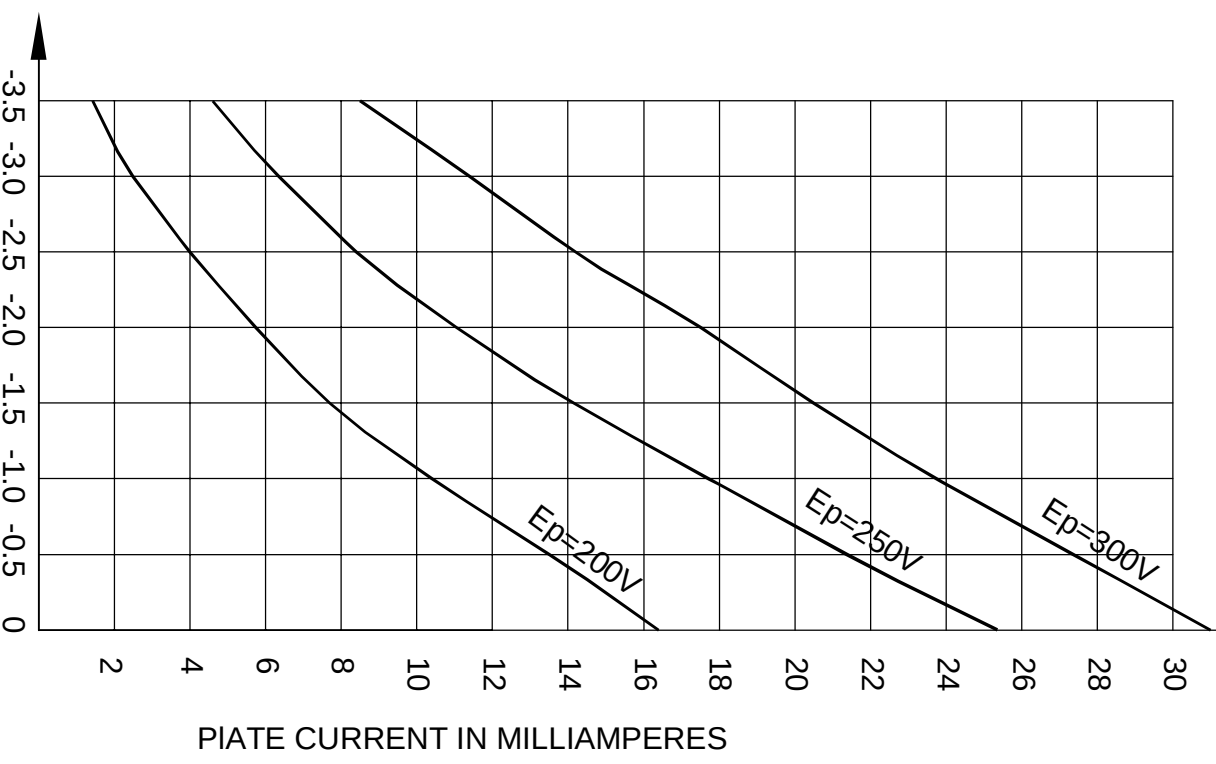
Parameters, conditions and units	Nominal	
	min	max
Heater current, mA at: filament voltage 6.3 V at: filament voltage 12.6 V	340 170	370 185
Grid back current, μA , (at: filament voltage 6.3 V or 12.6 V, plate voltage 250 V, grid voltage minus 2.0 V, resistance in grid circuit 0.25 M Ω)	—	0.5
Plate current, mA, (at: filament voltage 6.3 V or 12.6 V, plate voltage 250 V, grid voltage minus 2.0 V)	7.0	16.0
First and second triodes plate current difference, % (at: filament voltage 6.3 V or 12.6 V, plate voltage 250 V, grid voltage minus 2.0 V)	—	± 40
Slope of characteristic, mA/V (at: filament voltage 6.3 V or 12.6 V, plate voltage 250 V, grid voltage minus 2.0 V)	4.1	6.8
Amplification factor (at: filament voltage 6.3 V or 12.6 V, plate voltage 250 V, grid voltage minus 2.0 V)	45	—
Cathode - heater insulation resistance, M Ω (at: filament voltage 6.3 V or 12.6 V, cathode - heater voltage ± 200 V)	20	—
Plate current at the beginning of the characteristic, μA (at: filament voltage 6.3 V or 12.6 V, plate voltage 250 V, grid voltage minus 12.0 V)	—	60

Limiting Values

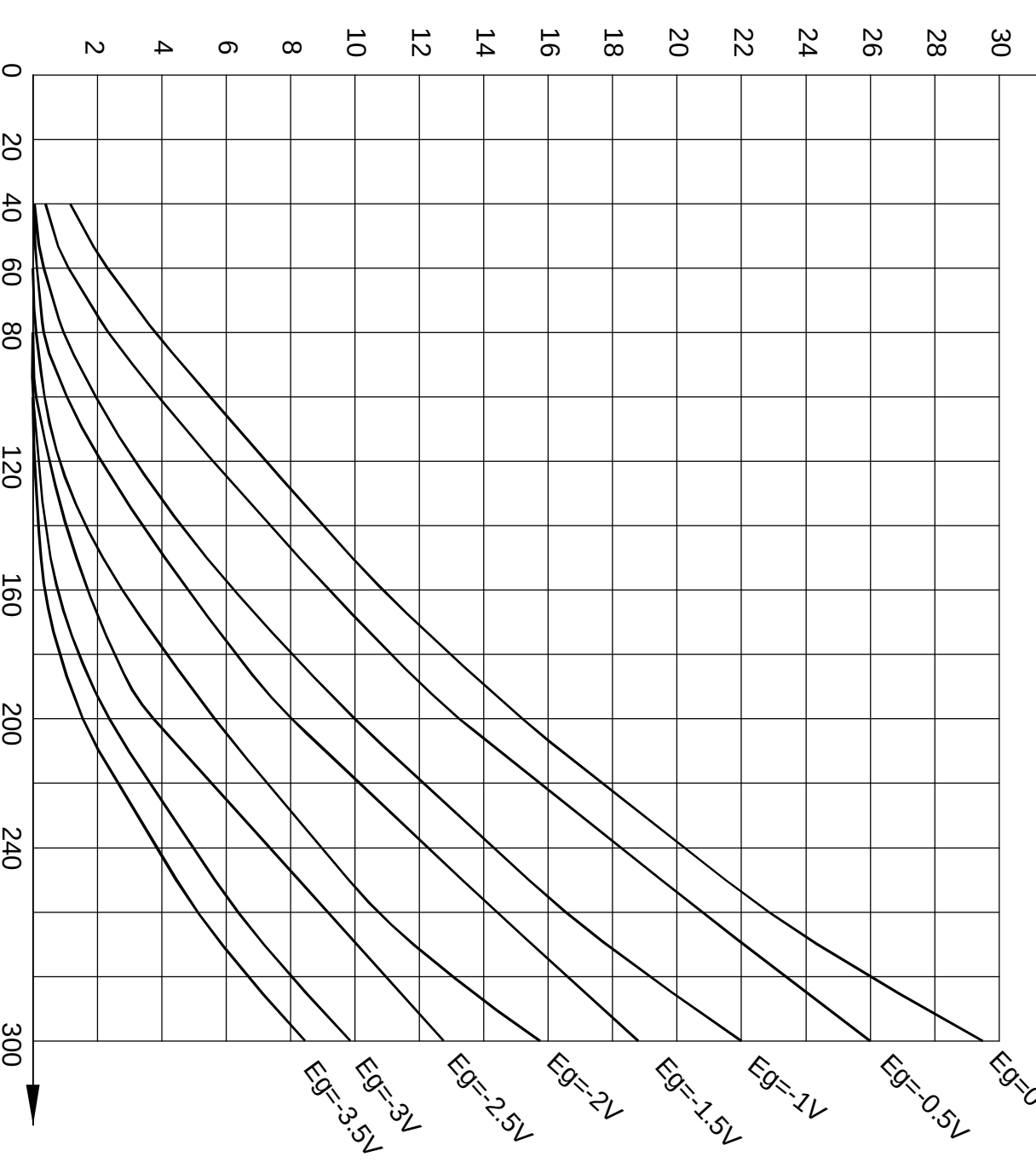
Parameters, units	Nominal	
	min	max
Filament voltage, V for parallel connection for series connection	6 12	6.6 13.2
Plate voltage, V	—	330
Cathode - heater voltage, V	—	± 200
Power dissipation at the plate of each triode, W	—	3.25
Cathode current, mA	—	18
Grid circuit resistance for each of the triodes, M Ω fixed bias self - bias	— —	0.25 1.0

12AT7WCEH

$I_p = f(E_g)$
 $E_f = 6.3V$

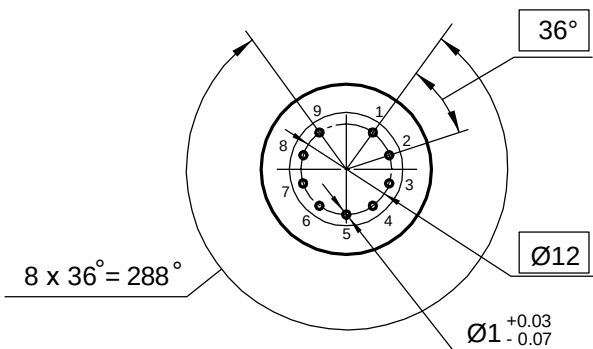


$I_p = f(E_p)$
 $E_f = 6.3V$

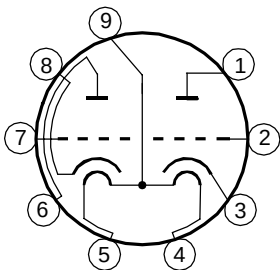


Vacuum tube 12AU7A/ECC82EH is a miniature twin triode with equipotential cathodes, designed to amplify low frequency voltage in radio engineering devices.

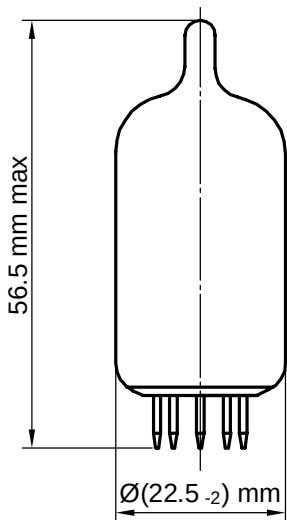
Pin arrangement



Electrode -to - lead connection diagram



Dimensions



Lead designation	Name of electrode
1	Second triode plate
2	Second triode grid
3	Second triode cathode
4, 5, 9	Heater
6	First triode plate
7	First triode grid
8	First triode cathode

Electrical parameters

12AU7A/ECC82EH

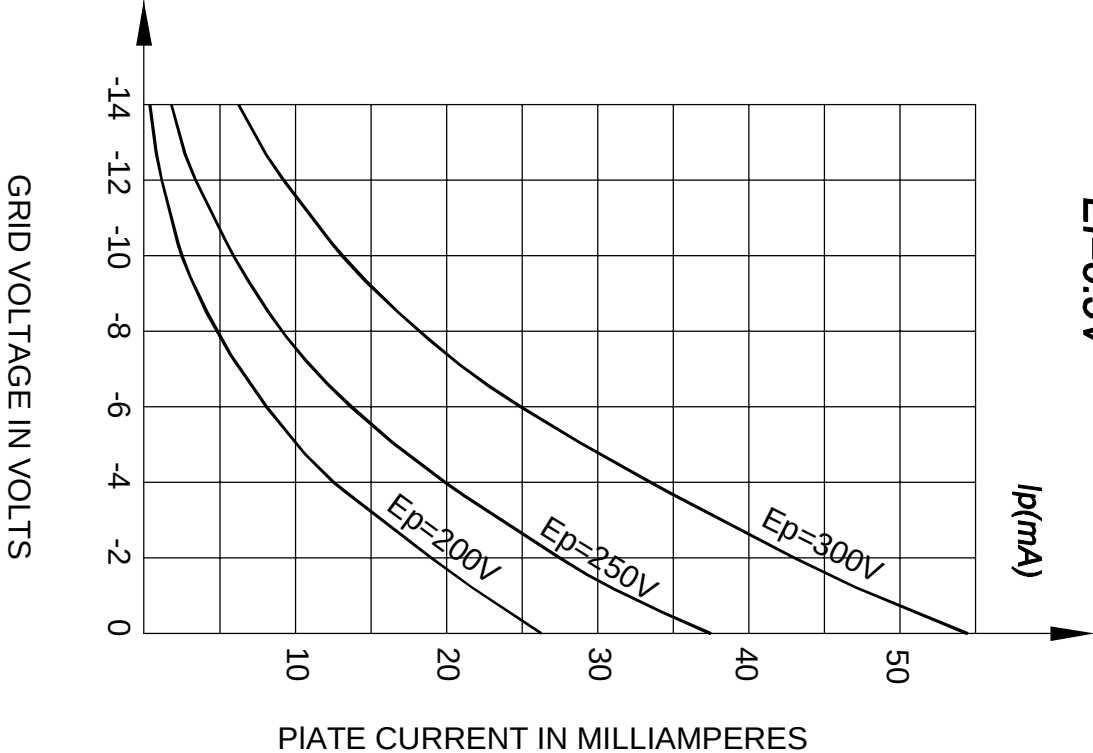
Parameters, conditions and units	Nominal	
	min	max
Heater current, mA at: filament voltage 6.3 V at: filament voltage 12.6 V	300 150	350 175
Grid reverse current, μA , (at: filament voltage 6.3 V or 12.6 V, plate voltage 250 V, grid voltage minus 8.5 V, resistance in grid circuit 0.25 M Ω)	—	0.2
Plate current, mA, (at: filament voltage 6.3 V or 12.6 V, plate voltage 250 V, grid voltage minus 8.5 V)	7.5	13.5
First and second triodes plate current difference, % (at: filament voltage 6.3 V or 12.6 V, plate voltage 250 V, grid voltage minus 8.5 V)	—	± 40
Slope of characteristic, mA/V (at: filament voltage 6.3 V or 12.6 V, plate voltage 250 V, grid voltage minus 8.5 V)	1.7	3.0
Amplification factor (at: filament voltage 6.3 V or 12.6 V, plate voltage 250 V, grid voltage minus 8.5 V)	13	—
Cathode - heater insulation resistance, M Ω (at: filament voltage 6.3 V or 12.6 V, cathode - heater voltage ± 200 V)	20	—
Plate current at the beginning of the characteristic, μA (at: filament voltage 6.3 V or 12.6 V, plate voltage 250 V, grid voltage minus 25.0 V)	—	100

Limiting Values

Parameters, units	Nominal	
	min	max
Filament voltage, V for parallel connection for series connection	6 12	6.6 13.2
Plate voltage, V	—	300
Cathode - heater voltage, V	—	± 200
Power dissipation at the plate of each triode, W	—	2.75
Cathode current, mA	—	22
Grid circuit resistance for each of the triodes, M Ω fixed bias self - bias	— —	0.25 1.0

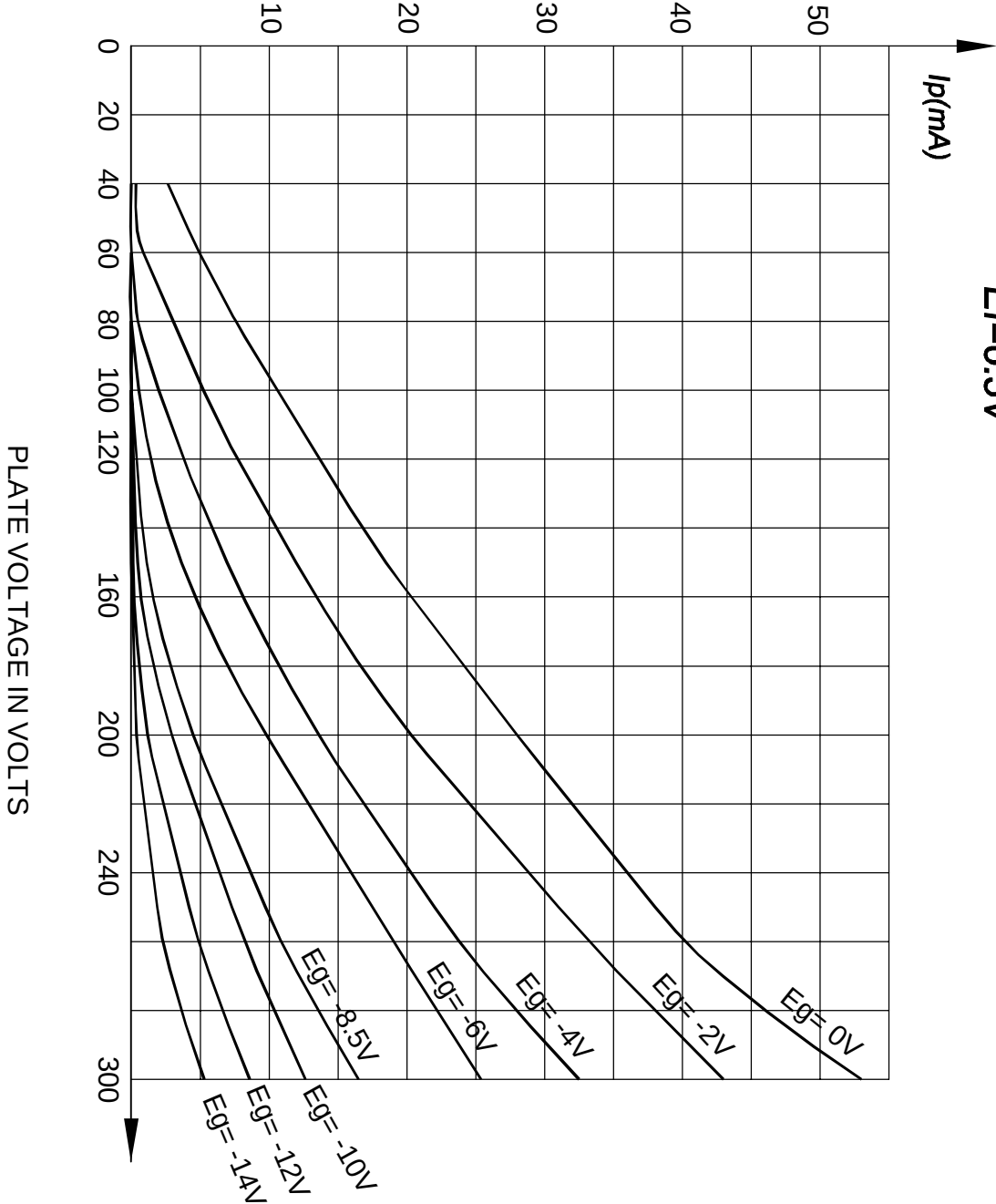
$I_p=f(E_g)$

$E_f=6.3V$



$I_p=f(E_p)$

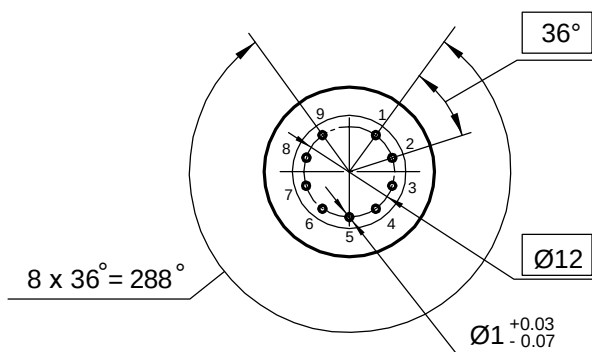
$E_f=6.3V$



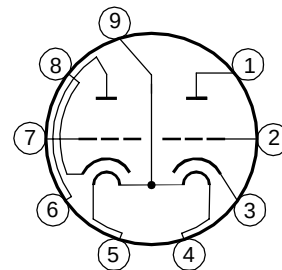
12AX7EH, 12AX7SV

Vacuum tube 12AX7EH, 12AX7SV is a miniature twin triode with equipotential cathodes, designed to amplify low frequency voltage in radio engineering devices.

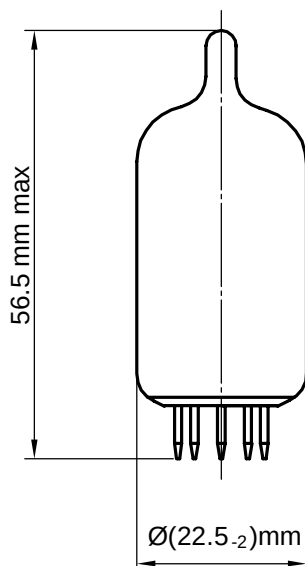
Pin arrangement



Electrode -to - lead connection diagram



Dimensions



Lead designation	Name of electrode
1	Second triode plate
2	Second triode grid
3	Second triode cathode
4, 5, 9	Heater
6	First triode plate
7	First triode grid
8	First triode cathode

Electrical parameters

12AX7EH, 12AX7SV

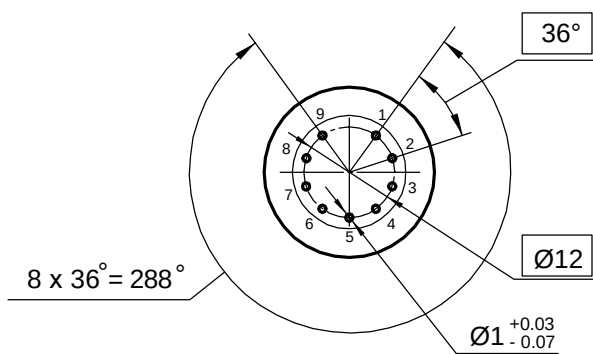
Parameters, conditions and units	Nominal	
	min	max
Heater current, mA at: filament voltage 6.3 V at: filament voltage 12.6 V	320 160	365 183
Grid reverse current, μA , (at: filament voltage 6.3 V or 12.6 V, plate voltage 250 V, grid voltage minus 2.0 V, resistance in grid circuit 1.0 M Ω)	—	0.2
Plate current, mA, (at: filament voltage 6.3 V or 12.6 V, plate voltage 250 V, grid voltage minus 2.0 V)	0.75	2.1
First and second triodes plate current difference, % (at: filament voltage 6.3 V or 12.6 V, plate voltage 250 V, grid voltage minus 2.0 V)	—	± 40
Plate current at the beginning of the characteristic, μA (at: filament voltage 6.3 V or 12.6 V, plate voltage 250 V, grid voltage minus 4.5 V)	—	30
Slope of characteristic, mA/V (at: filament voltage 6.3 V or 12.6 V, plate voltage 250 V, grid voltage minus 2.0 V)	1.4	—
Amplification factor (at: filament voltage 6.3 V or 12.6 V, plate voltage 250 V, grid voltage minus 2.0 V)	83	—
Cathode - heater insulation resistance, M Ω (at: filament voltage 6.3 V or 12.6 V, cathode -heater voltage ± 200 V)	20	—

Limiting Values

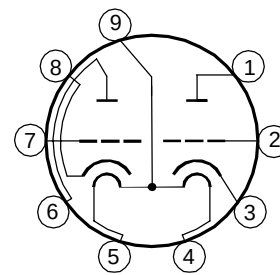
Parameters, units	Nominal	
	min	max
Filament voltage, V for parallel connection for series connection	6 12	6.6 13.2
Plate voltage, V	—	330
Cathode - heater voltage, V	—	± 200
Cathode current, mA	—	9
Power dissipation at the plate of each triode, W	—	1.2
Grid circuit resistance for each of the triodes, M Ω fixed bias self - bias	— —	1.0 2.2

Vacuum tube 12AY7EH/6072A is a miniature twin triode with equipotential cathodes, designed to amplify low frequency voltage in radio engineering devices.

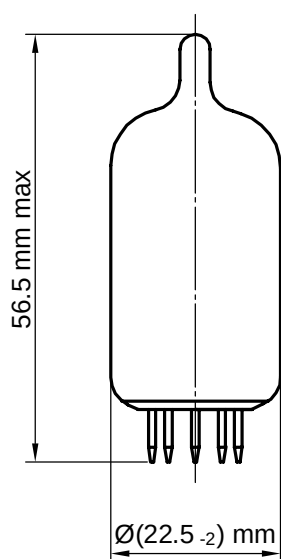
Pin arrangement



Electrode -to - lead connection diagram



Dimensions



Lead designation	Name of electrode
1	Second triode plate
2	Second triode grid
3	Second triode cathode
4, 5, 9	Heater
6	First triode plate
7	First triode grid
8	First triode cathode

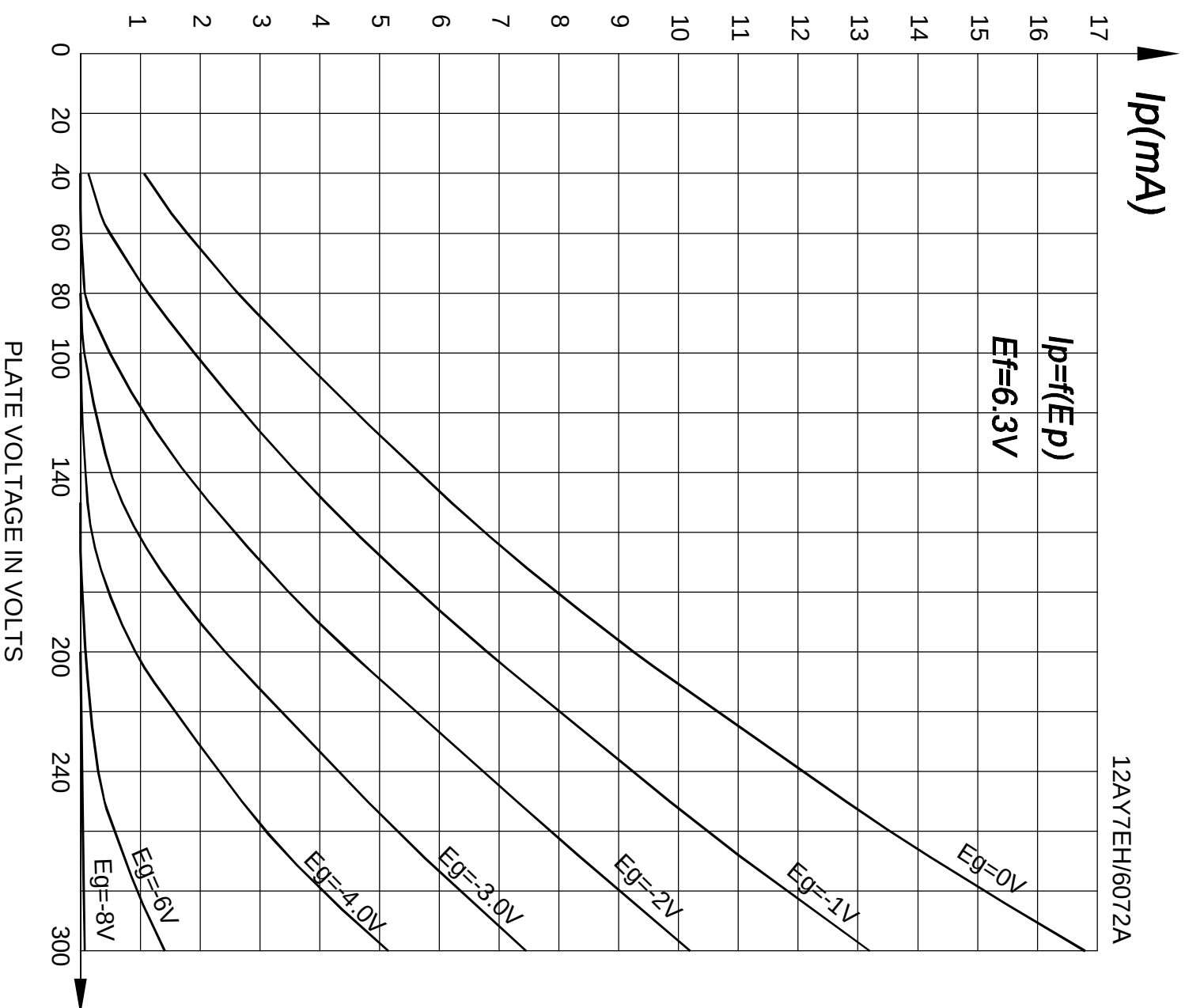
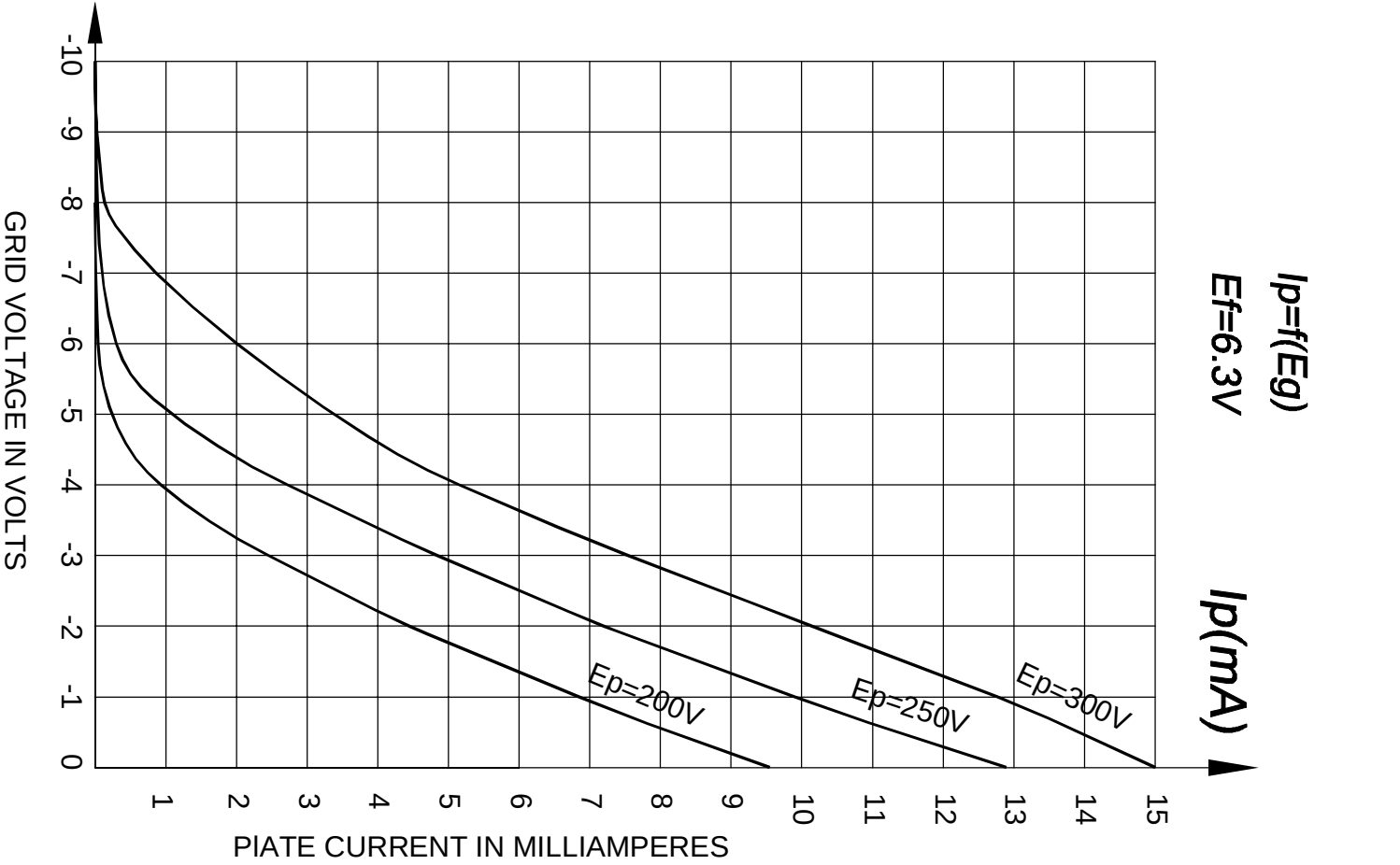
Electrical parameters

12AY7EH/6072A

Parameters, conditions and units	Nominal	
	min	max
Heater current, mA at: filament voltage 6.3 V at: filament voltage 12.6 V	340 170	370 185
Grid reverse current, μA , (at: filament voltage 6.3 V or 12.6 V, plate voltage 250 V, grid voltage minus 4.0 V, resistance in grid circuit 1.0 M Ω)	—	0.2
Plate current, mA, (at: filament voltage 6.3 V or 12.6 V, plate voltage 250 V, grid voltage minus 4.0 V)	2.2	3.75
First and second triodes plate current difference, % (at: filament voltage 6.3 V or 12.6 V, plate voltage 250 V, grid voltage minus 4.0 V)	—	± 40
Slope of characteristic, mA/V (at: filament voltage 6.3 V or 12.6 V, plate voltage 250 V, grid voltage minus 4.0 V)	1.3	2.1
Amplification factor (at: filament voltage 6.3 V or 12.6 V, plate voltage 250 V, grid voltage minus 4.0 V)	35	—
Cathode - heater insulation resistance, M Ω (at: filament voltage 6.3 V or 12.6 V, cathode - heater voltage ± 100 V)	10	—
Plate current at the beginning of the characteristic, μA (at: filament voltage 6.3 V or 12.6 V, plate voltage 250 V, grid voltage minus 11.0 V)	—	30

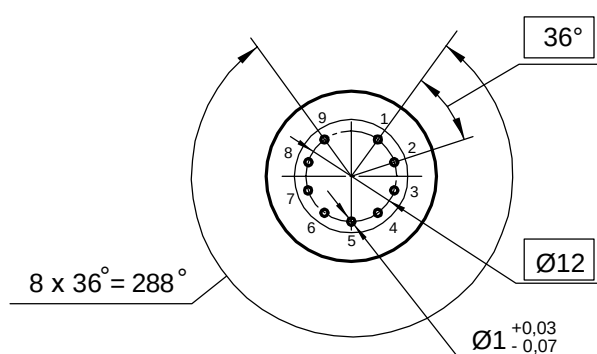
Limiting Values

Parameters, units	Nominal	
	min	max
Filament voltage, V for parallel connection for series connection	6 12	6.6 13.2
Plate voltage, V	—	300
Cathode - heater voltage, V	—	± 100
Power dissipation at the plate of each triode, W	—	1.5
Cathode current, mA	—	10
Grid circuit resistance for each of the triodes, M Ω fixed bias self - bias	— —	1.0 2.0

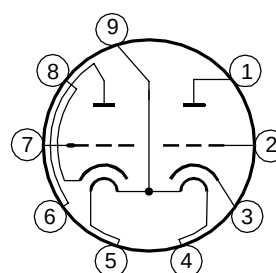


Vacuum tube 12BH7AEH is a miniature twin triode with equipotential cathodes, designed to amplify low frequency voltage in radio engineering devices.

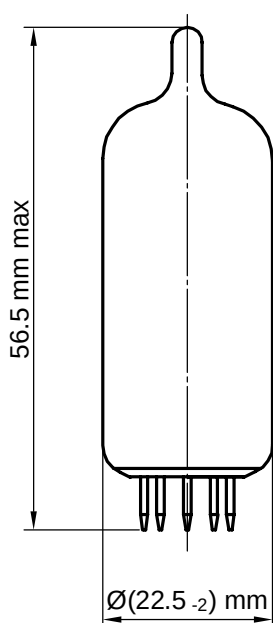
Pin arrangement



Electrode -to - lead connection diagram



Dimensions



Lead designation	Name of electrode
1	Second triode plate
2	Second triode grid
3	Second triode cathode
4, 5, 9	Heater
6	First triode plate
7	First triode grid
8	First triode cathode

Electrical parameters

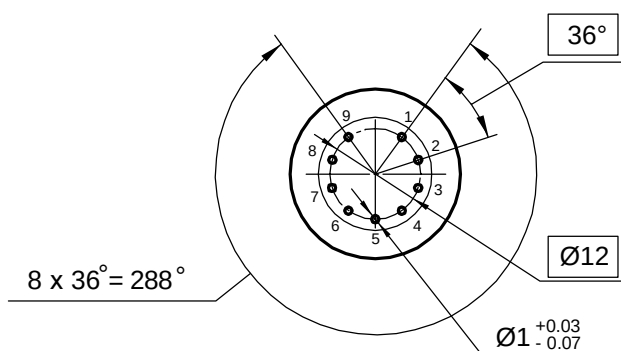
Parameters, conditions and units	Nominal	
	min	max
Heater current, mA at: filament voltage 6.3 V at: filament voltage 12.6 V	550 275	680 340
Grid reverse current, μA , (at: filament voltage 6.3 V or 12.6 V, plate voltage 250 V, grid voltage minus 10.5 V, resistance in grid circuit 0.25 M Ω)	—	0.2
Plate current, mA, (at: filament voltage 6.3 V or 12.6 V, plate voltage 250 V, grid voltage minus 10.5 V)	9.0	16.0
First and second triodes plate current difference, % (at: filament voltage 6.3 V or 12.6 V, plate voltage 250 V, grid voltage minus 10.5 V)	—	± 30
Slope of characteristic, mA/V (at: filament voltage 6.3 V or 12.6 V, plate voltage 250 V, grid voltage minus 10.5 V)	2.4	4.0
Amplification factor (at: filament voltage 6.3 V or 12.6 V, plate voltage 250 V, grid voltage minus 10.5 V)	14	—
Cathode - heater insulation resistance, M Ω (at: filament voltage 6.3 V or 12.6 V, cathode - heater voltage ± 200 V)	10	—
Plate current at the beginning of the characteristic, μA (at: filament voltage 6.3 V or 12.6 V, plate voltage 250 V, grid voltage minus 23.0 V)	—	80

Maximum permissible operating conditions

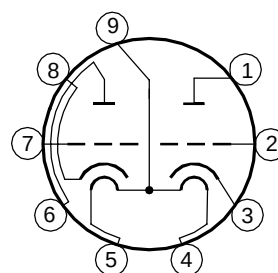
Parameters, units	Nominal	
	min	max
Filament voltage, V for parallel connection for series connection	6 12	6.6 13.2
Plate voltage, V	—	300
Cathode - heater voltage, V	—	± 200
Power dissipation at the plate of each triode, W	—	3.5
Cathode current, mA	—	20
Grid circuit resistance for each of the triodes, M Ω fixed bias self - bias	— —	0.25 1.0

Vacuum tube 12DW7EH is a miniature twin triode with equipotential cathodes, in which the first triode is a voltage amplifier, and the second triode is a phase inverter, designed to amplify low frequency voltage in radio engineering devices.

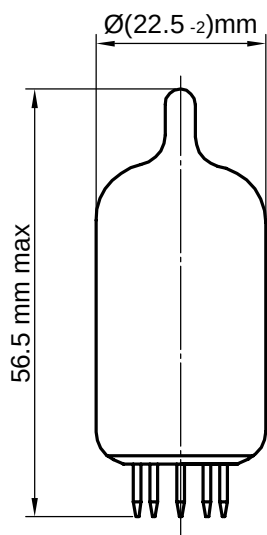
Pin arrangement



Electrode -to - lead connection diagram



Dimensions



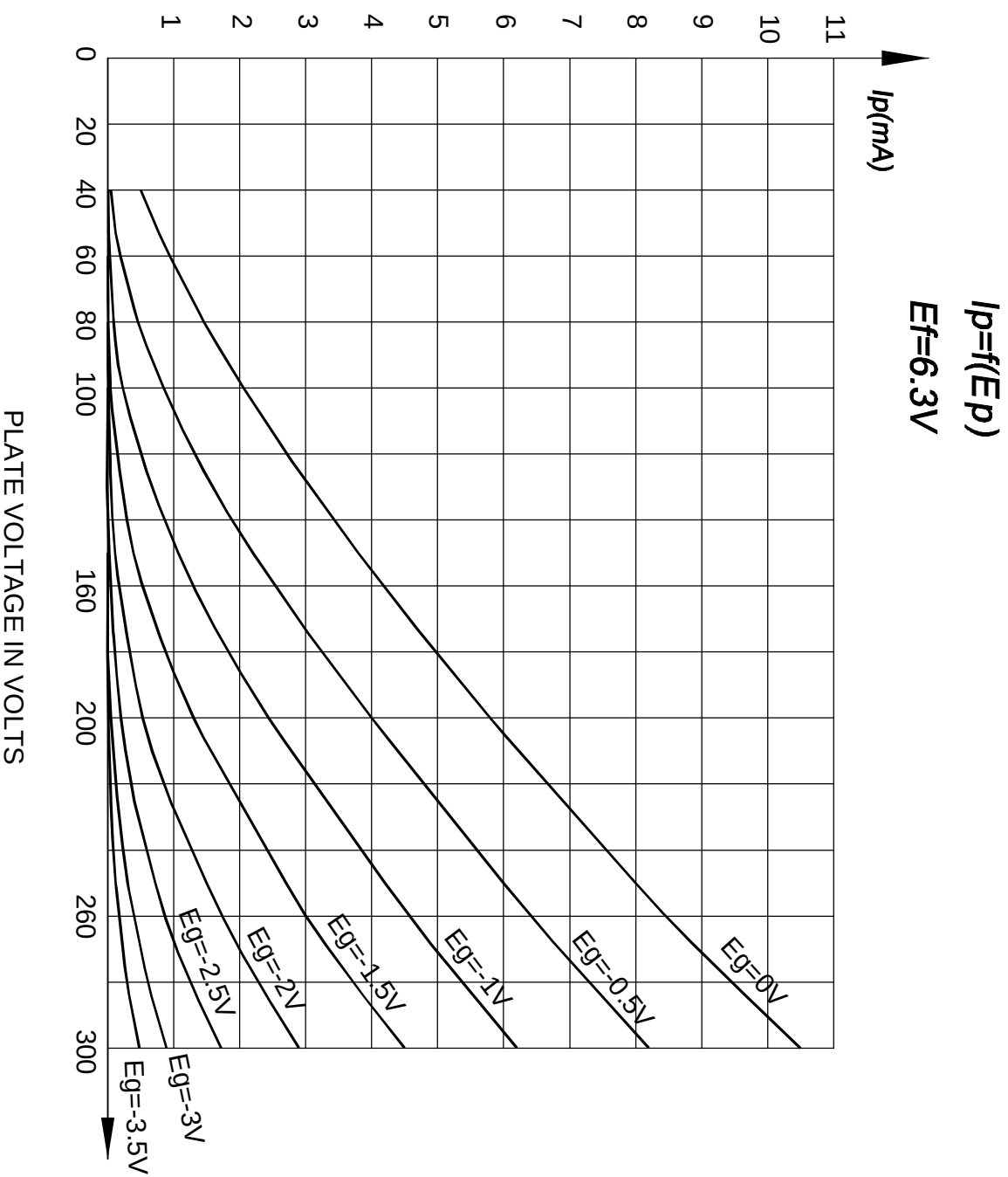
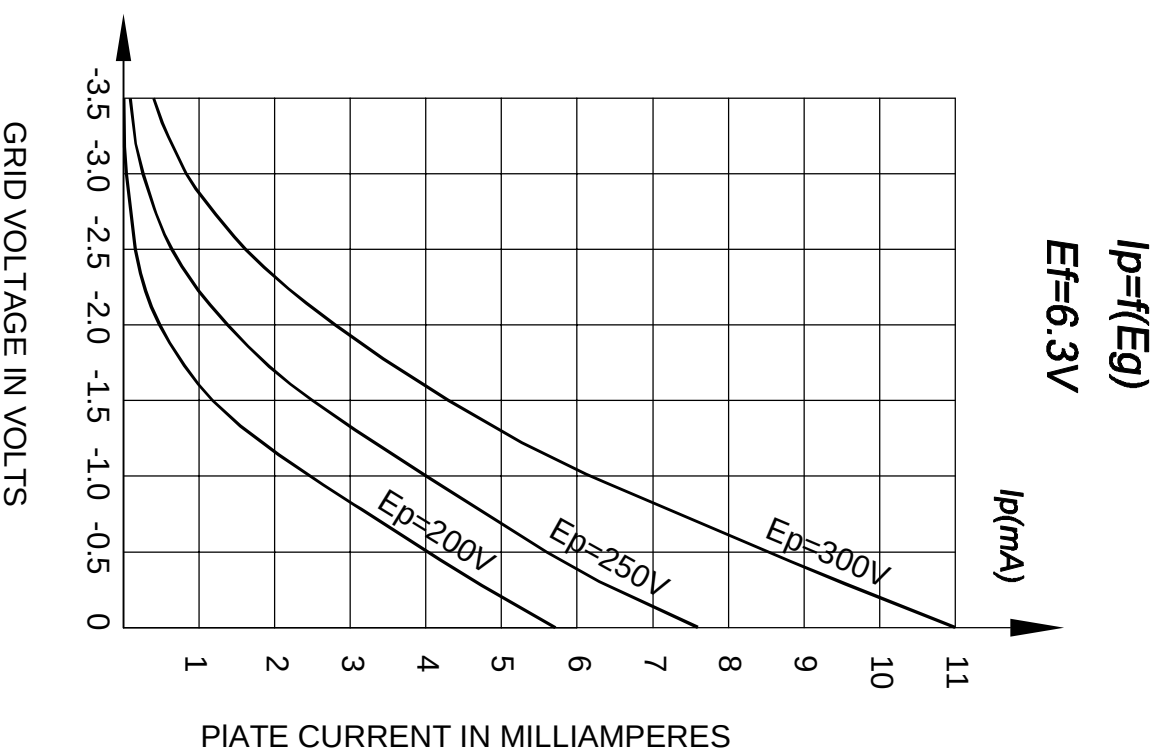
Lead designation	Name of electrode
1	Second triode plate
2	Second triode grid
3	Second triode cathode
4, 5, 9	Heater
6	First triode plate
7	First triode grid
8	First triode cathode

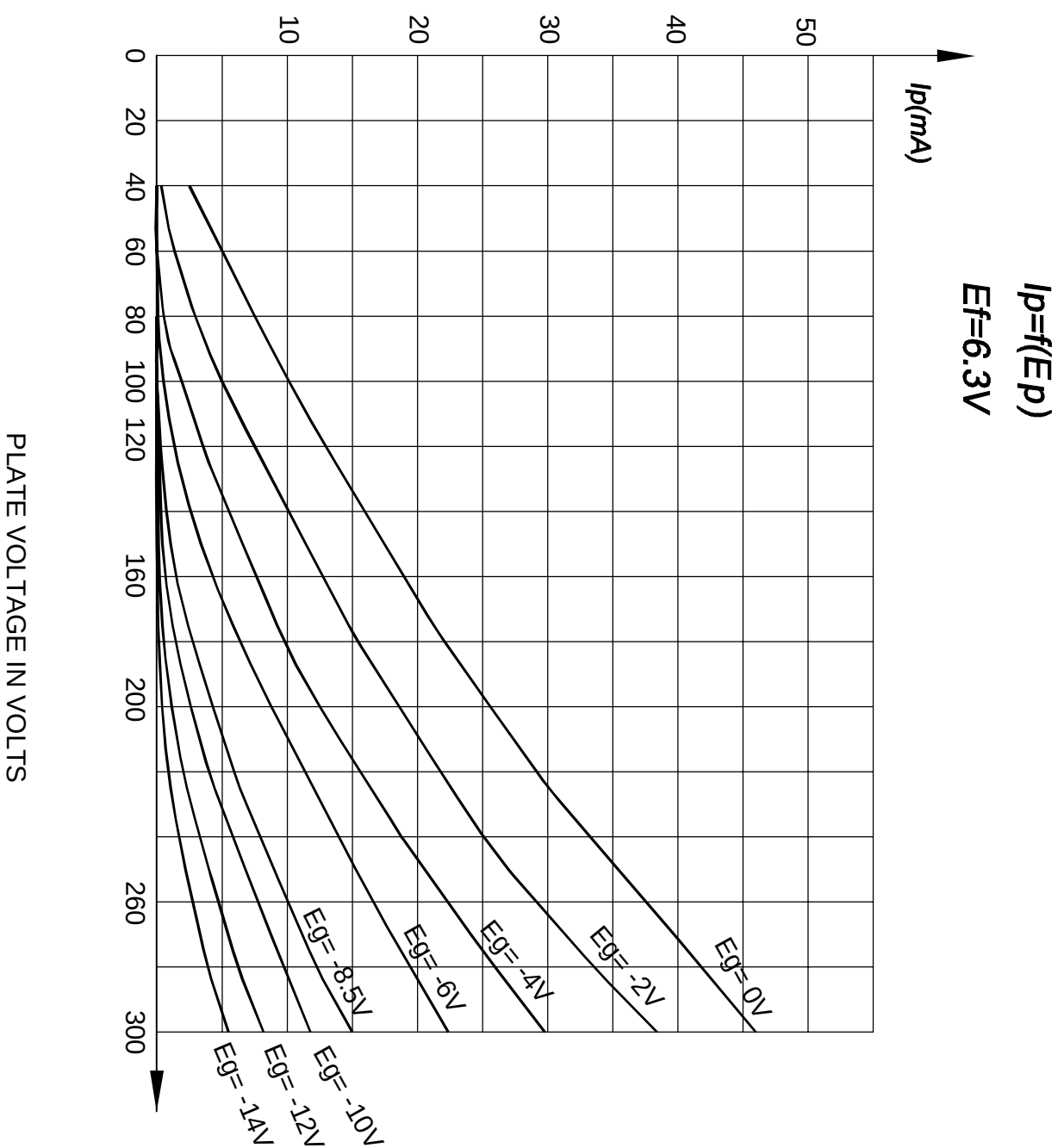
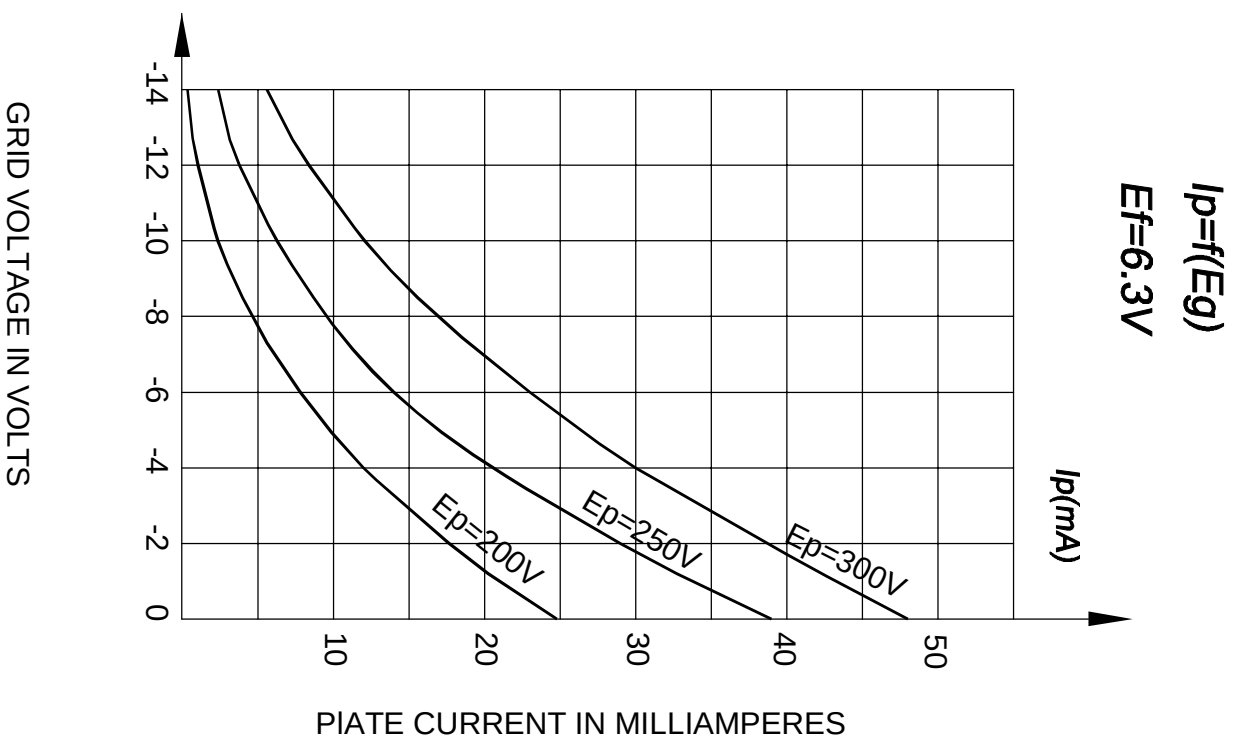
Electrical parameters

Parameters, conditions and units	Nominal	
	min	max
Heater current, mA at: filament voltage 6.3 V at: filament voltage 12.6 V	300 150	350 175
First triodes grid reverse current, μA , (at: filament voltage 6.3 V or 12.6 V, plate voltage 250 V, grid voltage minus 2.0 V, resistance in grid circuit 1.0 M Ω)	—	0.2
Second triodes grid reverse current, μA , (at: filament voltage 6.3 V or 12.6 V, plate voltage 250 V, grid voltage minus 8.5 V, resistance in grid circuit 0.25 M Ω)	—	0.2
First triode plate current, mA, (at: filament voltage 6.3 V or 12.6 V, plate voltage 250 V, grid voltage minus 2.0 V)	0.75	2.0
Second triode plate current, mA, (at: filament voltage 6.3 V or 12.6 V, plate voltage 250 V, grid voltage minus 8.5 V)	7.8	13.5
First triode plate current at the beginning of the characteristic, μA (at: filament voltage 6.3 V or 12.6 V, plate voltage 250 V, grid voltage minus 4.0 V)	—	35
Second triode plate current at the beginning of the characteristic, μA (at: filament voltage 6.3 V or 12.6 V, plate voltage 250 V, grid voltage minus 24.0 V)	—	100
First triode slope of characteristic, mA/V (at: filament voltage 6.3 V or 12.6 V, plate voltage 250 V, grid voltage minus 2.0 V)	1.4	—
Second triode slope of characteristic, mA/V (at: filament voltage 6.3 V or 12.6 V, plate voltage 250 V, grid voltage minus 8.5 V)	1.75	3.0
First triode amplification factor (at: filament voltage 6.3 V or 12.6 V, plate voltage 250 V, grid voltage minus 2.0 V)	75	—
Second triode amplification factor (at: filament voltage 6.3 V or 12.6 V, plate voltage 250 V, grid voltage minus 8.5 V)	13	—
Cathode - heater insulation resistance, M Ω (at: filament voltage 6.3 V or 12.6 V, cathode -heater voltage ± 200 V)	20	—

Limiting Values

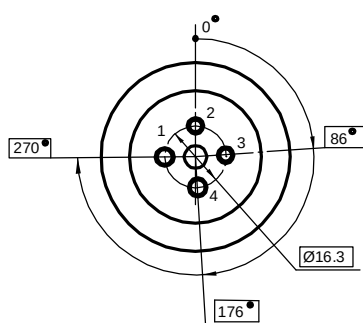
Parameters, units	Nominal	
	min	max
Filament voltage, V for parallel connection for series connection	6 12	6.6 13.2
Plate voltage, V	—	330
Cathode - heater voltage, V	—	± 200
First triode cathode current, mA	—	9
Second triode cathode current, mA	—	22
Power dissipation at the plate of first triode, W		1.2
Power dissipation at the plate of second triode, W		3.3
Grid circuit resistance for first triode, M Ω fixed bias self - bias	— —	1.0 2.2
Grid circuit resistance for second triode, M Ω fixed bias self - bias	— —	0.25 1.0



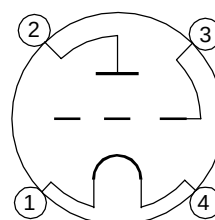


Vacuum tube 300BEH is a triode with coated filament in the glass bulb, designed to amplify low frequency power in radio engineering devices.

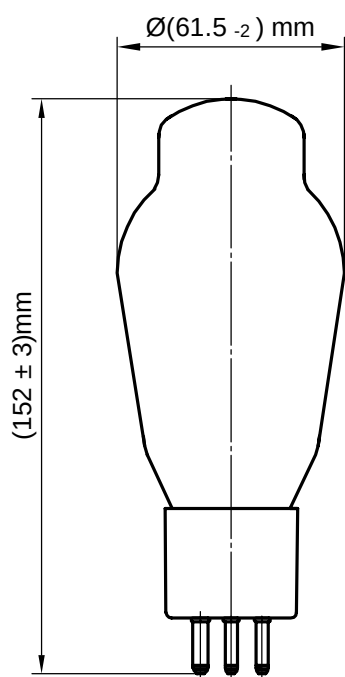
Pin arrangement



Electrode -to - lead connection diagram



Dimensions



Lead designation	Name of electrode
1, 4	Cathode
2	Plate
3	Grid

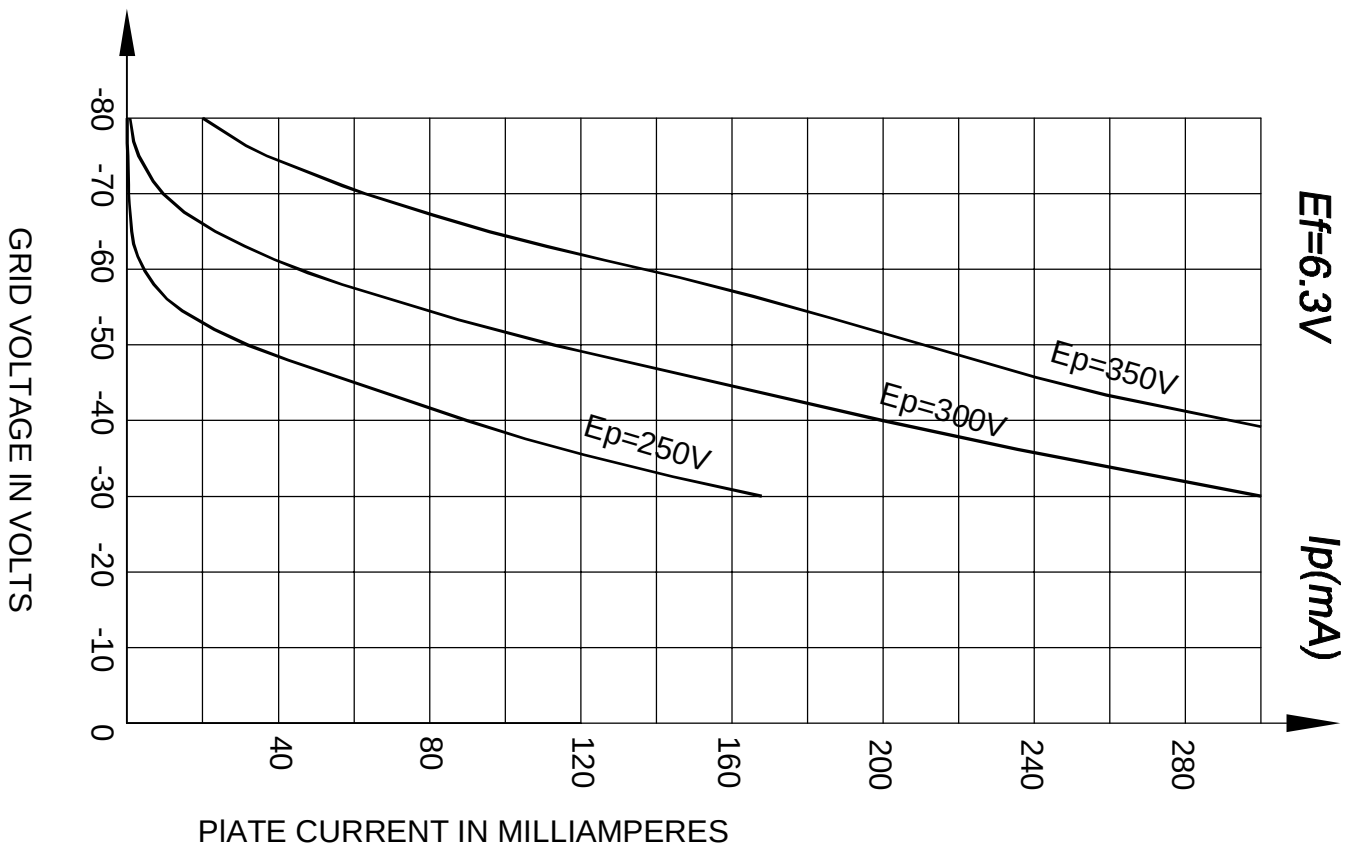
Electrical parameters

Parameters, conditions and units	Nominal	
	min	max
Heater current, A	1.1	1.4
Grid reverse current, μA , (at: filament voltage 5.0 V, plate voltage 450 V, grid voltage minus 97 V, resistance in grid circuit 0.51 M Ω)	—	1.0
Plate current, mA, (at: filament voltage 5.0 V, plate voltage 303 V, grid voltage minus 58 V)	45	90
Slope of characteristic, mA/V (at: filament voltage 5.0 V, plate voltage 303 V, grid voltage minus 58 V)	4.5	—
Amplification factor (at: filament voltage 5.0 V, plate voltage 303 V, grid voltage minus 58 V)	3.0	—
Distortion factor, % (at: filament voltage 5.0 V, plate voltage 303 V, grid voltage minus 58 V, plate circuit resistance 2.4 k, grid alternating voltage, efficacious 41 V)	—	10
Output power, W (at: filament voltage 5.0 V, plate voltage 303 V, grid voltage minus 58 V, plate circuit resistance 2.4 k Ω , grid alternating voltage, efficacious 41 V)	5.5	—
Grid blanking voltage, V (at: filament voltage 6.3 V, plate voltage 303 V)	—	120

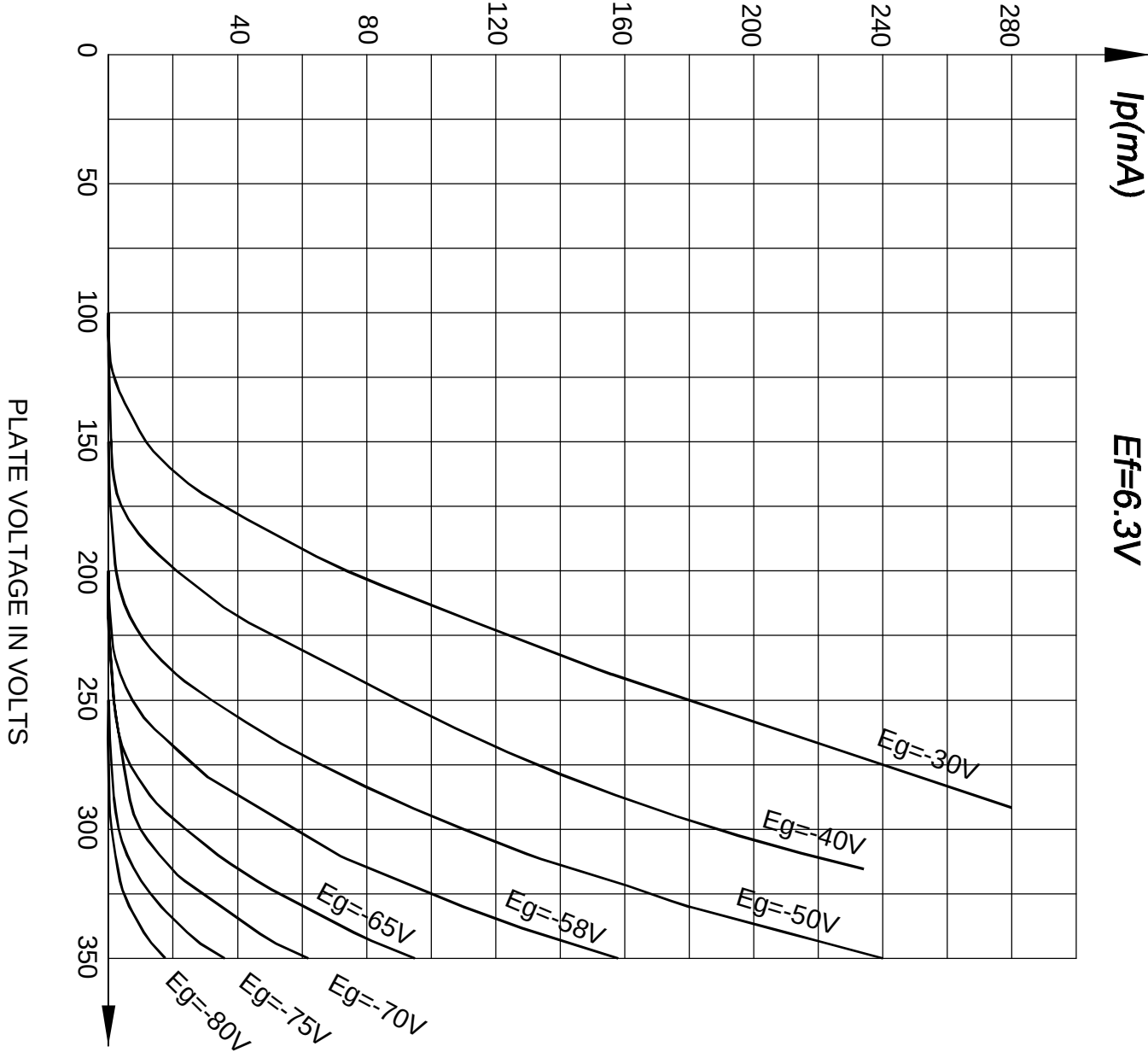
Limiting Values

Parameters, units	Nominal	
	min	max
Filament voltage, V	4.5	5.5
Plate voltage, V	—	450
Cathode current, mA	—	100
Power dissipation at the plate of each triode, W	—	40
Grid voltage, negative, V	—	220
Grid circuit resistance , M Ω fixed bias	—	0.51
self - bias	—	1.0
Temperature at the most heated part of the envelope, K°	—	473

$I_p = f(E_g)$
 $E_f = 6.3V$

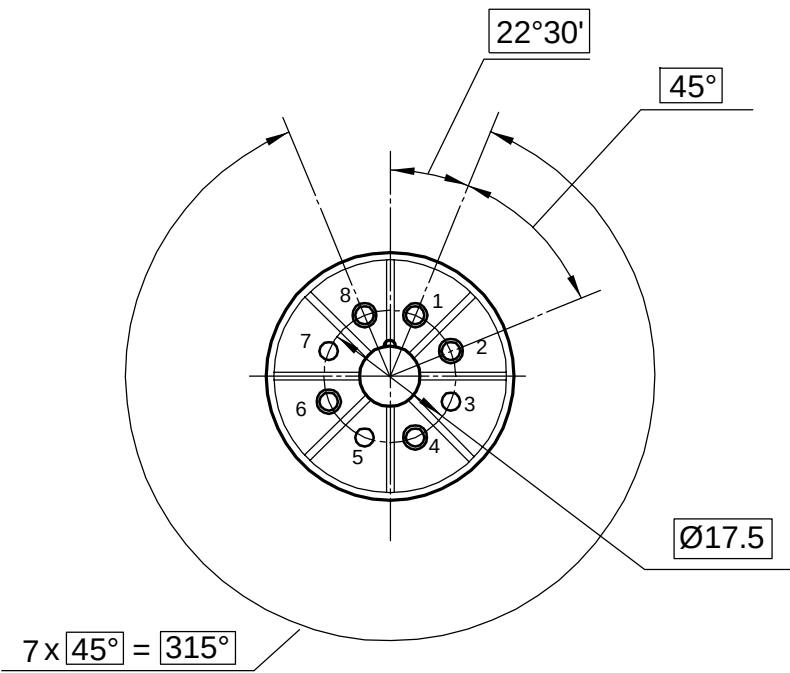


$I_p = f(E_p)$
 $E_f = 6.3V$

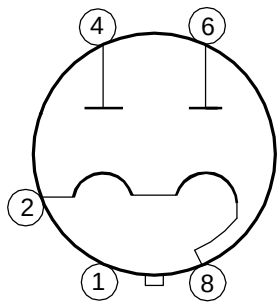


Vacuum tube 5U4GBEH is a filament two - plate cenotron in the glass bulb with octal base, designed for two - half - period rectification of alternating current in the midpoint circuits in radio engineering devices.

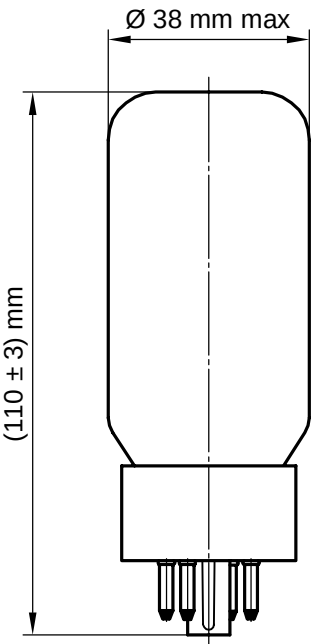
Pin arrangement



Electrode -to - lead connection diagram



Dimensions



Lead designation	Name of electrode
1	Free
2	Cathode
3, 5, 7	No
4	First diode plate
6	Second diode plate
8	Cathode

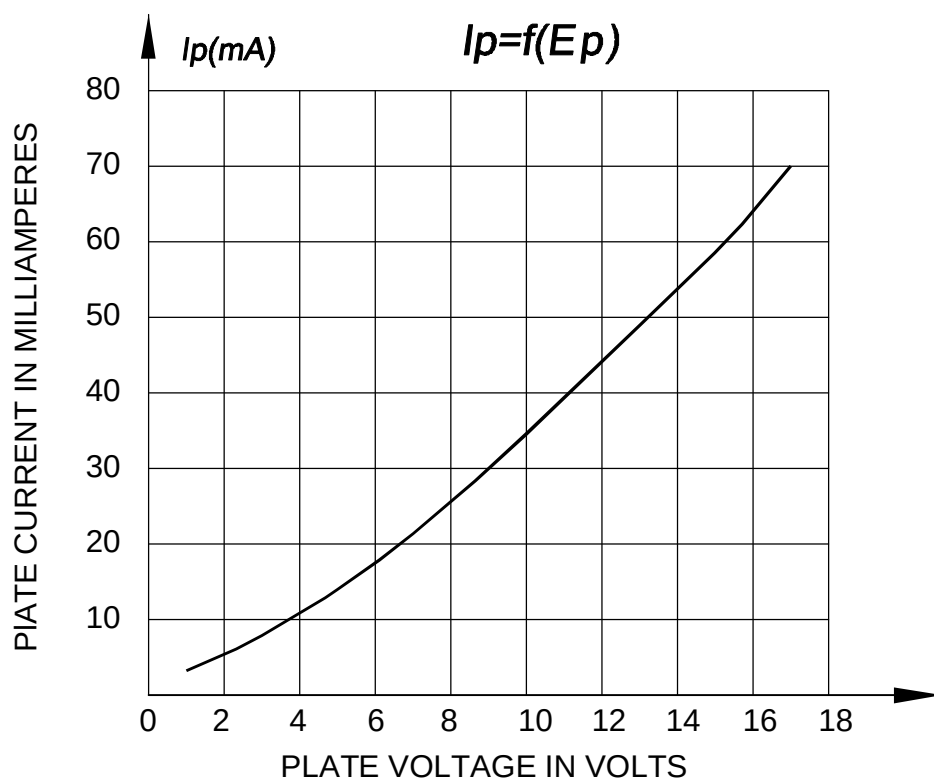
Electrical parameters

5U4GBEH

Parameters, conditions and units	Nominal	
	min	max
Heater current, A	2.7	3.4
Diode anod current at direct current filament feeding, mA (at: filament voltage 5.0 V, plate voltage 17 V)	40	—
Diode anod current at alternating current filament feeding, mA (at: filament voltage 5.0 V, plate voltage 17 V)	70	—
Rectified current, mA (at: filament voltage 5.0 V, the voltage of the secondary winding of the transformer, effective, 2 x 500 V, load resistance 3000 Ω , capacitance in the cathode chain, 40 μ F)	160	—

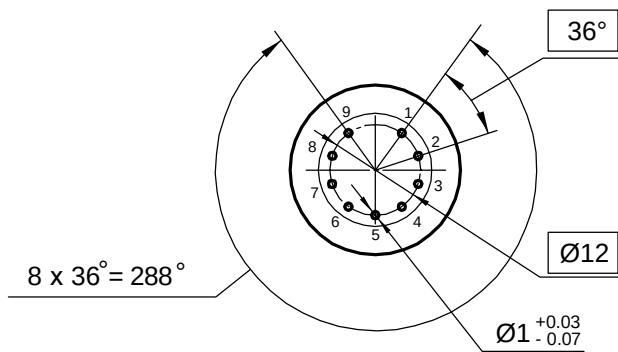
Limiting Values

Parameters, units	Nominal	
	min	max
Filament voltage, V	4.5	5.5
Rectified current (average), mA	—	250
Anode current amplitude, A	—	1.0
Current surge at the turn -on moment , A	—	4.6
Anod reverse voltage amplitude, V	—	1550
Temperature at the most heated part of the envelope, K°	—	423

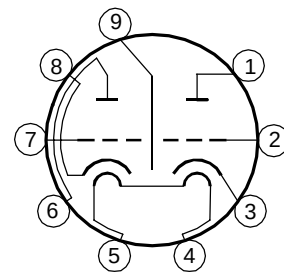


Vacuum tube 6922EH is a miniature twin triode with equipotential cathodes, designed to amplify low frequency voltage in radio engineering devices.

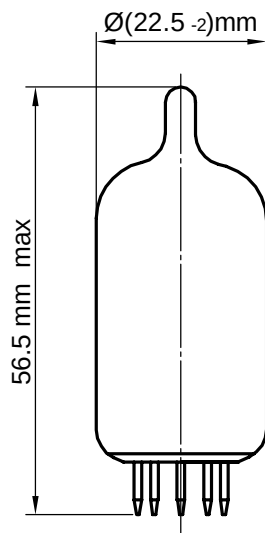
Pin arrangement



Electrode -to - lead connection diagram



Dimensions



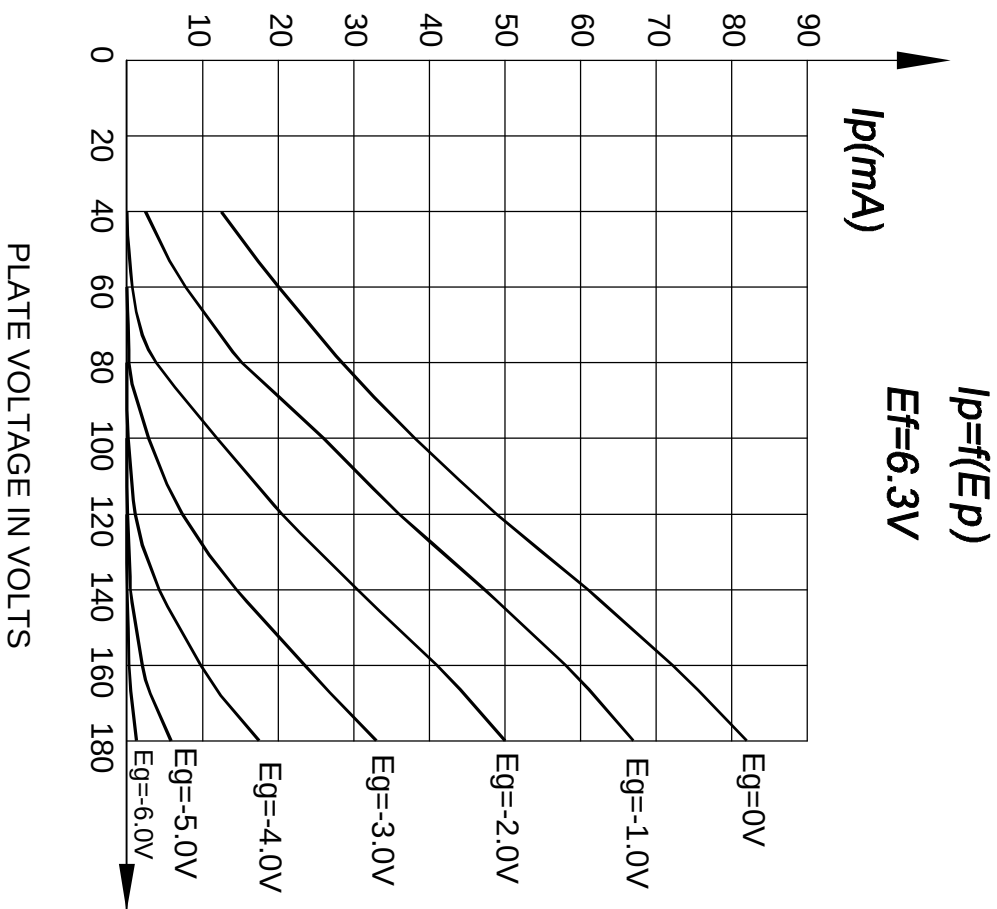
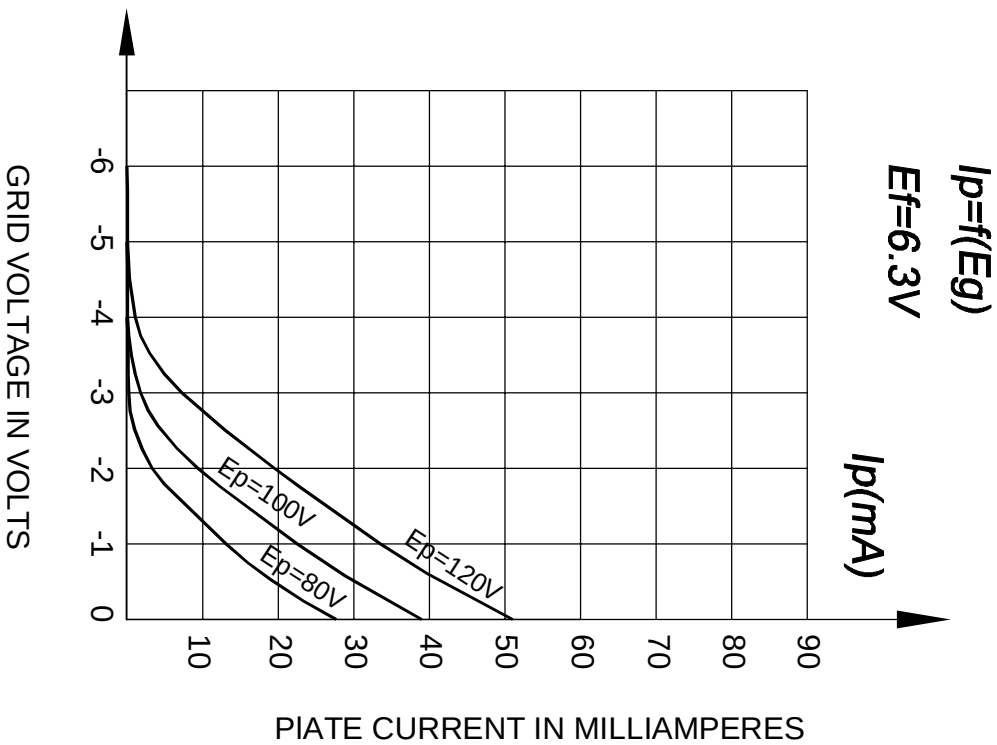
Lead designation	Name of electrode
1	Second triode plate
2	Second triode grid
3	Second triode cathode
4, 5	Heater
6	First triode plate
7	First triode grid
8	First triode cathode
9	Screen

Electrical parameters

Parameters, conditions and units	Nominal	
	min	max
Heater current, mA	335	385
Grid reverse current, μA , (at: filament voltage 6.3 V, plate voltage 120 V, grid voltage minus 1.5 V, resistance in grid circuit 0.51 M Ω)	—	0.3
Plate current, mA, (at: filament voltage 6.3 V, plate voltage 90 V, resistance in cathode circuit 82 Ω)	10	20
Plate current at the beginning of the characteristic, μA (at: filament voltage 6.3 V, plate voltage 90 V, grid voltage minus 8 V)		100
Slope of characteristic, mA/V (at: filament voltage 6.3 V, plate voltage 90 V, resistance in cathode circuit 82 Ω)	9	17
Amplification factor (at: filament voltage 6.3 V, plate voltage 90 V, resistance in cathode circuit 82 Ω)	24	40
Cathode - heater insulation resistance, M Ω (at: filament voltage 6.3 V, cathode -heater voltage ± 200 V)	12.5	—

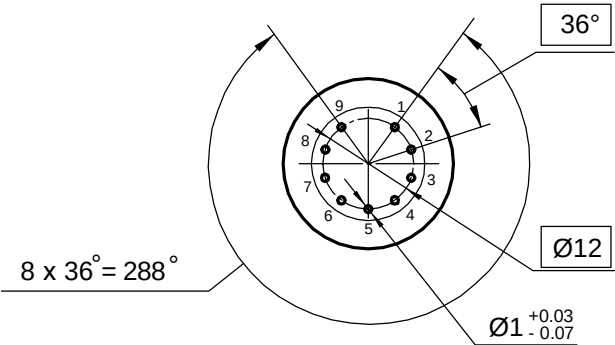
Limiting Values

Parameters, units	Nominal	
	min	max
Filament voltage, V	6	6.6
Plate voltage, V	—	300
Cathode - heater voltage, V	—	± 150
Cathode current (average), mA	—	20
Power dissipation at the plate of each triode, W	—	1.8
Grid circuit resistance for each of the triodes, M Ω	—	1.0
Grid voltage, negative, V	—	100
Temperature at the most heated part of the envelope, K°	—	393

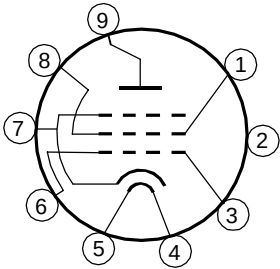


Vacuum tube 6973EH is a miniature pentode with equipotential cathode, designed to amplify low frequency power in radio engineering devices.

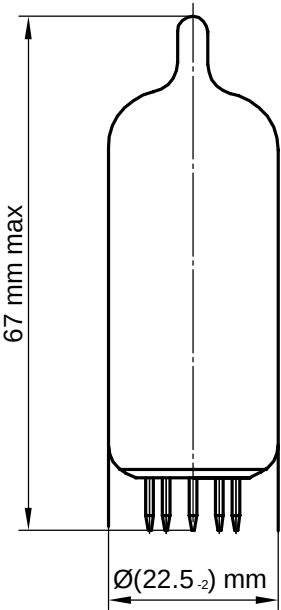
Pin arrangement



Electrode -to - lead connection diagram



Dimensions



Lead designation	Name of electrode
1, 8	Grid 2
2	Free
3, 6	Grid 1
4, 5	Heater
7	Cathode, grid 3
9	Plate

Electrical parameters

6973EH

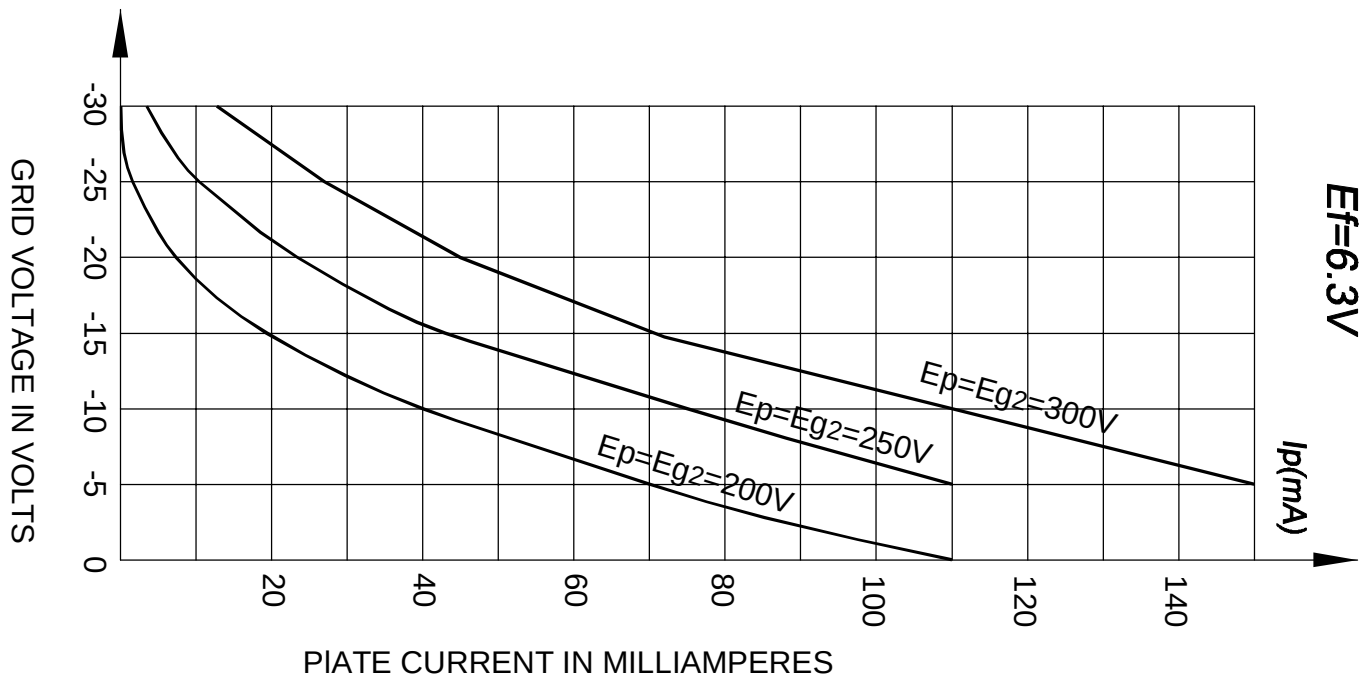
Parameters, conditions and units	Nominal	
	min	max
First grid reverse current, μA (at: filament voltage 6.3 V, plate voltage 250 V, first grid voltage minus 15 V, second grid voltage 250 V, first grid circuit resistance 0.51M Ω)	—	0.5
Heater current, mA	510	590
Plate current, mA (at: filament voltage 6.3 V, plate voltage 250 V, first grid voltage minus 15 V, second grid voltage 250 V)	38	58
Second grid current, mA (at: filament voltage 6.3 V, plate voltage 250 V, first grid voltage minus 15 V, second grid voltage 250 V)	—	11
Output power, W (at: filament voltage 6.3 V, plate voltage 250 V, first grid voltage minus 15 V, second grid voltage 250 V, plate circuit resistance 4.5 k Ω , alternating first grid, efficacious 10.6 V)	5	—
Slope of characteristic, mA/V (at: filament voltage 6.3 V, plate voltage 250 V, first grid voltage minus 15 V, second grid voltage 250 V)	4	—
Distortion factor,% (at: filament voltage 6.3 V, plate voltage 250 V, first grid voltage minus 15 V, second grid voltage 250 V, plate circuit resistance 4.5 k Ω , first grid alternating voltage, efficacious 10.6 V)	—	15
First grid blanking voltage, negative, V (at: filament voltage 6.3 V, plate voltage 250 V, second grid voltage 250 V)	—	45
Cathode - heater insulation resistance, M Ω (at: filament voltage 6.3 V, cathode -heater voltage ± 200 V)	8	—

Limiting Values

Parameters, units	Nominal	
	min	max
Filament voltage, V	5.7	7.0
Plate voltage, V	—	440
Second grid voltage, V	—	330
Cathode - heater voltage, V	—	± 200
Power dissipation at the plate, W	—	12
Power dissipation at the second grid, W	—	2
First grid circuit resistance, M Ω		
self - bias	—	1.0
fixed bias	—	0.5
Temperature at the most heated part of the envelope, K°	—	523

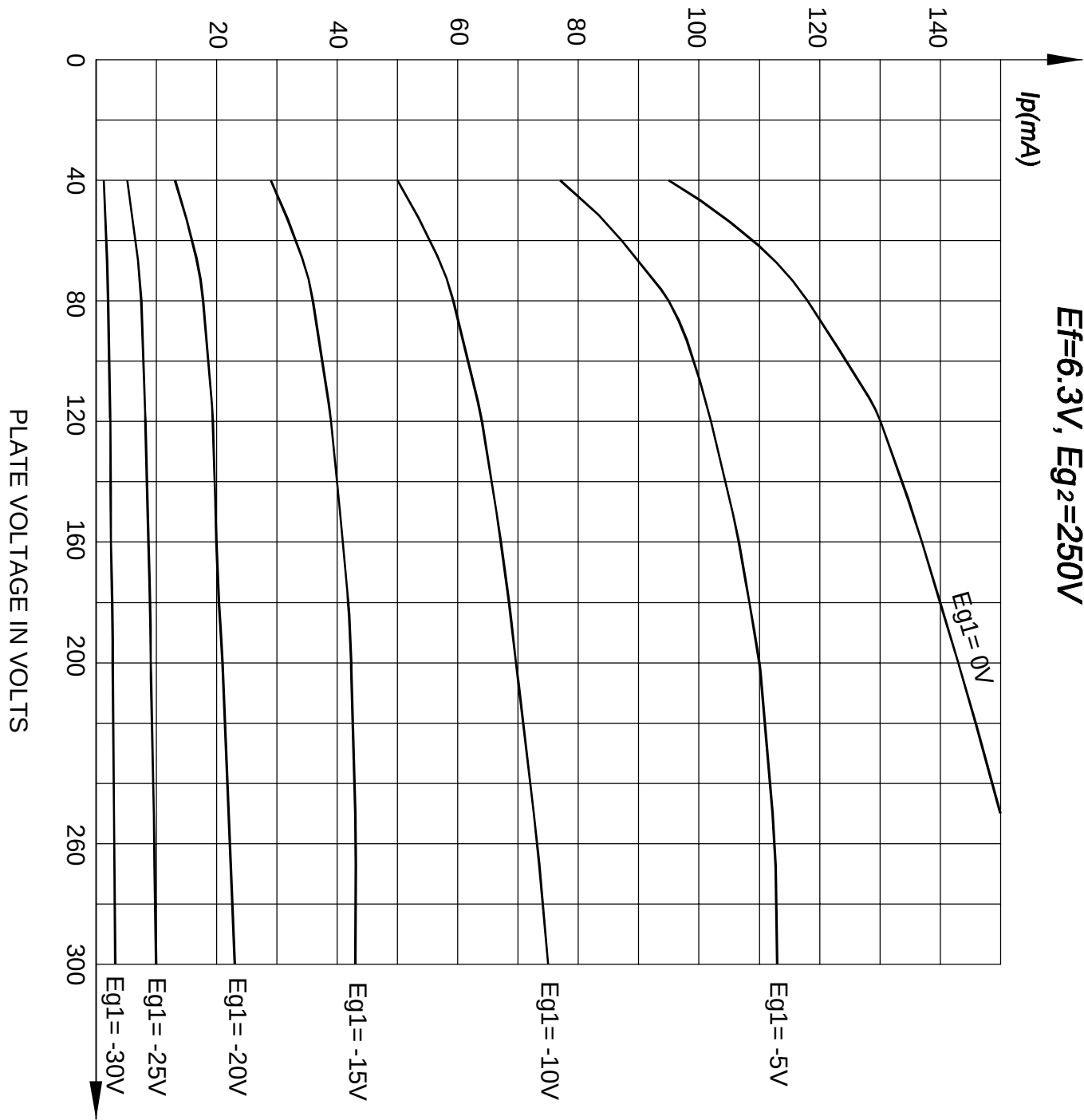
$I_p = f(E_{g1})$

$E_f = 6.3V$



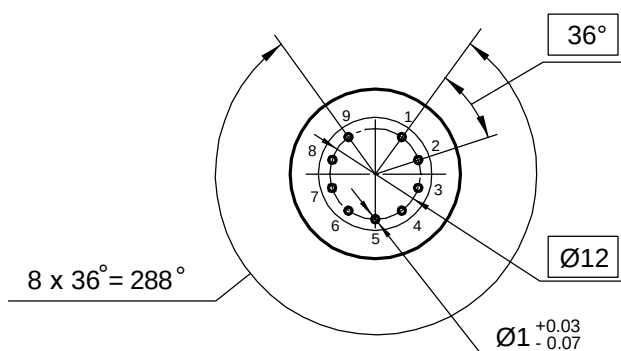
$I_p = f(E_p)$

$E_f = 6.3V, E_{g2} = 250V$

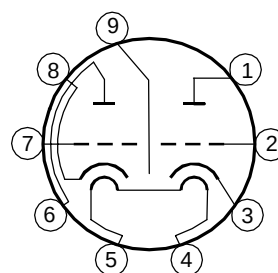


Vacuum tube 6AQ8EH is a miniature twin triode with equipotential cathodes, designed to amplify low frequency voltage in radio engineering devices.

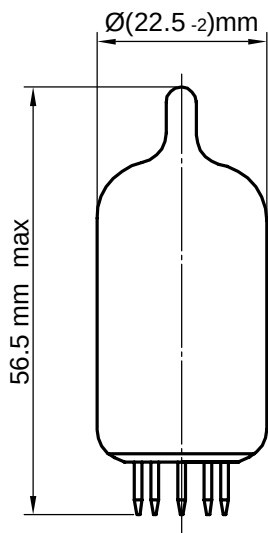
Pin arrangement



Electrode -to - lead connection diagram



Dimensions



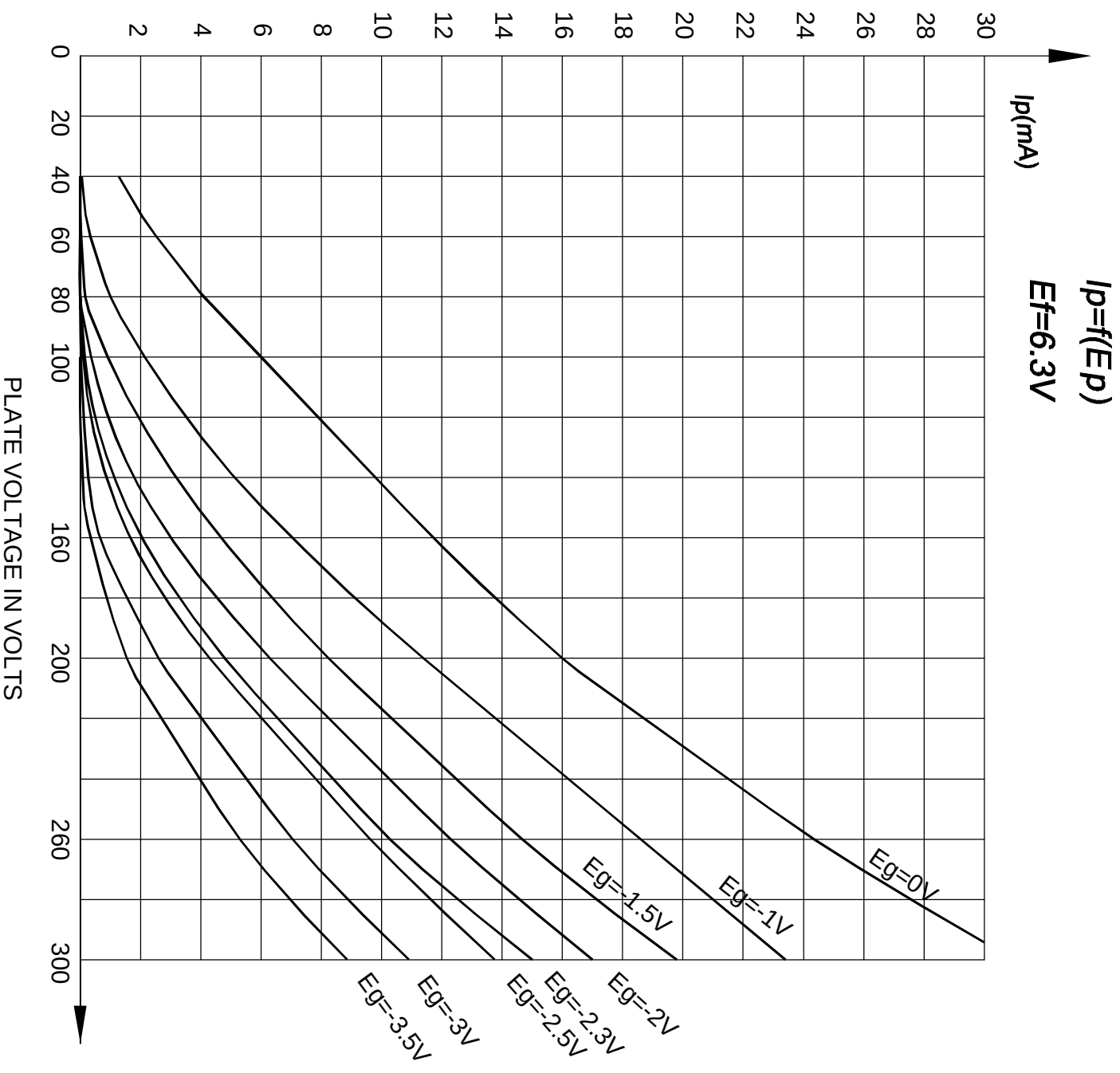
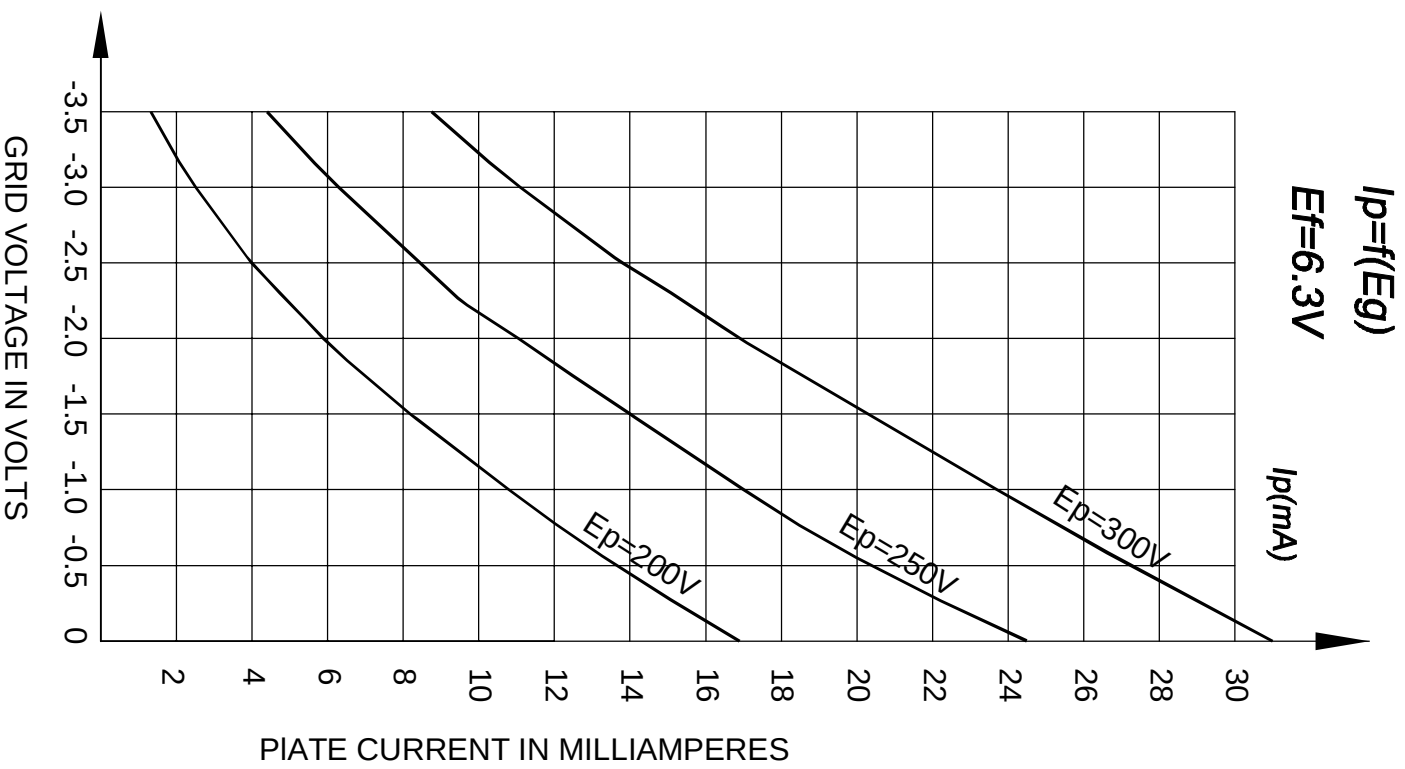
Lead designation	Name of electrode
1	Second triode plate
2	Second triode grid
3	Second triode cathode
4, 5	Heater
6	First triode plate
7	First triode grid
8	First triode cathode
9	Screen

Electrical parameters

Parameters, conditions and units	Nominal	
	min	max
Heater current, mA	400	485
Grid reverse current, μA , (at: filament voltage 6.3 V, plate voltage 250 V, grid voltage minus 2.3 V, resistance in grid circuit 0.25 M Ω)	—	0.2
Plate current, mA, (at: filament voltage 6.3 V, plate voltage 250 V, grid voltage minus 2.3 V)	7	14
First and second triodes plate current difference, % (at: filament voltage 6.3 V, plate voltage 250 V, grid voltage minus 2.3 V)	—	± 30
Plate current at the beginning of the characteristic, μA (at: filament voltage 6.3 V, plate voltage 250 V, grid voltage minus 12 V)		50
Slope of characteristic, mA/V (at: filament voltage 6.3 V, plate voltage 250 V, grid voltage minus 2.3 V)	4.5	6.9
Amplification factor (at: filament voltage 6.3 V, plate voltage 250 V, grid voltage minus 2.3 V)	44	—
Cathode - heater insulation resistance, M Ω (at: filament voltage 6.3 V, cathode -heater voltage ± 200 V)	20	—

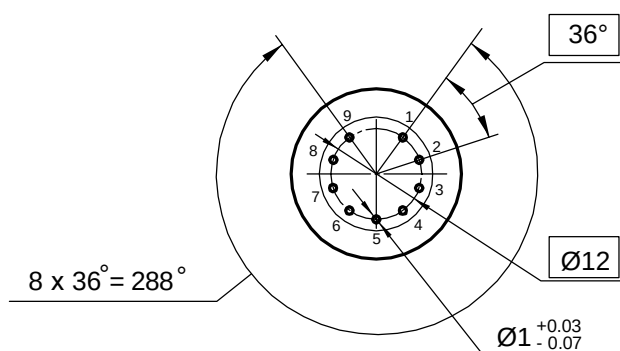
Limiting Values

Parameters, units	Nominal	
	min	max
Filament voltage, V	6	6.6
Plate voltage, V	—	300
Cathode - heater voltage, V	—	± 200
Cathode current, mA	—	15
Power dissipation at the plate of each triode, W	—	2.5
Grid circuit resistance for each of the triodes, M Ω fixed bias	—	0.25
self - bias	—	1.0
Grid voltage, negative, V	—	100

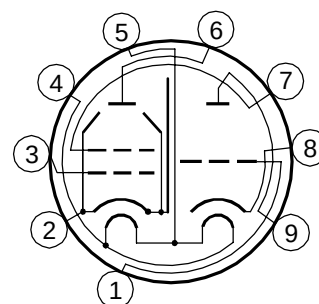


Vacuum tube 6BM8EH is a miniature triode - pentode with equipotential cathodes, designed to amplify low frequency voltage in radio engineering devices.

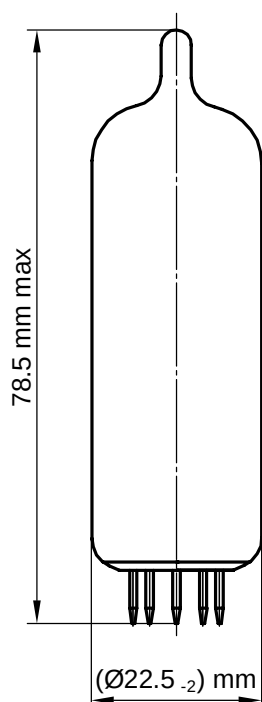
Pin arrangement



Electrode -to - lead connection diagram



Dimensions



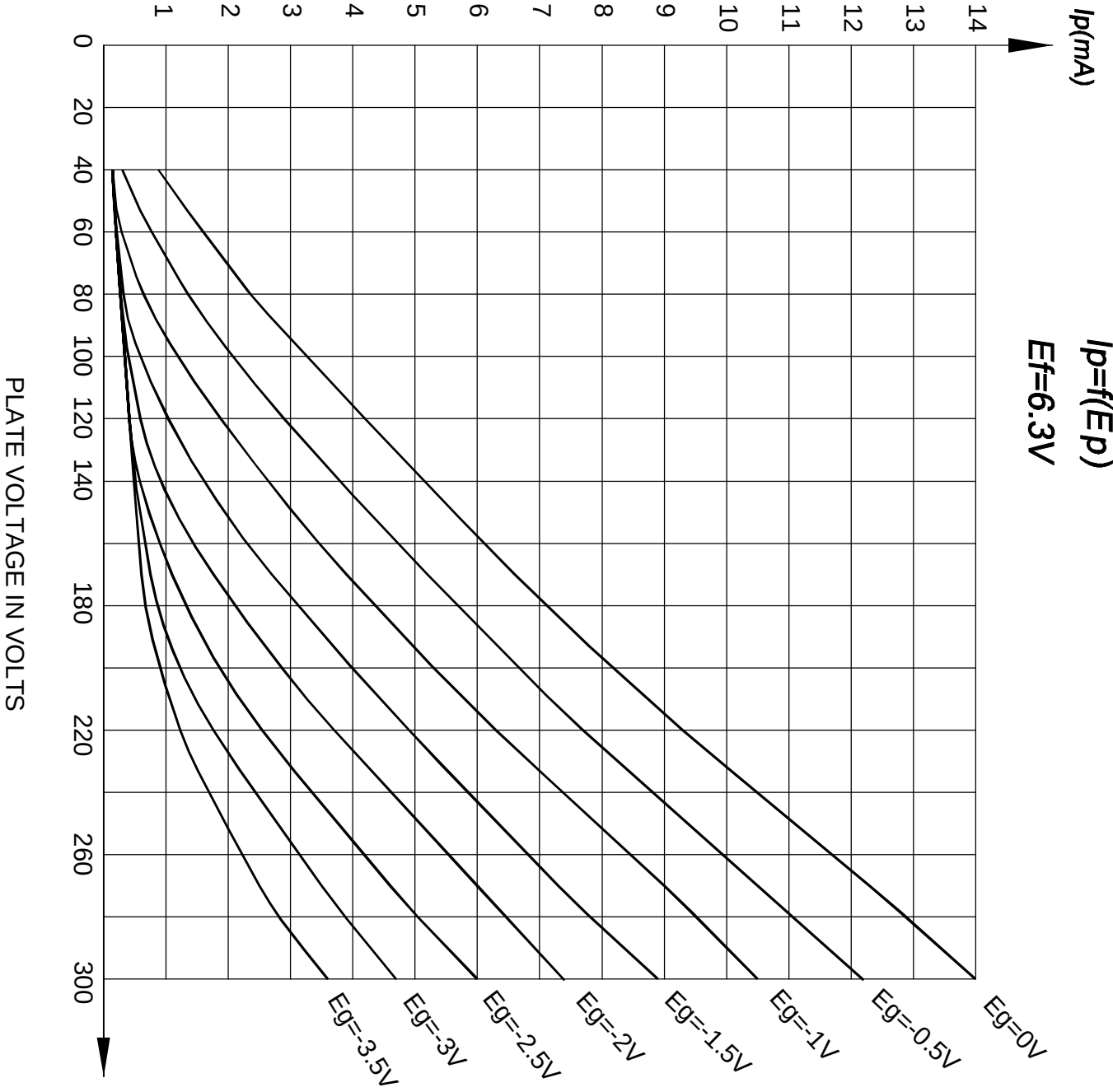
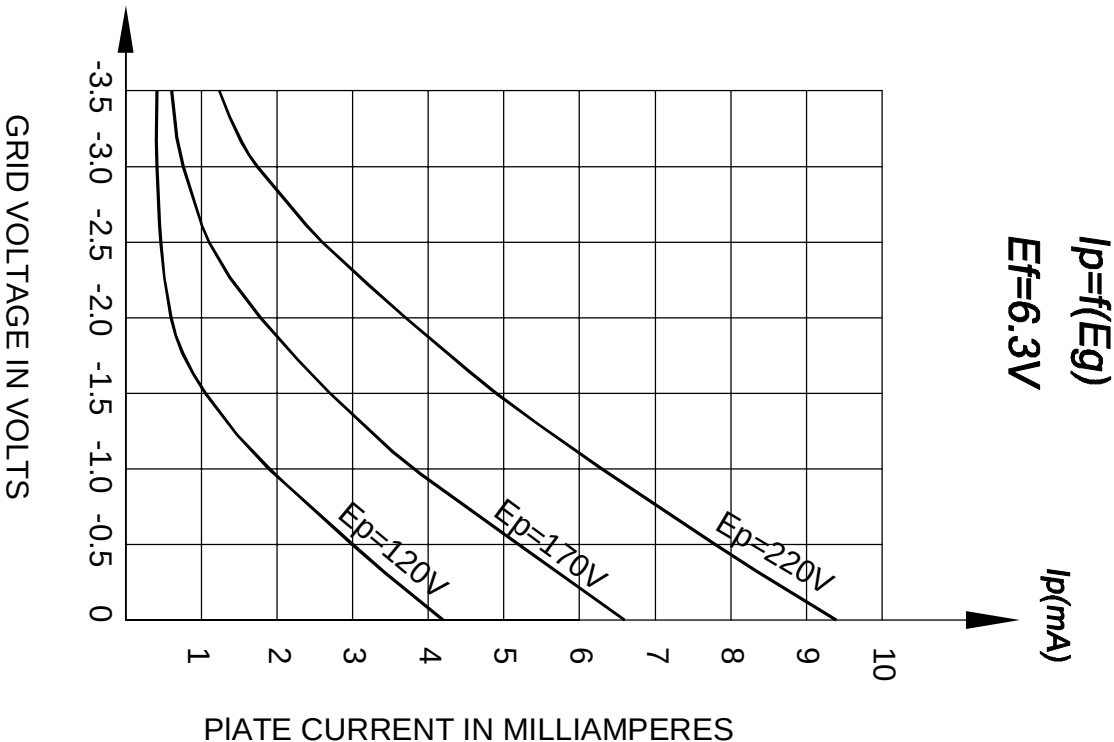
Lead designation	Name of electrode
1	Triode grid
2	Pentode cathode, screen, beam-forming screen
3	Pentode first grid
4, 5	Heater
6	Pentode plate
7	Pentode second grid
8	Triode cathode
9	Triode plate

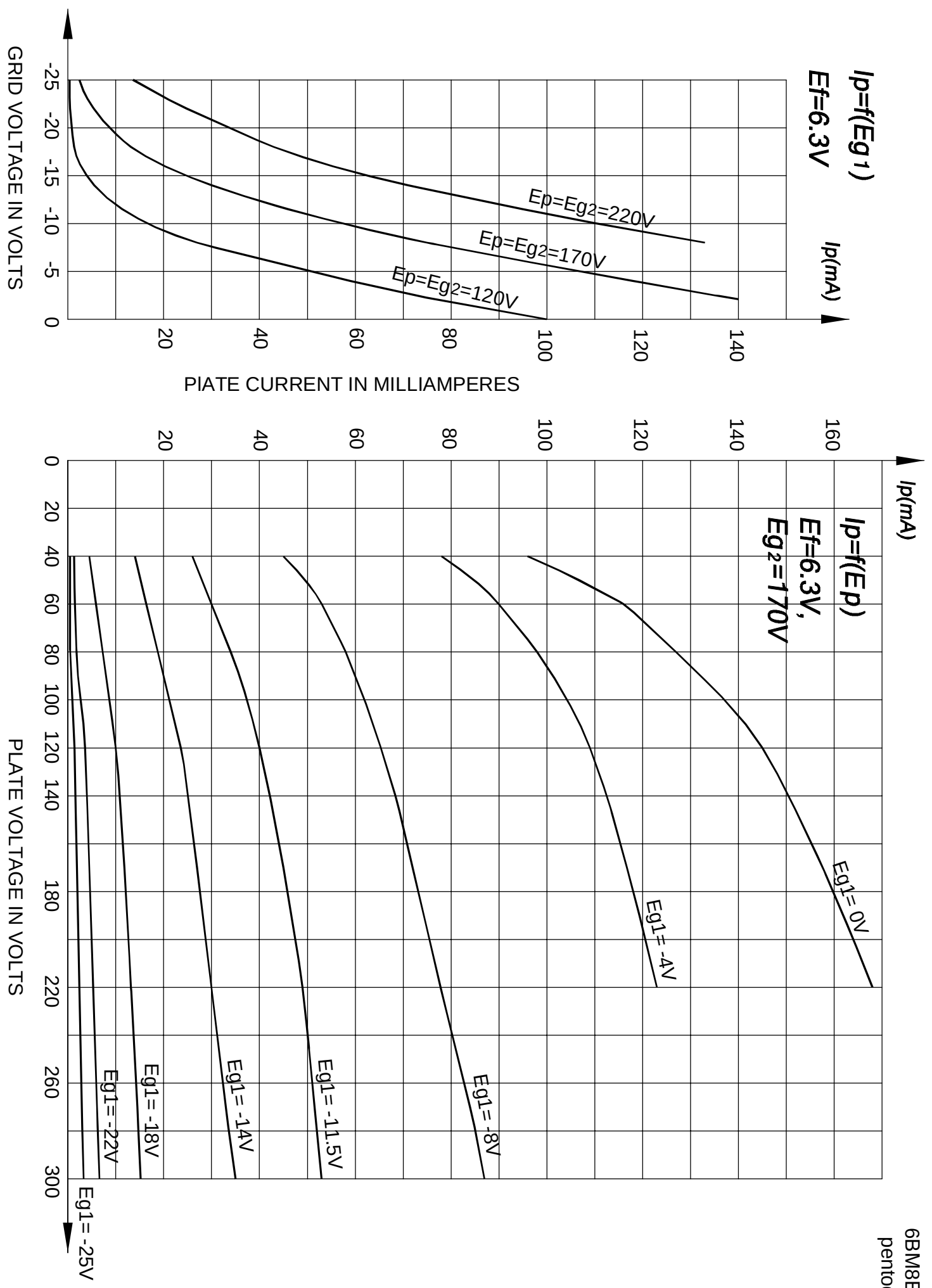
Electrical parameters

Parameters, conditions and units	Nominal	
	min	max
Heater current, mA	770	930
Triode grid reverse current, μA , (at: filament voltage 6.3 V, triode plate voltage 170 V, triode grid voltage minus 1.5 V, resistance in triode grid circuit 1.0 M Ω)	—	0.5
Triode plate current, mA, (at: filament voltage 6.3 V, triode plate voltage 170 V, triode grid voltage minus 1.5 V)	1.3	3.7
Triode slope of characteristic, mA/V (at: filament voltage 6.3 V, triode plate voltage 170 V, triode grid voltage minus 1.5 V)	1.3	3.7
Triode amplification factor, (at: filament voltage 6.3 V, triode plate voltage 170 V, triode grid voltage minus 1.5 V)	50	—
Triode cathode - heater insulation resistance, M Ω , (at: filament voltage 6.3 V , cathode - heater voltage ± 100 V)	5.0	
Pentode first grid reverse current, μA , (at: filament voltage 6.3 V, pentode plate voltage 170 V, pentode first grid voltage minus 11.5 V, pentode second grid voltage 170 V, resistance in pentode first grid circuit 0.51 M Ω)	—	0.5
Pentode plate current, mA, (at: filament voltage 6.3 V, pentode plate voltage 170 V, pentode first grid voltage minus 11.5 V, pentode second grid voltage 170 V)	28	54
Pentode slope of characteristic, mA/V (at: filament voltage 6.3 V, pentode plate voltage 170 V, pentode first grid voltage minus 11.5 V, pentode second grid voltage 170 V)	5.0	9.0
Pentode second grid current, mA, (at: filament voltage 6.3 V, pentode plate voltage 170 V, pentode first grid voltage minus 11.5 V, pentode second grid voltage 170 V)	—	14
Pentode cathode - heater insulation resistance, M Ω , (at: filament voltage 6.3 V, cathode - heater voltage ± 100 V)	3.3	—

Limiting Values

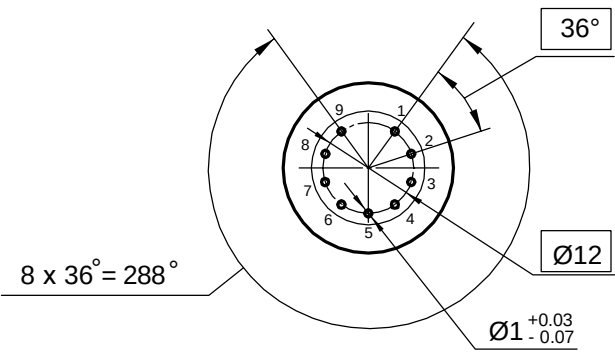
Parameters, units	Nominal	
	min	max
Filament voltage, V	5.7	6.9
Triode plate voltage, V	—	250
Pentode plate voltage, V	—	275
Pentode second grid voltage, V	—	250
Cathode - heater voltage, V	—	± 100
Power dissipation at the plate of triode, W	—	1.0
Power dissipation at the plate of pentode, W	—	8.0
Power dissipation at the second grid of pentode, W		2.5
Grid circuit resistance for triode, M Ω		
fixed bias	—	1.0
self - bias	—	1.0
First grid circuit resistance for pentode, M Ω		
fixed bias	—	0.51
self - bias	—	0.51



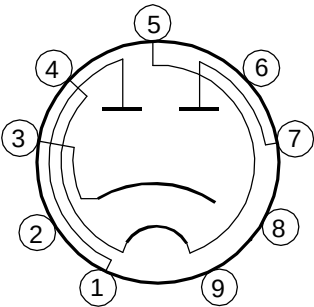


Vacuum tube 6CA4EH is a two - plate cenotron in the glass bulb, wiht a common equipotential cathode, designed for two - nalf - period rectification of alternating current in the midpoint circuits in radio engineering devices.

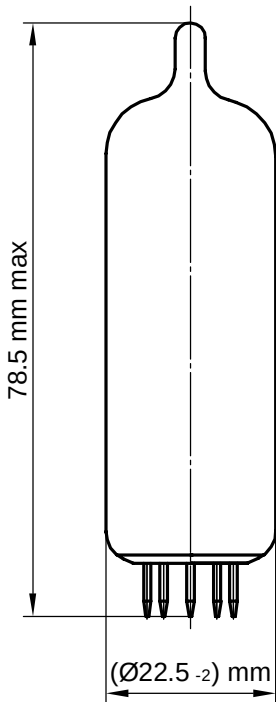
Pin arrangement



Electrode -to - lead connection diagram



Dimensions



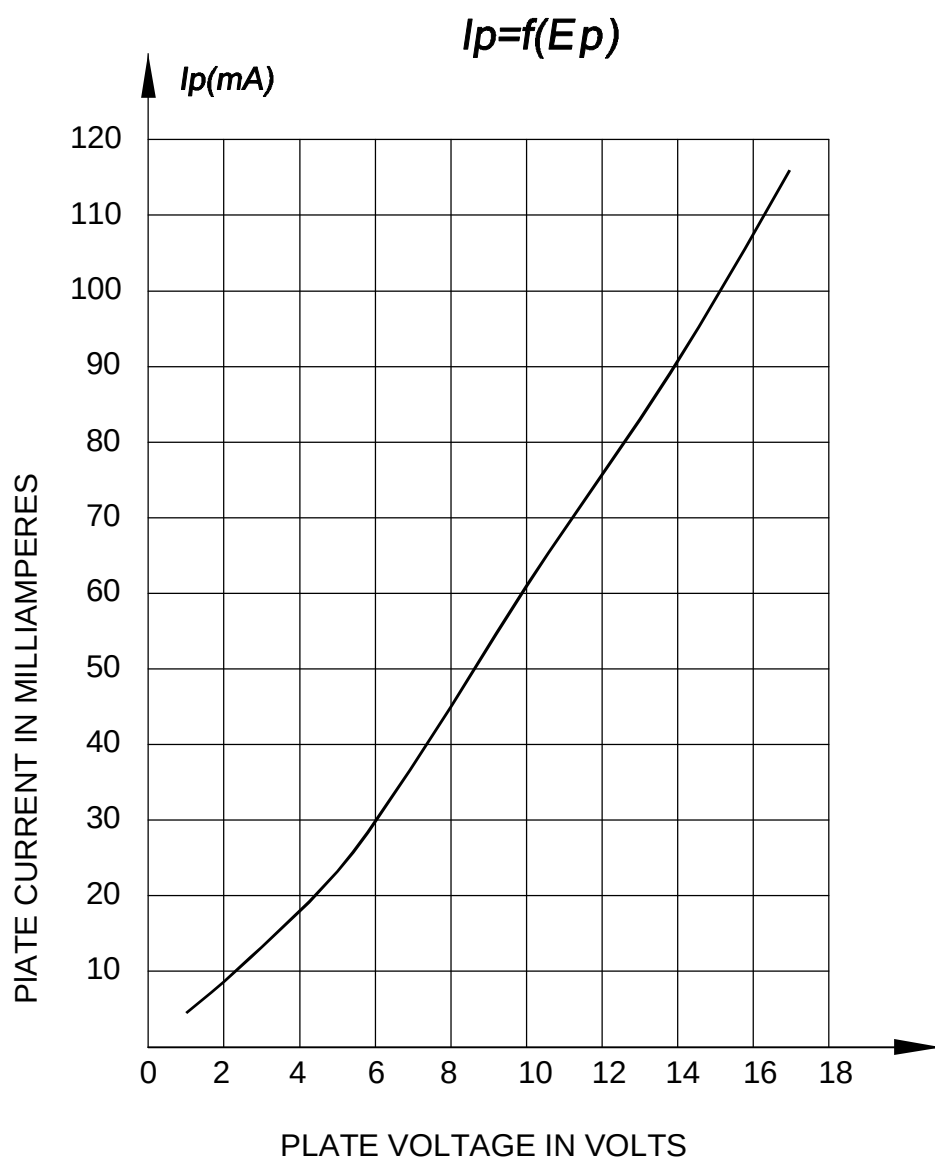
Lead designation	Name of electrode
1	First diode plate
2, 6, 8, 9	Free
3	Cathode
4, 5	Heater
7	Second diode plate

Electrical parameters

Parameters, conditions and units	Nominal	
	min	max
Heater current, A	0.9	1.1
Diode anod current, mA (at: filament voltage 6.3 V, plate voltage 17 V)	100	—
Rectified current, mA (at: filament voltage 6.3 V, the voltage of the secondary winding of the transformer, effective, 2 x 350 V, load resistance 2000 Ω , capacitance in the cathode chain , 4.0 μ F)	130	—
Cathode - heater insulation resistance, M Ω (at: filament voltage 6.3 V, cathode -heater voltage $\pm$ 500 V)	3.3	—

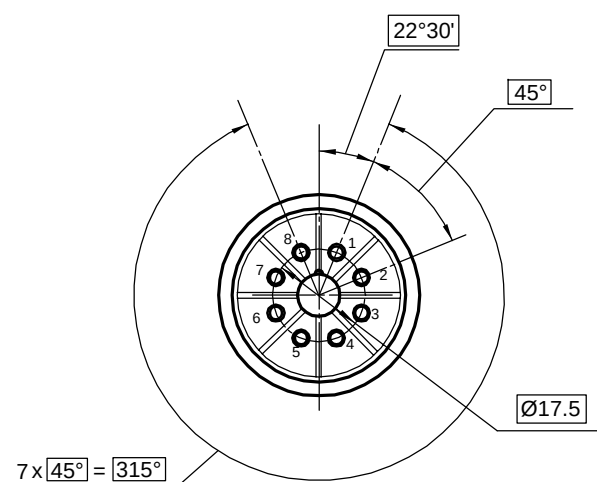
Limiting Values

Parameters, units	Nominal	
	min	max
Filament voltage, V	5.7	6.9
Rectified current (average), mA	—	160
Anode current amplitude, mA	—	450
Current surge at the turn -on moment , A	—	1.5
Anod reverse voltage amplitude, V	—	1000
Cathode - heater voltage, V	—	+ 500

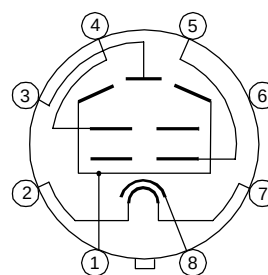


Vacuum tube 6CA7EH is a beam tetrode in the glass bulb with octal base, with equipotential cathode, designed to amplify low frequency power in the output stages of HI - FI audio.

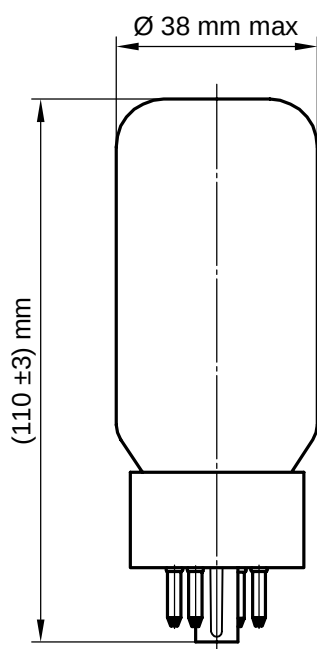
Pin arrangement



Electrode - to - lead connection diagram



Dimensions

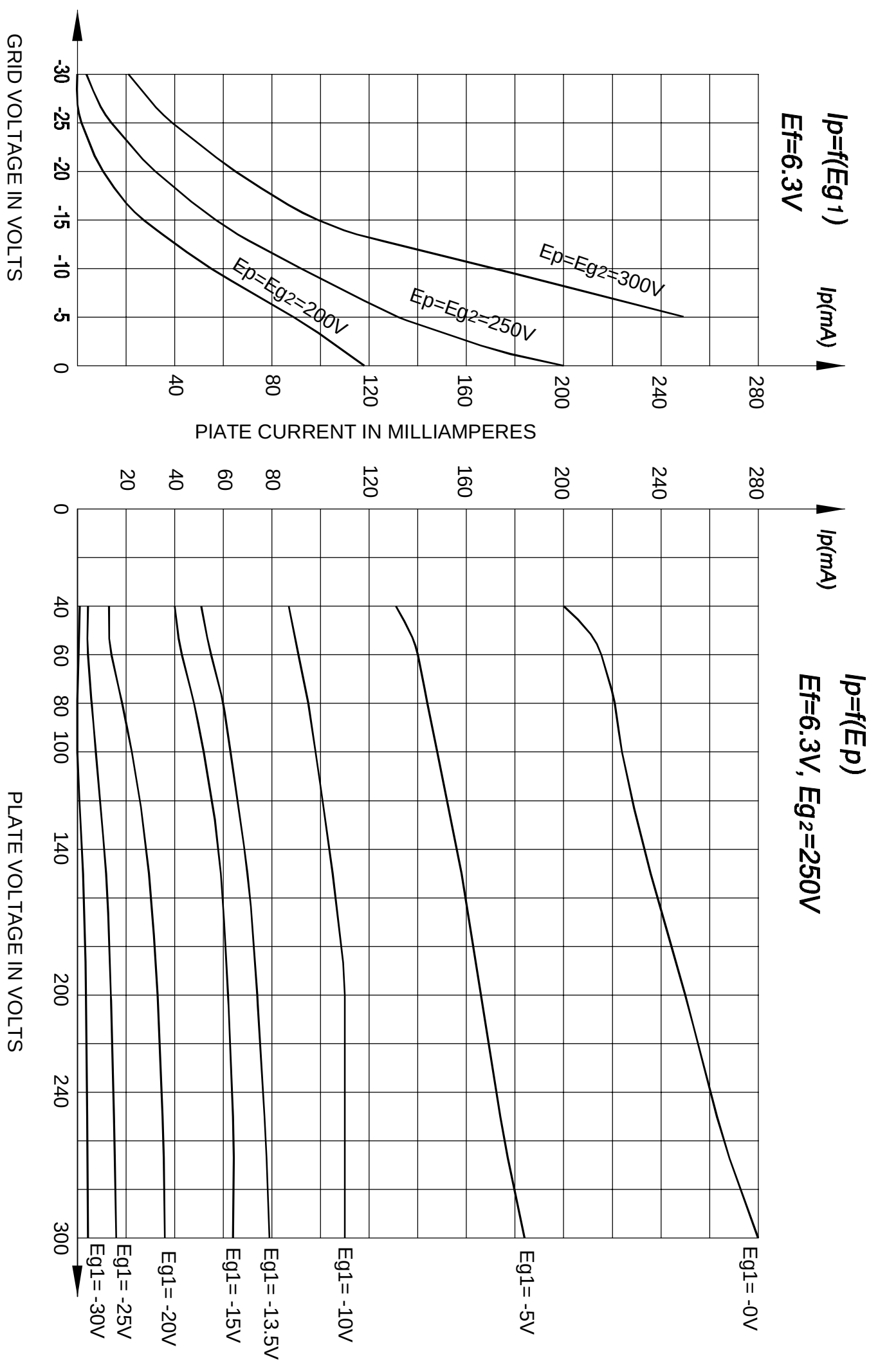


Lead designation	Name of electrode
1	Beam-forming screen
2, 7	Heater
3	Plate
4	Grid 2
5	Grid 1
6	Empty
8	Cathode

Parameters, conditions and units	Nominal	
	min	max
First grid reverse current, μA (at: filament voltage 6.3 V plate voltage 250 V, first grid voltage minus 13.5 V, second grid voltage 250 V, first grid circuit resistance 0.51M Ω)	—	1.0
Heater current, A	1.4	1.65
Plate current, mA (at: filament voltage 6.3 V plate voltage 250 V, first grid voltage minus 13.5 V, second grid voltage 250 V)	75	120
Second grid current, mA (at: filament voltage 6.3 V plate voltage 250 V, first grid voltage minus 13.5 V, second grid voltage 250 V)	—	24
Output power, W (at: filament voltage 6.3 V plate voltage 250 V, first grid voltage minus 13.5 V, second grid voltage 250 V, plate circuit resistance 2.0 k Ω first grid alternating voltage, efficacious 9.6 V)	9	—
First grid cut-off voltage, negative, V (at: filament voltage 6.3 V plate voltage 250 V, second grid voltage 250 V,)	—	50
Slope of characteristic, mA/V (at: filament voltage 6.3 V anode voltage 250 V, first grid voltage minus 13.5 V, second grid voltage 250 V)	9.0	14.0
Distortion factor, % (at: filament voltage 6.3 V, plate voltage 250 V, first grid voltage minus 13.5 V, second grid voltage 250 V, plate circuit resistance 2.0 kΩ, first grid alternating voltage, efficacious 9.6 V)	—	13.5
Cahtode - heater insulation resistance, M Ω (at: filament voltage 6.3 V cathode -heater voltage ± 300 V)	10	—

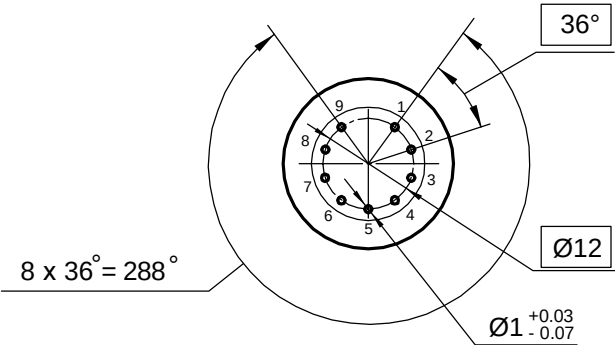
Operating conditions limits.

Parameters, units	Nominal	
	min	max
Filament voltage, V	5.7	7.0
Cathode - heater voltage, V	—	± 300
Cathode current, mA	—	150
First grid voltage, negative, V	—	100
Power dissipation at the plate, W	—	25
Power dissipation at the second grid, W	—	8
First grid circuit resistance ,M Ω fixed bias self - bias	— —	0.5 0.7

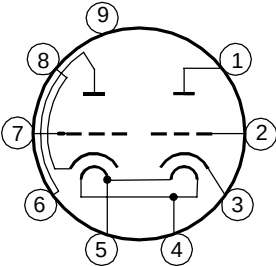


Vacuum tube 6CG7EH is a miniature twin triode with equipotential cathodes, designed to amplify low frequency voltage in radio engineering devices.

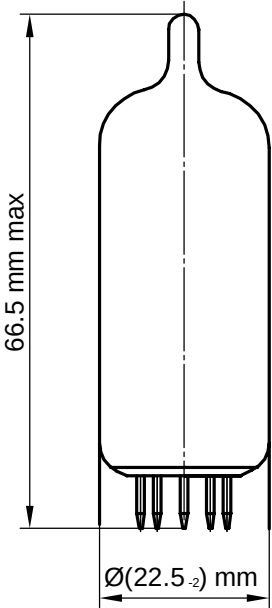
Pin arrangement



Electrode -to - lead connection diagram



Dimensions



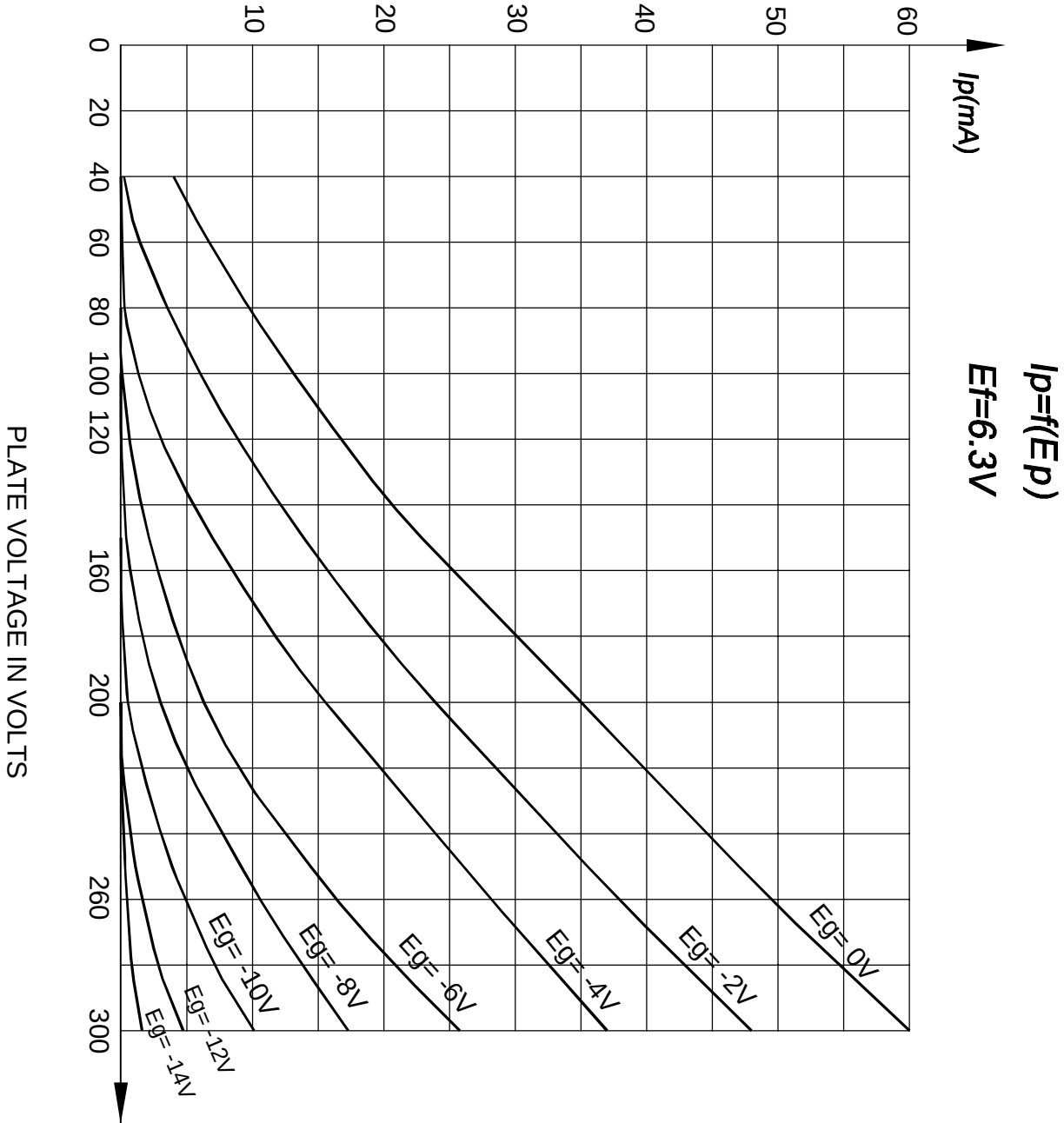
Lead designation	Name of electrode
1	Second triode plate
2	Second triode grid
3	Second triode cathode
4, 5	Heater
6	First triode plate
7	First triode grid
8	First triode cathode
9	Free

Electrical parameters

Parameters, conditions and units	Nominal	
	min	max
Heater current, mA	550	680
Grid reverse current, μA , (at: filament voltage 6.3 V, plate voltage 250 V, grid voltage minus 8.0 V, resistance in grid circuit 1.0 M Ω)	—	0.2
Plate current, mA, (at: filament voltage 6.3 V, plate voltage 250 V, grid voltage minus 8.0 V)	7	14
First and second triodes plate current difference, % (at: filament voltage 6.3 V, plate voltage 250 V, grid voltage minus 8.0 V)	—	± 30
Plate current at the beginning of the characteristic, μA (at: filament voltage 6.3 V, plate voltage 250 V, grid voltage minus 18 V)		50
Slope of characteristic, mA/V (at: filament voltage 6.3 V, plate voltage 250 V, grid voltage minus 8.0 V)	2.0	3.8
Amplification factor (at: filament voltage 6.3 V, plate voltage 250 V, grid voltage minus 8.0 V)	16.5	—
Cathode - heater insulation resistance, M Ω (at: filament voltage 6.3 V, cathode -heater voltage ± 200 V)	13.3	—

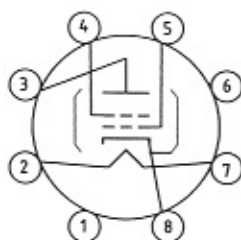
Limiting Values

Parameters, units	Nominal	
	min	max
Filament voltage, V	6	6.6
Plate voltage, V	—	330
Cathode - heater voltage, V	—	± 200
Cathode current, mA	—	20
Power dissipation at the plate of each triode, W	—	4.0
Grid circuit resistance for each of the triodes, M Ω fixed bias	—	1.0
self - bias	—	2.0



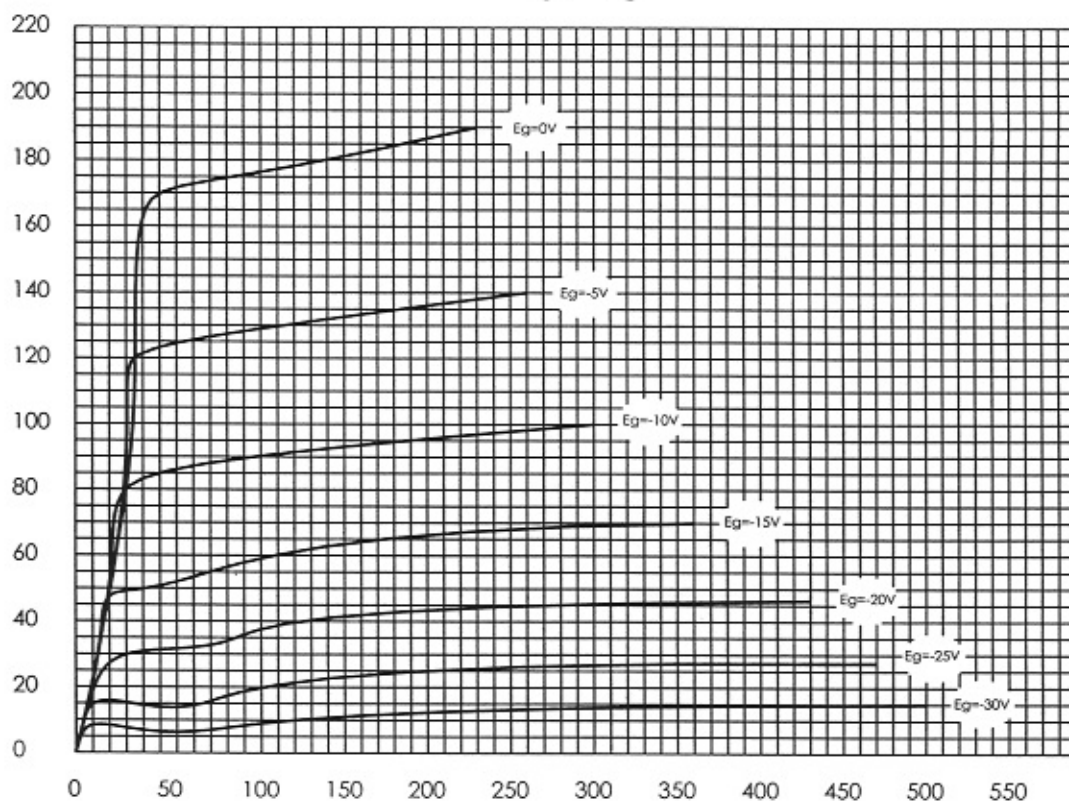
Electro-Harmonix

Pin #	description
1	N/A
2, 7	heater
3	plate
4	screen
5	grid
6	N/A
8	cathode



6L6-EH

Beam Power Tetrode



Electrical Data

Heater Voltage, not less than	5.7 V
Heater Voltage, not more than	6.9 V
Heater Current, nominal	0.9 A
Plate Voltage, not more than	500 V
Cathode Current, not more than	80 mA
Plate Dissipation, not more than	30 W
Screen Voltage, not more than	450 V
Screen Dissipation, not more than	5 watts
Maximum grid circuit resistance	
fixed bias, not more than	100 Kohms
self bias, not more than	0.5 Mohms
Inter-electrode Capacitances:	
C, grid to plate	0.6 pF
C, grid to cathode, heater, screen and suppressor	10 pF
C, plate to cathode, heater, screen and suppressor	6.4 pF
Heater to Cathode Voltage:	+/- 200 V
Transconductance (nominal)	5.2 mA/V
Plate Resistance (nominal)	33K OHM

6L6EH

New Sensor Corp.

tested by jcm

Drawing #

GT0014

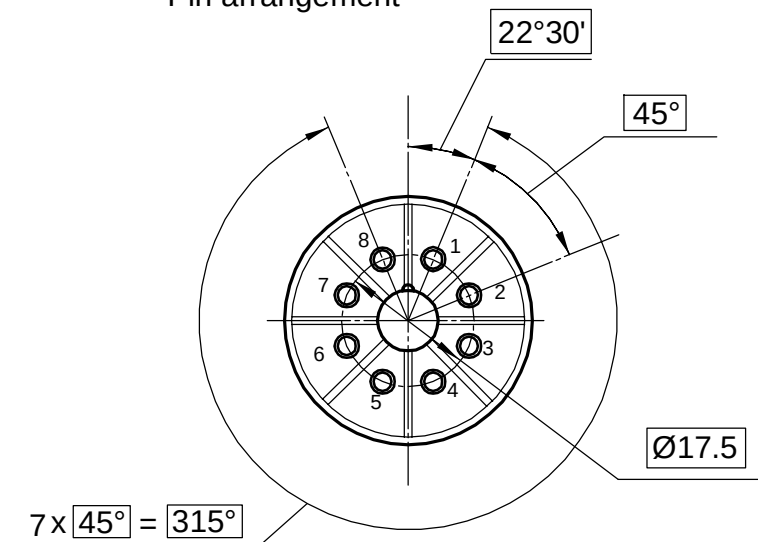
Drawn by:

jcm

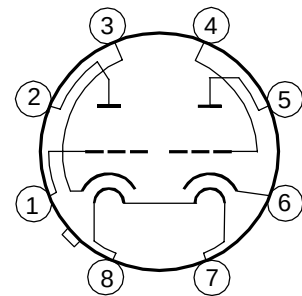
6SN7EH

Vacuum tube 6SN7EH is a twin triode with equipotential cathodes, designed to amplify low frequency voltage in radio engineering devices.

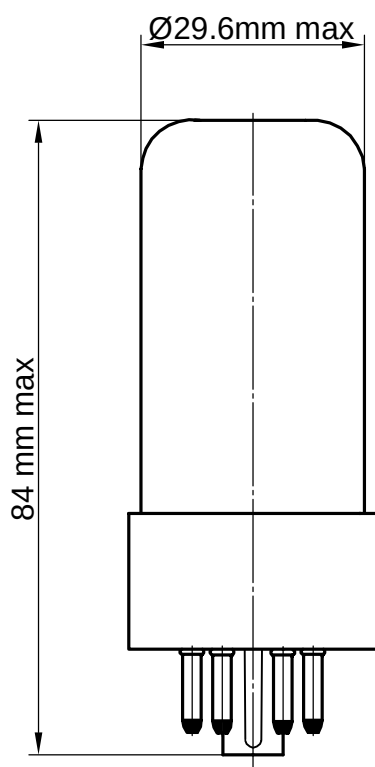
Pin arrangement



Electrode -to - lead connection diagram



Dimensions



Lead designation	Name of electrode
1	Second triode grid
2	Second triode plate
3	Second triode cathode
4	First triode grid
5	First triode plate
6	First triode cathode
7, 8	Heater

Electrical parameters

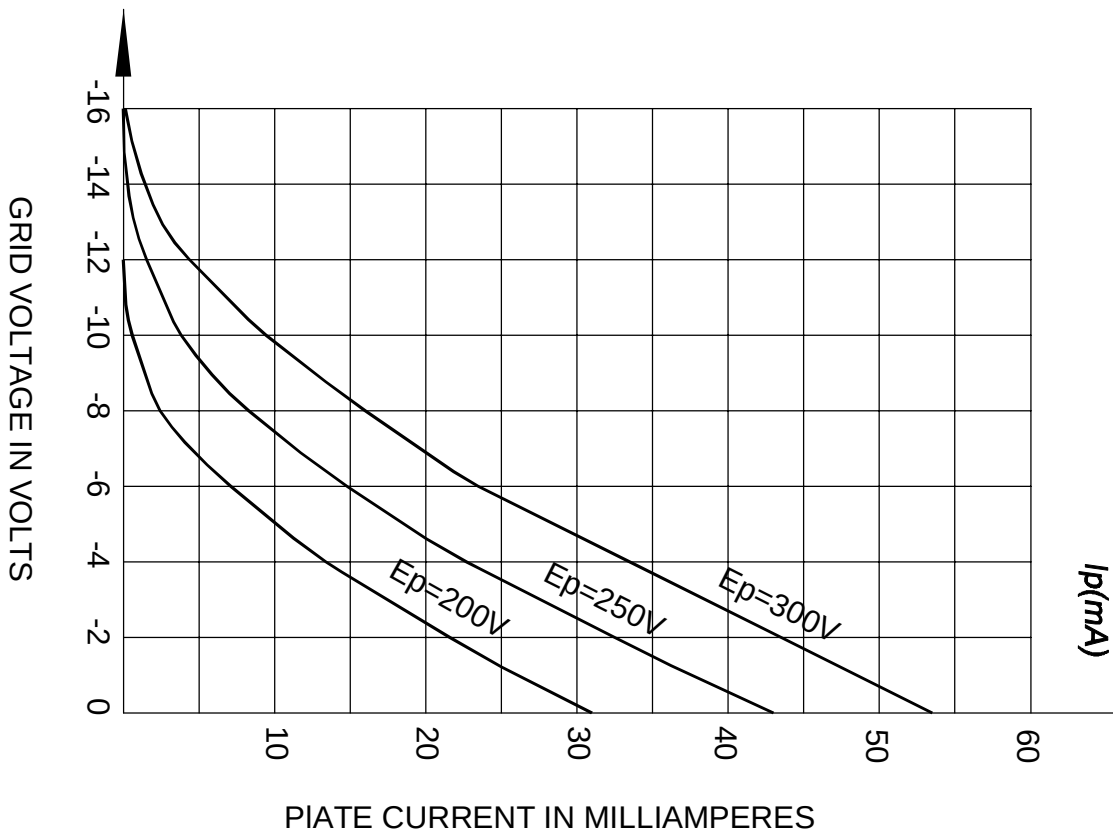
Parameters, conditions and units	Nominal	
	min	max
Heater current, mA at: filament voltage 6.3 V	550	650
Grid back current, μA , (at: filament voltage 6.3 V, plate voltage 250 V, grid voltage minus 8.0 V, resistance in grid circuit 1.0 M Ω)	—	0.2
First and second triodes plate current difference, % (at: filament voltage 6.3 V, plate voltage 250 V, grid voltage minus 8.0 V)	—	± 30
Plate current, mA, (at: filament voltage 6.3 V, plate voltage 250 V, grid voltage minus 8.0 V)	7.0	13.0
Slope of characteristic, mA/V (at: filament voltage 6.3 V, plate voltage 250 V, grid voltage minus 8.0 V)	2.0	3.6
Amplification factor (at: filament voltage 6.3 V, plate voltage 250 V, grid voltage minus 8.0 V)	16.5	—
Plate current at the beginning of the characteristic, μA (at: filament voltage 6.3 V, plate voltage 250 V, grid voltage minus 18.0 V)	—	50
Cathode - heater insulation resistance, M Ω (at: filament voltage 6.3 V, cathode - heater voltage ± 200 V)	13.3	—

Limiting Values

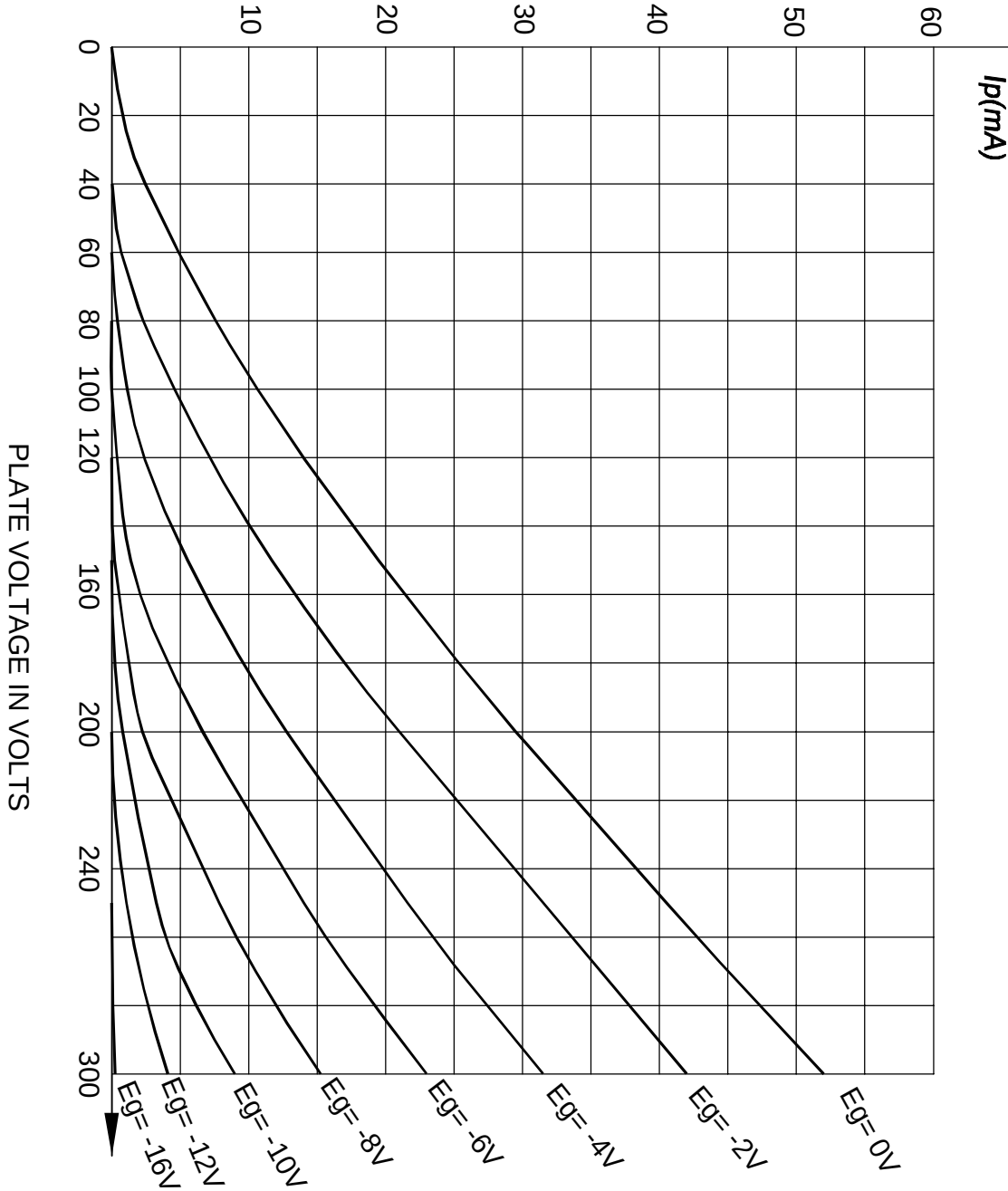
Parameters, units	Nominal	
	min	max
Filament voltage, V	6.0	6.6
Plate voltage, V	—	450
Cathode - heater voltage, V	—	± 200
Cathode current, mA	—	20
Power dissipation at the plate of each triode, W	—	2.5
Grid circuit resistance for each of the triodes, M Ω fixed bias	—	1.0
self - bias	—	2.0

6SN7EH

$I_p = f(E_g)$
 $E_f = 6.3V$



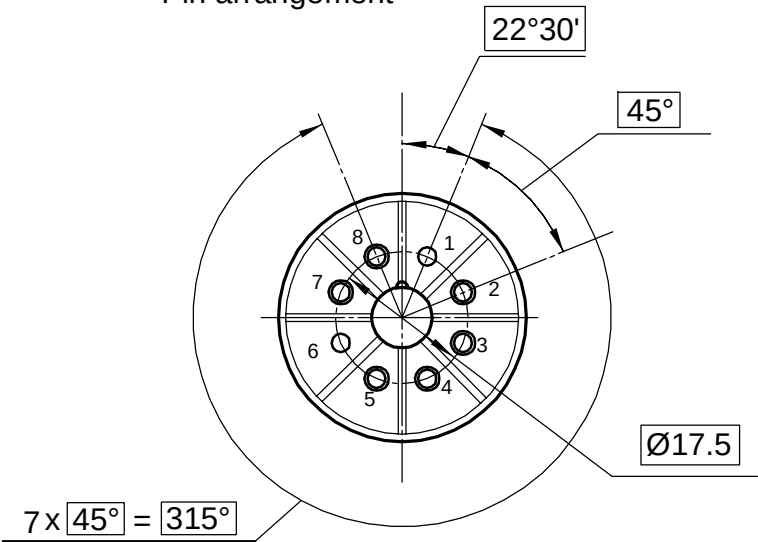
$I_p = f(E_p)$
 $E_f = 6.3V$



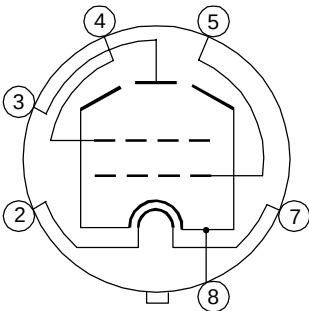
6V6GT/6V6EH

Vacuum tube 6V6GT/6V6EH is a beam tetrode in the glass bulb, with equipotential cathode, designed to amplify low frequency power in the output stages of HI - FI audio.

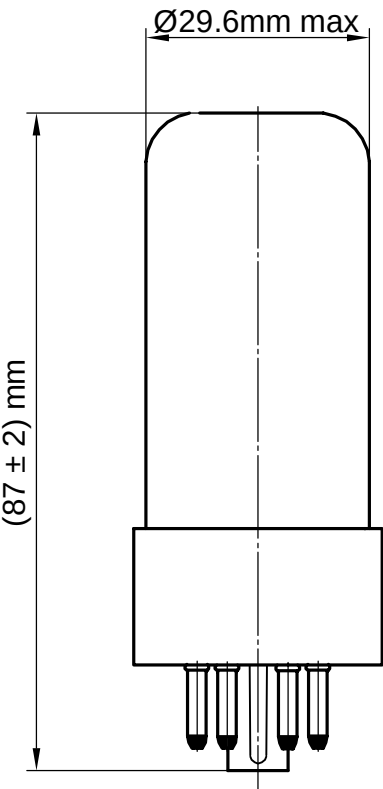
Pin arrangement



Electrode -to - lead connection diagram



Dimensions



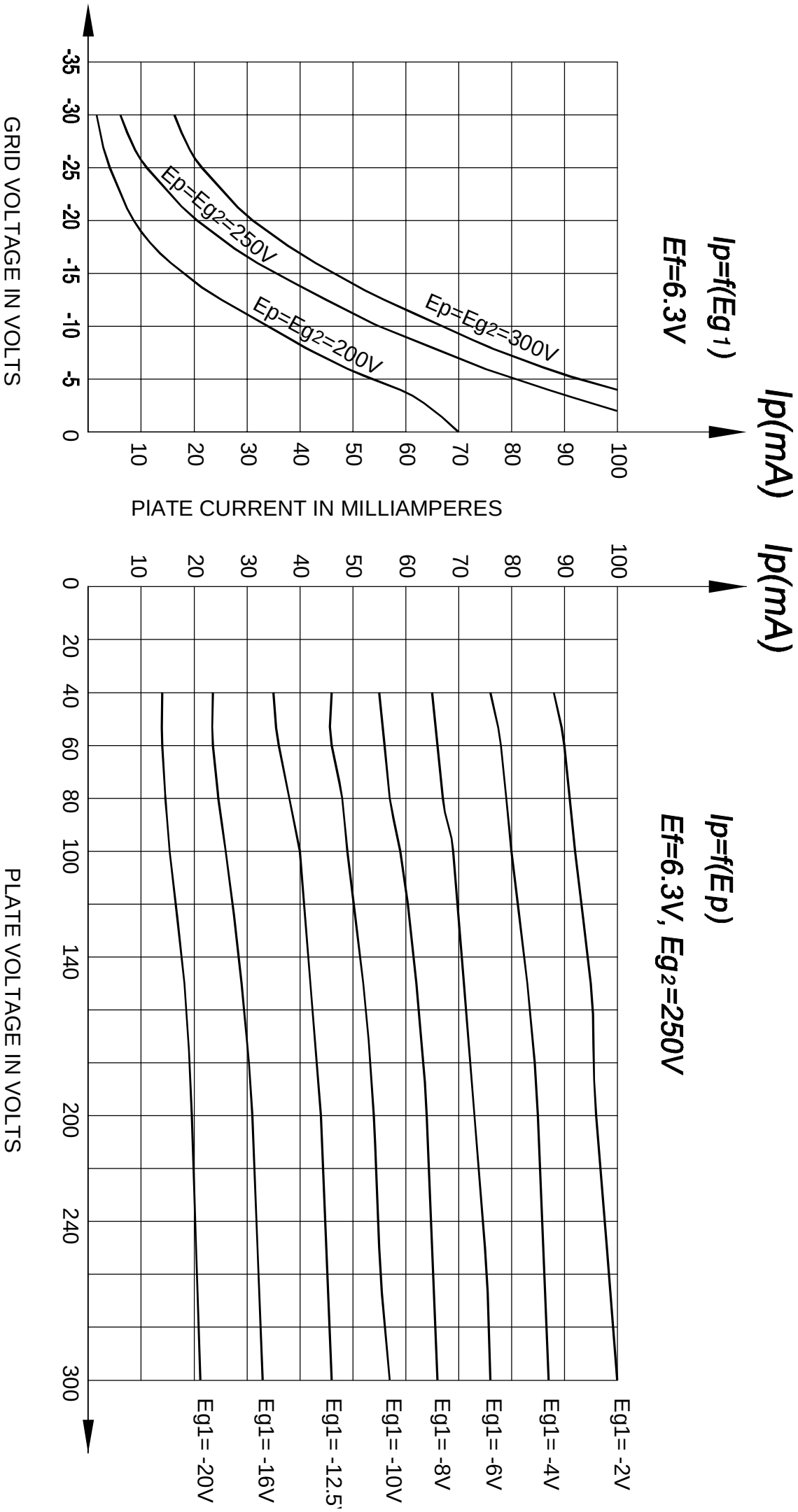
Lead designation	Name of electrode
1, 6	No
2, 7	Heater
3	Plate
4	Grid 2
5	Grid 1
8	Cathode, beam-forming screen

Electrical parameters

Parameters, conditions and units	Nominal	
	min	max
First grid reverse current, μA (at: filament voltage 6.3 V plate voltage 250 V, first grid voltage minus 12.5 V, second grid voltage 250 V, first grid circuit resistance 0.1 M Ω)	—	2.0
Heater current, mA	460	530
Plate current, mA (at: filament voltage 6.3 V, plate voltage 250 V, first grid voltage minus 12.5 V, second grid voltage 250 V)	33	59
Second grid current, mA (at: filament voltage 6.3 V, plate voltage 250 V, first grid voltage minus 12.5 V, second grid voltage 250 V)	—	8.0
Output power, W (at: filament voltage 6.3 V, plate voltage 250 V, first grid voltage minus 12.5 V, second grid voltage 250 V, plate circuit resistance 5.0 k Ω first grid alternating voltage, efficacious 8.8 V)	3.2	—
Output power at low voltage, W (at: filament voltage 5.7 V plate voltage 250 V, first grid voltage minus 12.5 V, second grid voltage 250 V, plate circuit resistance 5.0 k Ω first grid alternating voltage, efficacious 8.8 V)	2.9	—
Slope of characteristic, mA/V (at: filament voltage 6.3 V, anode voltage 250 V, first grid voltage minus 12.5 V, second grid voltage 250 V)	3.0	5.2
Cahtode - heater insulation resistance, M Ω (at: filament voltage 6.3 V, cathode -heater voltage ± 100 V)	2.0	—

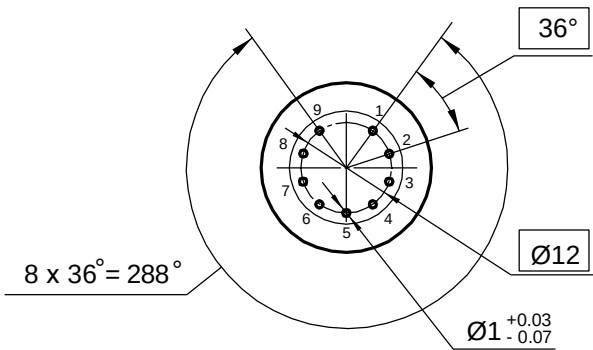
Operating conditions limits

Parameters, units	Nominal	
	min	max
Filament voltage, V	5.7	7.0
Cathode - heater voltage, V	—	± 180
Power dissipation at the plate, W	—	13.2
Power dissipation at the second grid, W	—	2.2
First grid circuit resistance, M Ω fixed bias	—	0.1
self - bias	—	0.51
Temperature at the most heated part of the envelope, K°	—	483

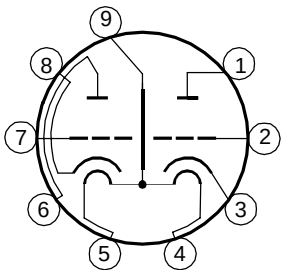


Vacuum tube 7025EH is a miniature twin triode with equipotential cathodes, designed to amplify low frequency voltage in radio engineering devices.

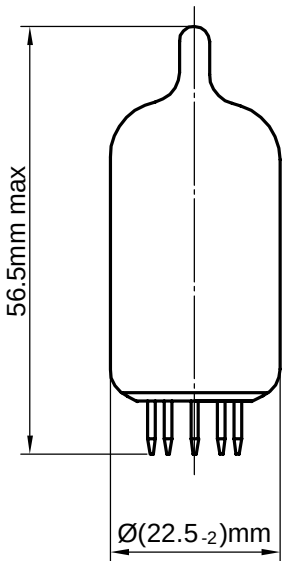
Pin arrangement



Electrode -to - lead connection diagram



Dimensions



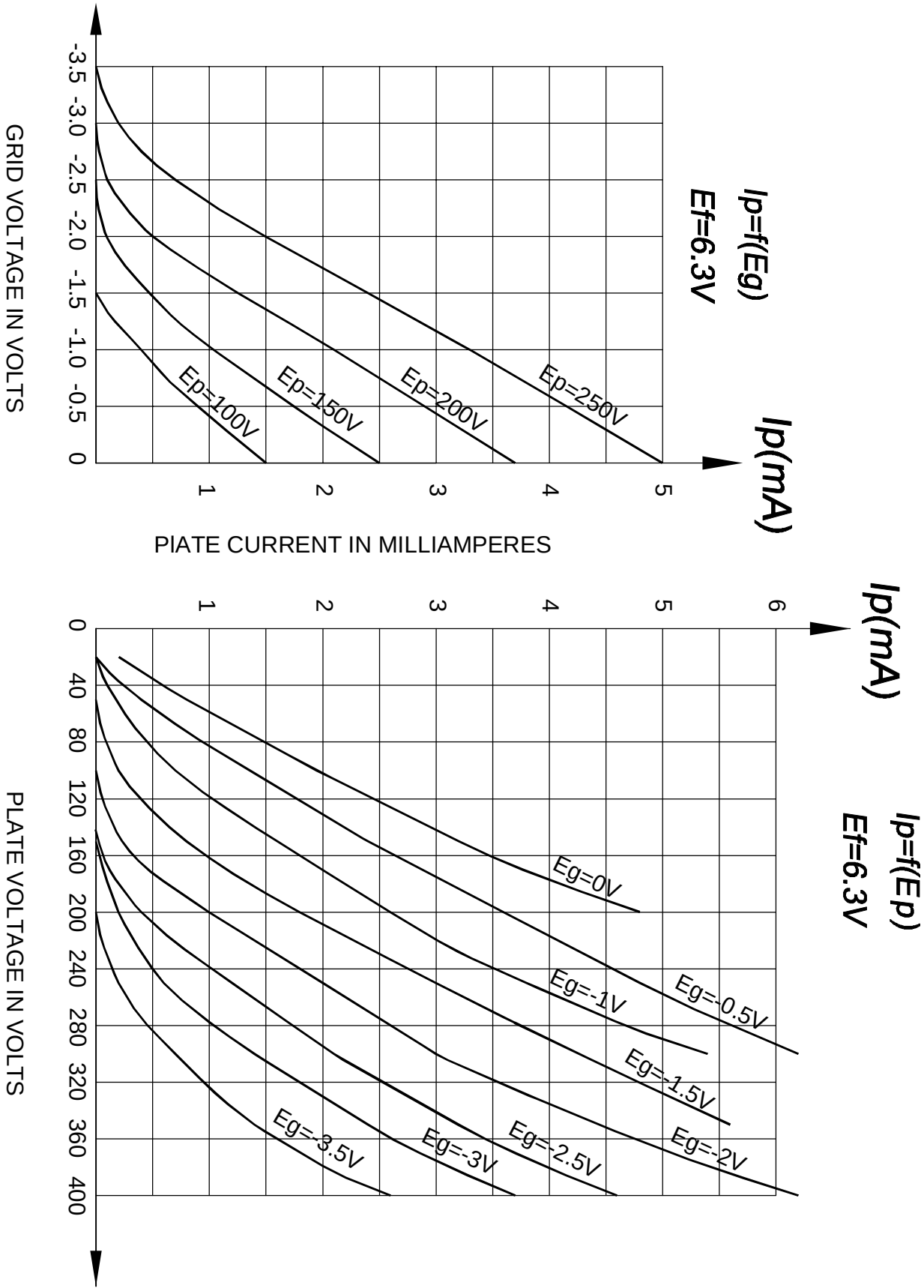
Lead designation	Name of electrode
1	Second triode plate
2	Second triode grid
3	Second triode cathode
4, 5, 9	Heater
6	First triode plate
7	First triode grid
8	First triode cathode

Electrical parameters

Parameters, conditions and units	Nominal	
	min	max
Heater current, mA at: filament voltage 6.3 V at: filament voltage 12.6 V	325 162	370 185
Grid reverse current, μA (at: filament voltage 6.3 V or 12.6 V, plate voltage 250 V, grid voltage minus 2.0 V, resistance in grid circuit 1.0 M Ω)	—	0.2
Plate current, mA, (at: filament voltage 6,3 V or 12,6 V, plate voltage 250 V, grid voltage minus 2.0 V)	0.75	2.0
First and second triodes plate current difference, % (at: filament voltage 6.3 V or 12.6 V, plate voltage 250 V, grid voltage minus 2.0 V)	—	± 40
Plate current at the beginning of the characteristic, μA (at: filament voltage 6.3 V or 12.6 V, plate voltage 250 V, grid voltage minus 5.5 V)	—	20
Slope of characteristic, mA/V (at: filament voltage 6.3 V or 12.6 V, plate voltage 250 V, grid voltage minus 2.0 V)	1.1	—
Amplification factor (at: filament voltage 6.3 V or 12.6 V, plate voltage 250 V, grid voltage minus 2.0 V)	75	—
Cathode - heater insulation resistance, M Ω (at: filament voltage 6.3 V or 12.6 V, cathode -heater voltage ± 200 V)	20	—

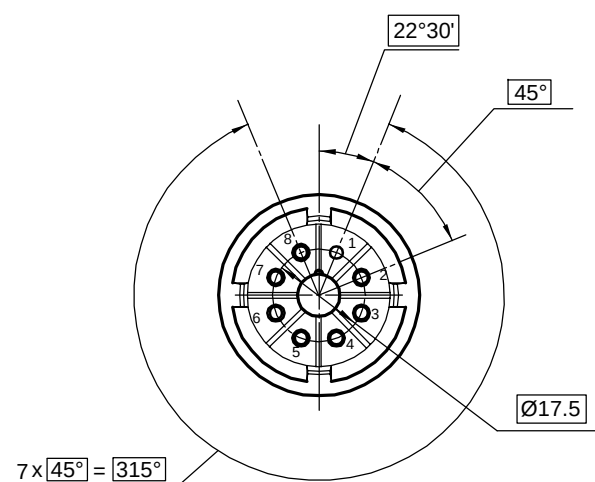
Limiting Values

Parameters, units	Nominal	
	min	max
Filament voltage, V for parallel connection for series connection	6 12	6,6 13,2
Plate voltage, V	—	300
Cathode - heater voltage, V	—	± 200
Cathode current, mA	—	10
Power dissipation at the plate of each triode, W	—	1,0
Grid circuit resistance for each of the triodes, M Ω fixed bias self - bias	— —	1,0 2,2
Temperature at the most heated part of the envelope, K°	—	368

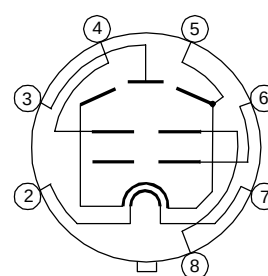


Vacuum tube 7591A EH is a beam tetrode in the glass bulb with octal base, with equipotential cathode, designed to amplify low frequency power in the output stages of HI - FI audio.

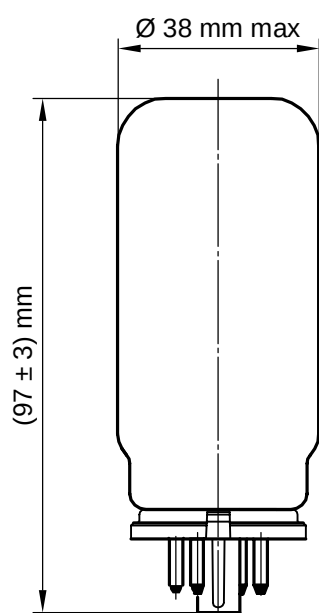
Pin arrangement



Electrode -to - lead connection diagram



Dimensions



Lead designation	Name of electrode
1	No
2, 7	Heater
3	Plate
4	Grid 2
5	Cathode, beam-forming screen
6	Grid 1
8	Grid 2

Parameters, conditions and units	Nominal	
	min	max
First grid reverse current, μA (at: filament voltage 6.3 V plate voltage 300 V, first grid voltage minus 10.0 V, second grid voltage 300 V, first grid circuit resistance 0.3M Ω)	—	0.7
Heater current, A	0.9	1.24
Plate current, mA (at: filament voltage 6.3 V plate voltage 300 V, first grid voltage minus 10.0 V, second grid voltage 300 V)	50	84
Second grid current, mA (at: filament voltage 6.3 V plate voltage 300 V, first grid voltage minus 10.0 V, second grid voltage 300 V)	—	15
Output power, W (at: filament voltage 6.3 V plate voltage 300 V, first grid voltage minus 10.0 V, second grid voltage 300 V, plate circuit resistance 3.0 k Ω first grid alternating voltage, efficacious 7.1 V)	7.8	—
First grid cut-off voltage, negative, V (at: filament voltage 6.3 V plate voltage 300 V, second grid voltage 300 V,)	—	38
Slope of characteristic, mA/V (at: filament voltage 6.3 V anode voltage 300 V, first grid voltage minus 10.0 V, second grid voltage 300 V)	7.8	12
Distortion factor, % (at: filament voltage 6.3 V, plate voltage 300 V, first grid voltage minus 10 V, second grid voltage 300 V, plate circuit resistance 3.0 k Ω, first grid alternating voltage, efficacious 7.1 V)	—	17.0
Cahtode - heater insulation resistance, M Ω (at: filament voltage 6.3 V cathode -heater voltage ± 100 V)	2.0	—

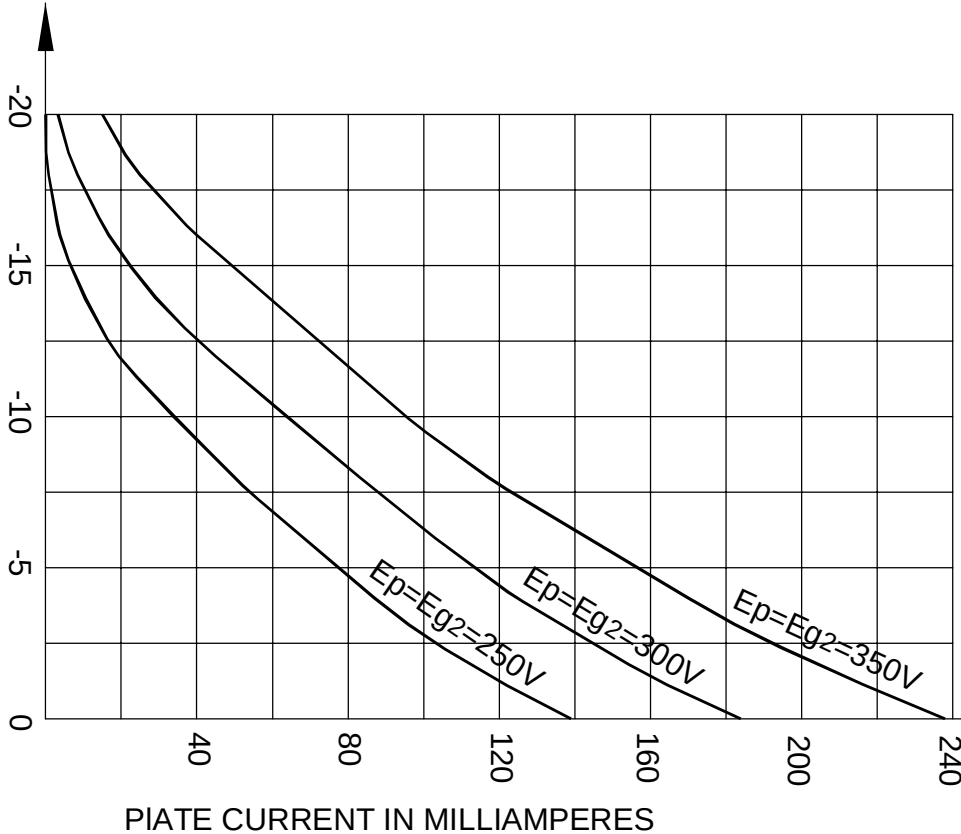
Operating conditions limits.

Parameters, units	Nominal	
	min	max
Filament voltage, V	6.0	6.6
Cathode - heater voltage, V	—	± 100
Cathode current, mA	—	90
First grid voltage, negative, V	—	100
Power dissipation at the plate, W	—	19
Power dissipation at the second grid, W	—	4.5
First grid circuit resistance ,M Ω fixed bias	—	0.3
self - bias	—	1.0
Temperature at the most heated part of the envelope, K°	—	523

$I_p=f(E_{g1})$

$E_f=6.3V$

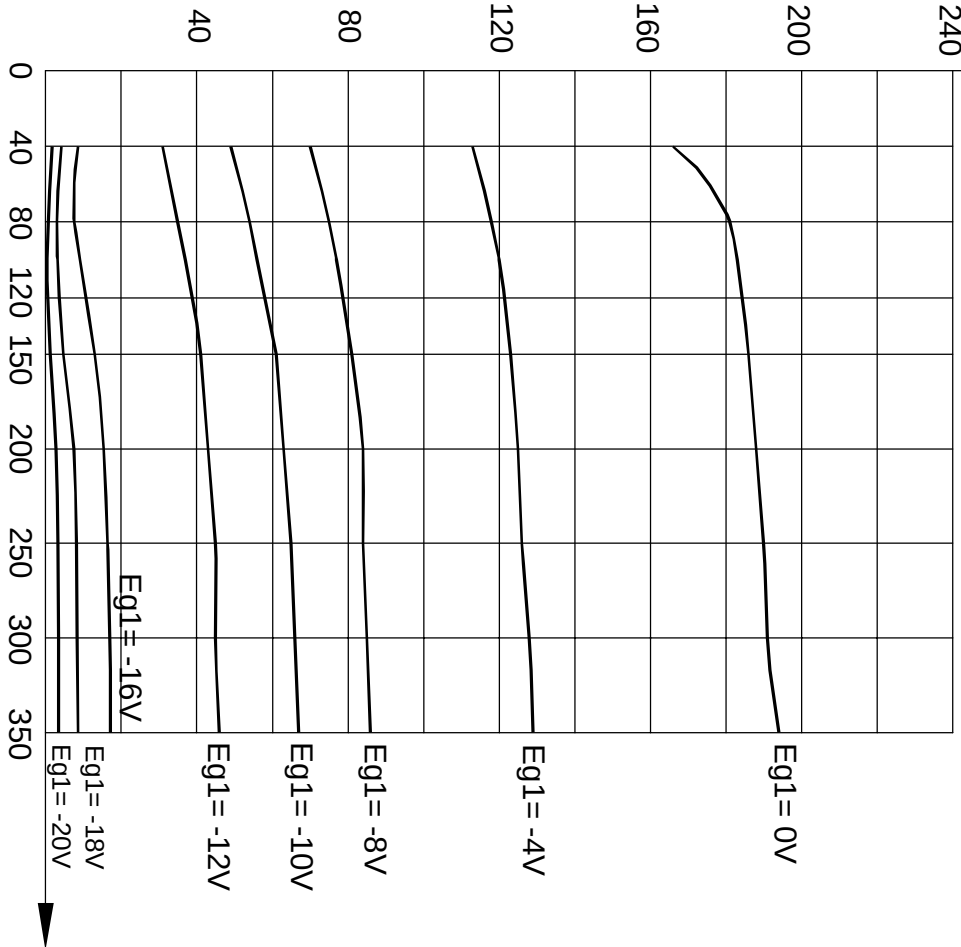
$I_p(mA)$



$I_p=f(E_p)$

$E_f=6.3V, E_{g2}=300V$

$I_p(mA)$

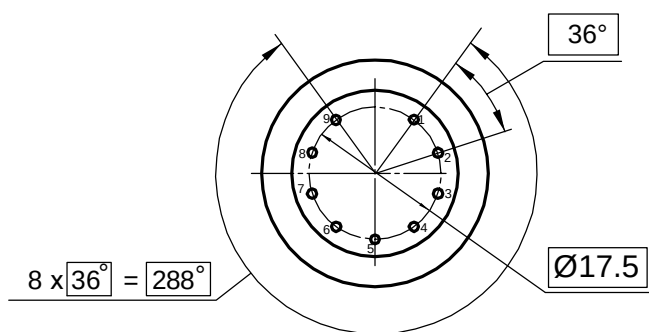


GRID VOLTAGE IN VOLTS

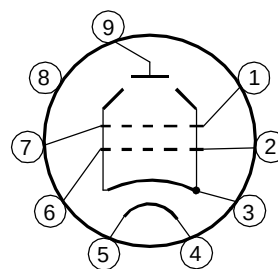
PLATE VOLTAGE IN VOLTS

Vacuum tube 7868EH is a beam tetrode in the glass bulb, with equipotential cathode, designed to amplify low frequency power in radio engineering devices.

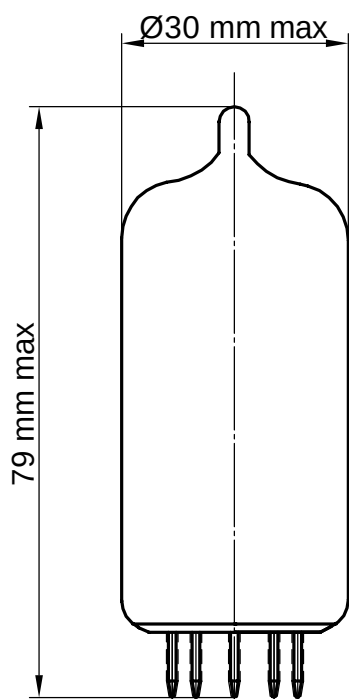
Pin arrangement



Electrode -to - lead connection diagram



Dimensions



Lead designation	Name of electrode
1, 7	Grid 2
2, 6	Grid 1
3	Cathode, beam-forming screen
4, 5	Heater
8	Empty
9	Plate

Parameters, conditions and units	Nominal	
	min	max
First grid reverse current, μA (at: filament voltage 6.3 V, plate voltage 300 V, first grid voltage minus 10.0 V, second grid voltage 300 V, first grid circuit resistance 0.3M Ω)	—	0.7
Heater current, A	0.7	0.9
Plate current, mA (at: filament voltage 6.3 V, plate voltage 300 V, first grid voltage minus 10.0 V, second grid voltage 300 V)	50	86
Second grid current, mA (at: filament voltage 6.3 V, plate voltage 300 V, first grid voltage minus 10.0 V, second grid voltage 300 V)	—	10
Output power, W (at: filament voltage 6.3 V, plate voltage 300 V, first grid voltage minus 10.0 V, second grid voltage 300 V, plate circuit resistance 3.0 k Ω first grid alternating voltage, efficacious 7.1 V)	7.0	—
First grid cut-off voltage, negative, V (at: filament voltage 6.3 V, plate voltage 300 V, second grid voltage 300 V,)	—	38
Slope of characteristic, mA/V (at: filament voltage 6.3 V, anode voltage 300 V, first grid voltage minus 10.0 V, second grid voltage 300 V)	8.4	11.4
Distortion factor, % (at: filament voltage 6.3 V, plate voltage 300 V, first grid voltage minus 10 V, second grid voltage 300 V, plate circuit resistance 3.0 k Ω, first grid alternating voltage, efficacious 7.1 V)	—	17.0
Cahtode - heater insulation resistance, M Ω (at: filament voltage 6.3 V, cathode -heater voltage ± 200 V)	6.6	—

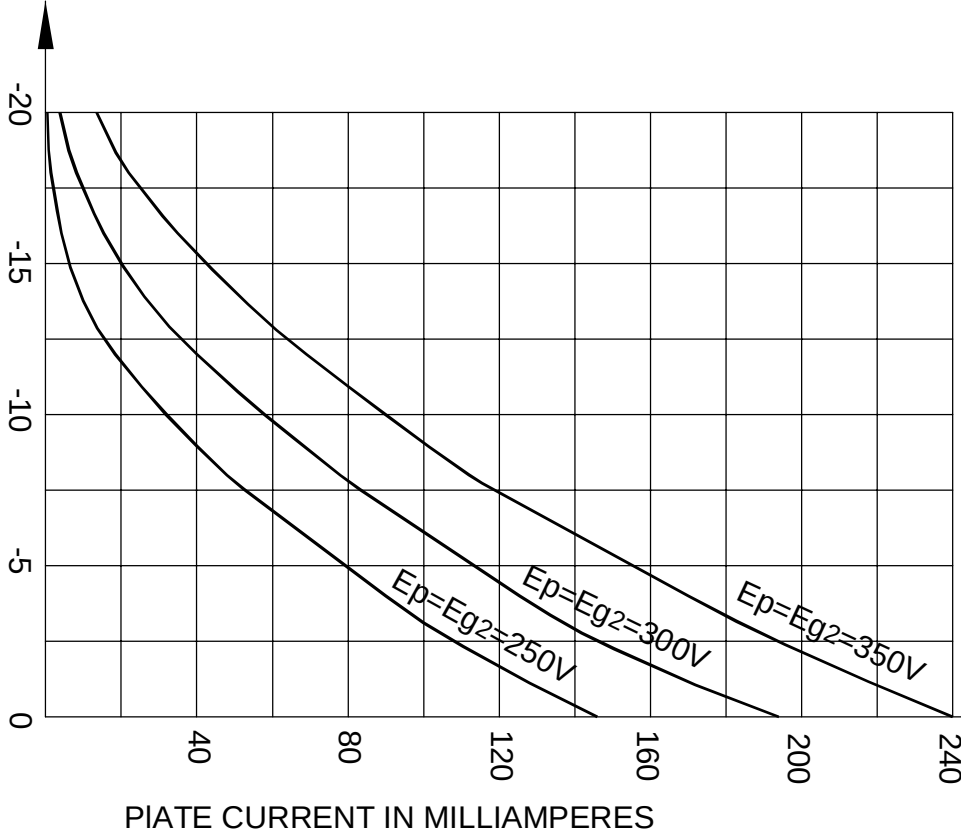
Operating conditions limits.

Parameters, units	Nominal	
	min	max
Filament voltage, V	5.7	7.0
Cathode - heater voltage, V	—	± 200
Cathode current, mA	—	90
Power dissipation at the plate, W	—	19
Power dissipation at the second grid, W	—	3.3
First grid circuit resistance ,M Ω		
fixed bias	—	0.3
self - bias	—	1.0
Temperature at the most heated part of the envelope, K°	—	513

$I_p=f(E_{g1})$

$E_f=6.3V$

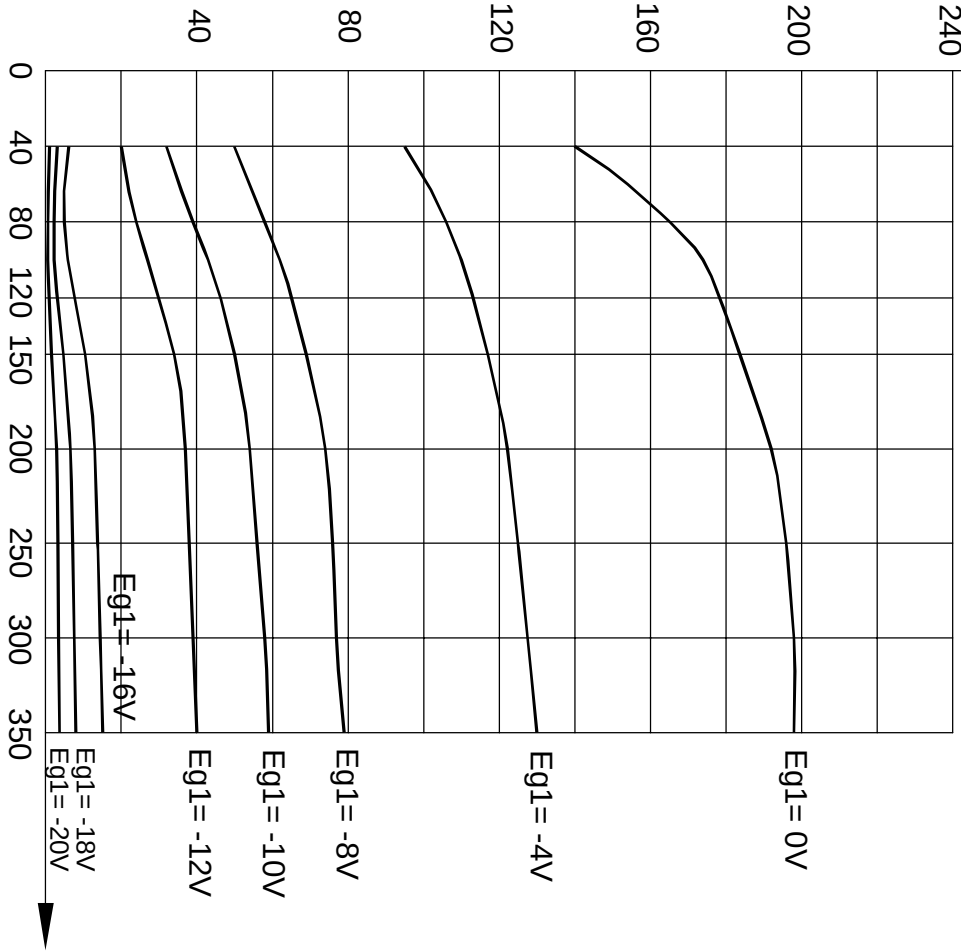
$I_p(mA)$



$I_p=f(E_p)$

$E_f=6.3V, E_{g2}=300V$

$I_p(mA)$



GRID VOLTAGE IN VOLTS

PLATE VOLTAGE IN VOLTS

EF86/EF806SG

pin #	Electrode name
1	Grid 2
2,7	Screen
3	Cathode
4,5	Heater
6	Plate
8	Grid 3
9	Grid 1

Electrical data

Parameters, measures	Rate		Comments
	Not less	Not more	
Heater current, mA	185	215	1
Grid reverse current, μ A	-	0.1	1,2,3,4,5,6
Plate current, mA	2.6	3.8	1,2,3,4,5
Grid2 current, mA	0.45	0.75	1,2,3,4,5
Transconductance, mA/V	1.6	2.4	1,2,3,4,5
Cathode to heater leakage current, μ A	-	10	1,7

Comments:

1. Heater voltage 6.3v
2. Plate voltage 250v
3. Grid2 voltage 140V
4. Grid3 voltage 0V
5. Resistance in cathode circuit, 500 Ohm
6. Resistance in grid1 circuit, 3 MOhm
7. Cathode-heater voltage, ± 100 V

Limited values

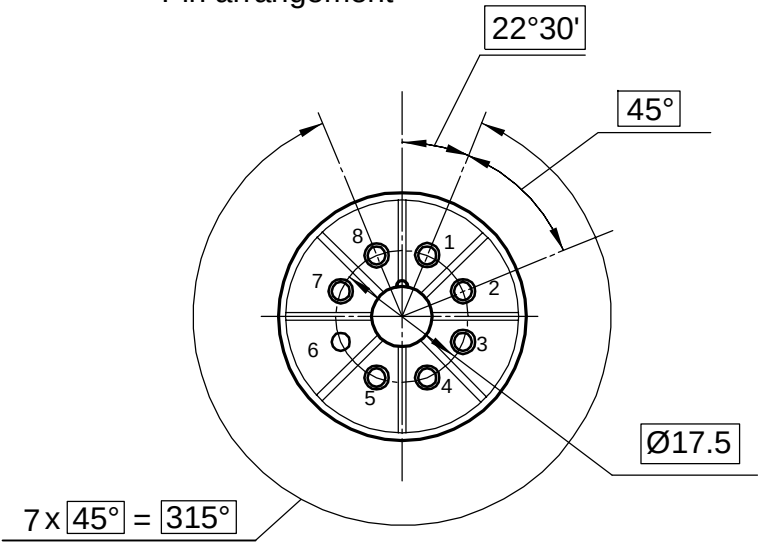
	Not less	Not more
Heater voltage, V	5.7	6.9
Plate voltage, V	-	300
Grid2 voltage, V	-	200
Cathode-heater voltage (positive and negative), V	-	100
Cathode current, mA	-	6
Plate dissipation power, W	-	1
Grid2 dissipation power, W	-	0.2
Grid1 circuit resistance, MOhm	-	3
Envelope temperature, $^{\circ}$ C	-	170

Interelectrode capacitances:

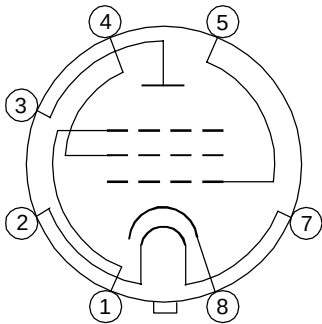
Input capacitance (nominal), pf	4.0
Output capacitance (nominal), pf	5.5
Transfer capacitance (not more), pf	0.05

Vacuum tube EL34EH, EL34WXT is a output pentod in the glass bulb, with equipotential cathode, designed to amplify low frequency power in the output stages of HI - FI audio.

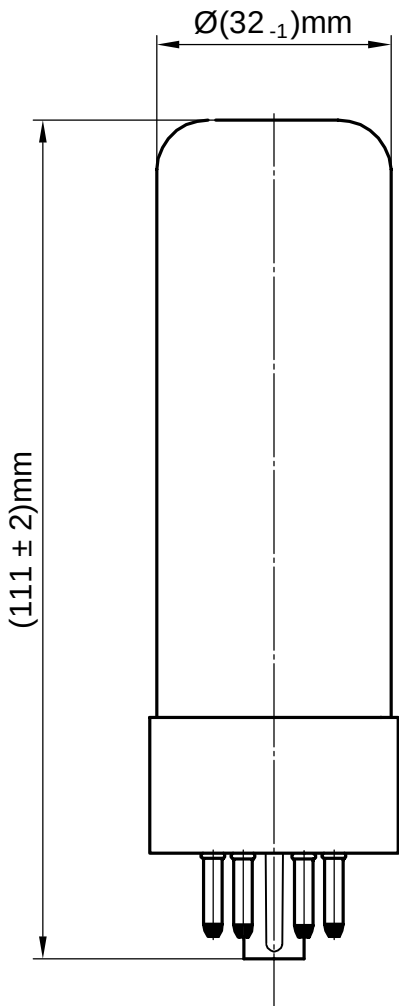
Pin arrangement



Electrode -to - lead connection diagram



Dimensions



Lead designation	Name of electrode
1	Grid 3
2, 7	Heater
3	Plate
4	Grid 2
5	Grid 1
6	No
8	Cathode

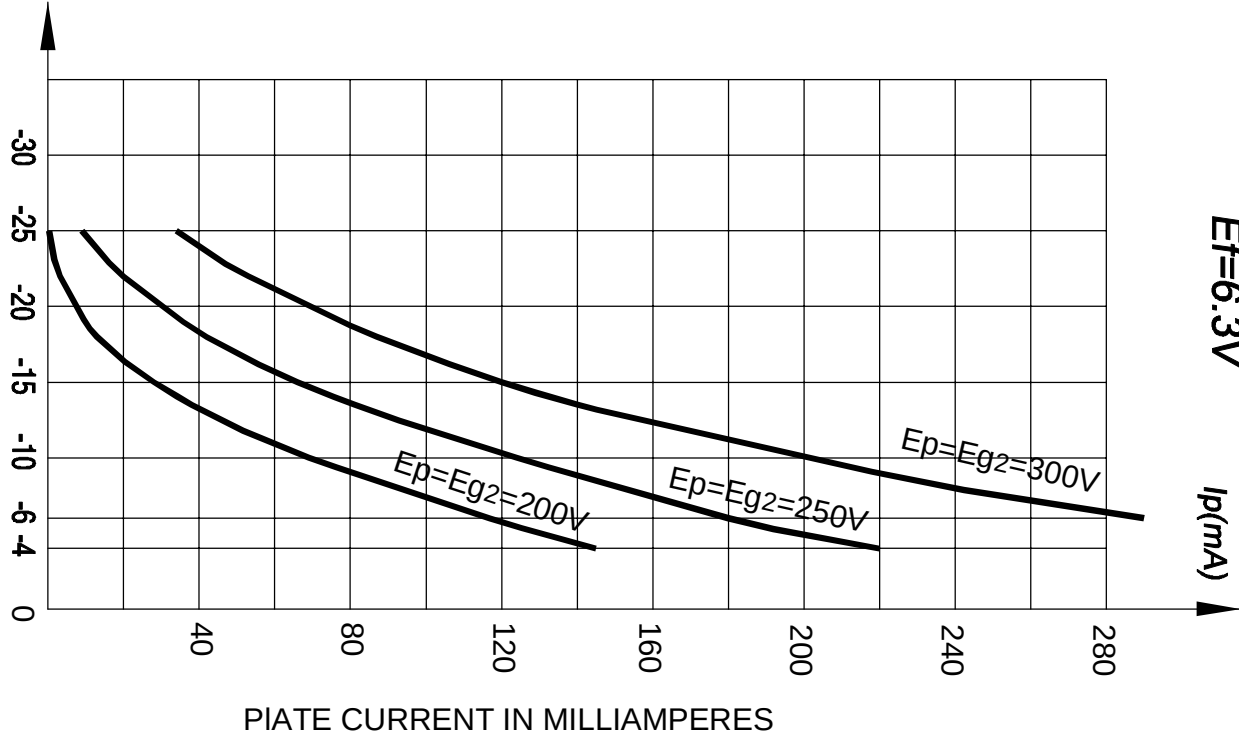
Parameters, conditions and units	Nominal	
	min	max
First grid reverse current, μA (at: filament voltage 6.3 V, plate voltage 250 V, first grid voltage minus 13.5 V, second grid voltage 265 V, first grid circuit resistance 0.51 M Ω)	—	1.5
Heater current, A	1.35	1.65
Plate current, mA (at: filament voltage 6.3 V, plate voltage 250 V, first grid voltage minus 13.5 V, second grid voltage 265 V)	80	120
Second grid current, mA (at: filament voltage 6.3 V, plate voltage 250 V, first grid voltage minus 13.5 V, second grid voltage 265 V)	10	20
Output power, W (at: filament voltage 6.3 V, plate voltage 250 V, first grid voltage minus 13.5 V, second grid voltage 265 V, plate circuit resistance 2.0 k Ω , first grid alternating voltage, efficacious 8.7 V)	8.5	—
First grid cut-off voltage, negative, V (at: filament voltage 6.3 V, plate voltage 250 V, second grid voltage 265 V)	—	48
Slope of characteristic, mA/V (at: filament voltage 6.3 V, anode voltage 250 V, first grid voltage minus 13.5 V, second grid voltage 265 V)	9.5	15
Distortion factor,% (at: filament voltage 6.3 V, plate voltage 265 V, first grid voltage minus 13.5 V, second grid voltage 265 V, plate circuit resistance 2.0 k Ω , first grid alternating voltage, efficacious 8.7 V)	—	13.5
Cahtode - heater insulation resistance, M Ω (at: filament voltage 6.3 V cathode -heater voltage ± 100 V)	2	—

Operating conditions limits

Parameters, units	Nominal	
	min	max
Filament voltage, V	5.5	7.0
Cathode - heater voltage, V	—	± 100
Cathode current, mA	—	150
Power dissipation at the plate, W	—	25
Power dissipation at the second grid, W	—	8
First grid circuit resistance, M Ω fixed bias	—	0.5
self - bias	—	0.7
Temperature at the most heated part of the envelope, K°	—	523

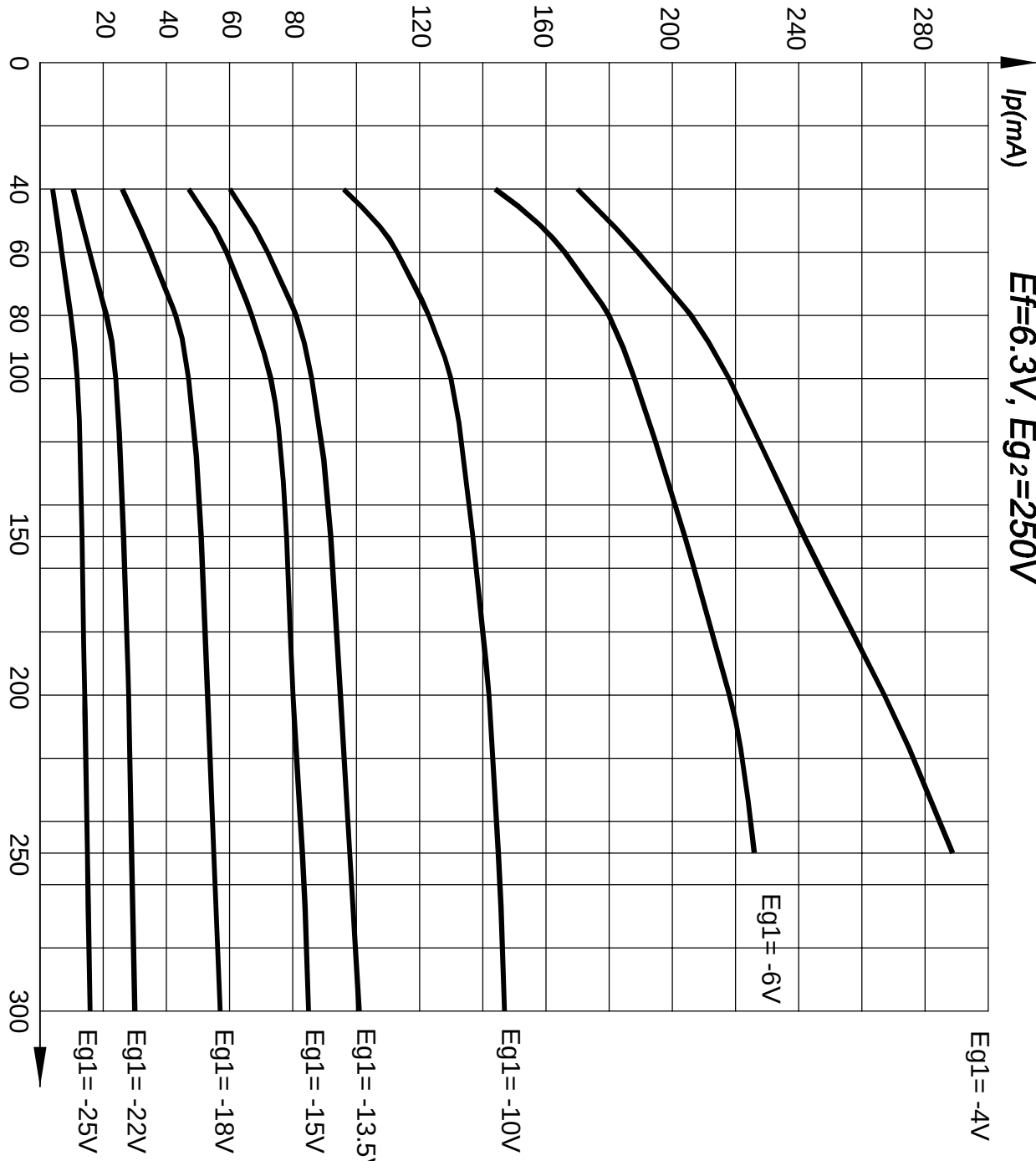
$I_p = f(E_{g1})$

$E_f = 6.3V$



$I_p = f(E_p)$

$E_f = 6.3V, E_{g2} = 250V$

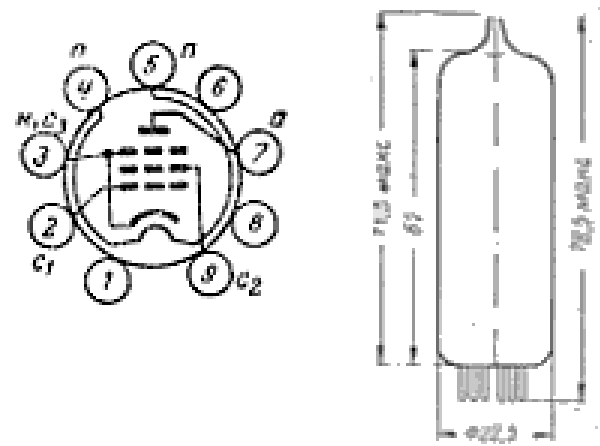


6P14P, 6P14P-V, 6P14P-EV

(6n14n, 6n14n-B, 6n14n-EB)

General

Pentode for output stages of low frequency amplifiers.
Envelope: miniature, glass.
Mass 20 g.



General characteristics:

Type	6P14P	6P14P-V	6P14P-EV
Filament voltage, Volt	6.3	6.3	6.3
Anode voltage, Volt	250	250	250
2 nd grid voltage, Volt	250	250	250
Resistance in cathode circuit, Ohm	120	120	120

Type	6P14P	6P14P-V	6P14P-EV
Filament (heater) current, mA	760±60	760±60	760±60
Anode current, mA	48±8	48±8	48±8
2 nd grid current, mA	5	5	5
Reverse 1 st grid current, mkA	≤ 1	≤ 1	≤ 1
Dissipate cathode-heater current, mkA	≤ 25	≤ 25	≤ 25
Mutual conductance, mA/V	11.3	11.5	11.5
Output power (by R _A =5.2Kohm), W	4.2	4.3	4.3
Non-linear distortion, %	8	8	8
Internal resistance, Kohm	-	-	-
Equivalent noise resistance, Ohm			300
Inter electrode capacitance, pF: input	11	11±2.5	11±2.5
output	7	8±2	8±2
transfer	≤ 0.2	0.75-0.4	0.75-0.4
Operation time, h	3000	1000	5000

Limited operating values:

Type	6P14P	6P14P-V	6P14P-EV
Filament voltage, V	5,7-7	5,7-7	5,7-7
Anode voltage, V	300-400	300-500	300-500
2 nd grid voltage, V	300	300-500	300-500
Cathode - heater voltage, V	100	200	200
Cathode current, mA	65	65	65
Anode dissipation, W	14	14	14
2 nd grid dissipation, W	2.2	2	2
Resistance in 1 st grid circuit, MOhm	1	1	1

Operating environmental conditions :

Type	6P14P	6P14P-V	6P14P-EV
Acceleration of vibration loads, g	2.5	6	10
by frequencies, Hz	50	5-600	5-600
Acceleration of multiple impacts, g	35	150	150
Acceleration of single impact, g	--	300	300
Ambient temperature, °Ñ	-60 to +70	-60 to +70	-60 to +70
Relative humidity at up to 40°C, %	98	98	98

Plate-grid and plate curves of 6P14P

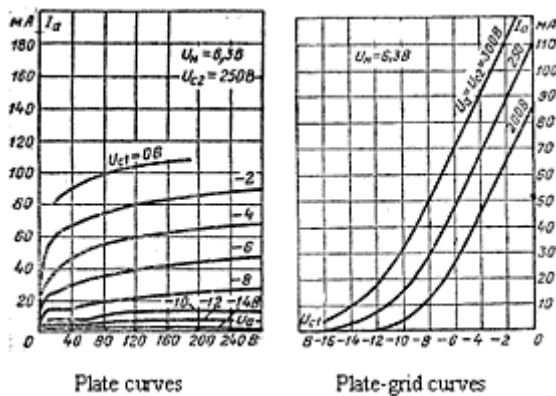
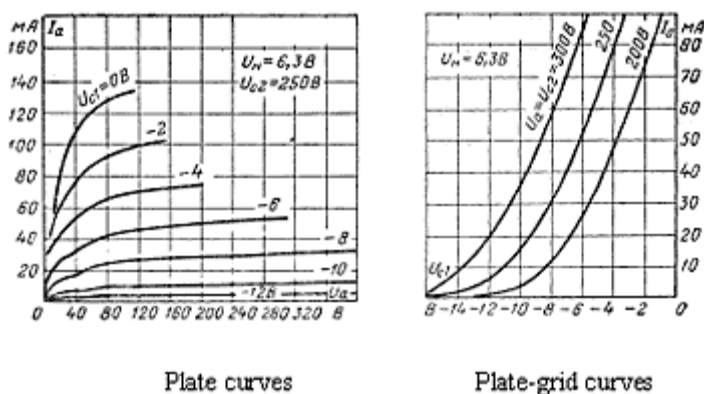
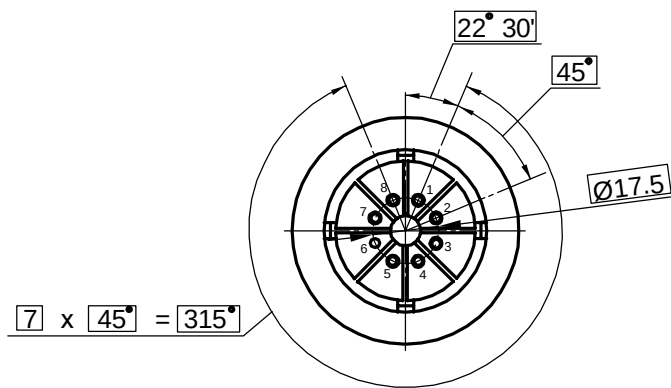


Plate-grid and plate curves of 6P14P-EV

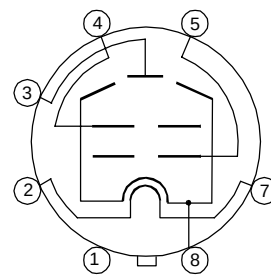


Vacuum tube 6550EH, KT88EH, KT88SV, KT88 Genalex is a beam tetrode in the glass bulb with octal base,with equipotential cathode, designed to amplify low frequency power in the output stages of HI - FI audio.

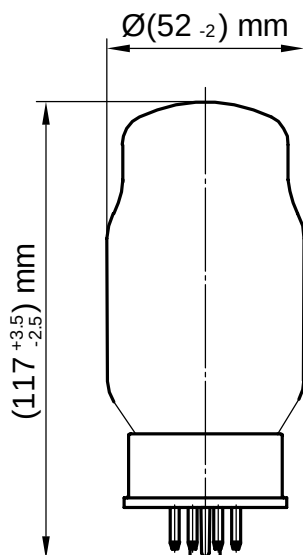
Pin arrangement



Electrode -to - lead connection diagram



Dimensions



Lead designation	Name of electrode
1	Outer metal screen
2, 7	Heater
3	Plate
4	Grid 2
5	Grid 1
6	No
8	Cathode, beam-forming screen

Electrical parameters

6550EH, KT88EH, KT88SV,
KT88 Genalex

Parameters, conditions and units	Nominal	
	min	max
First grid reverse current, μA (at: filament voltage 6.3 V, plate voltage 400 V, first grid voltage minus 16.5 V, second grid voltage 225 V, first grid circuit resistance 0.051M Ω)	—	0.7
Heater current, A	1.5	1.7
Plate current, mA (at: filament voltage 6.3 V, plate voltage 400 V, first grid voltage minus 16.5 V, second grid voltage 225 V)	75	125
Second grid current, mA (at: filament voltage 6.3 V, plate voltage 400 V, first grid voltage minus 16.5 V, second grid voltage 225 V)	2	9.5
Output power, W (at: filament voltage 6.3 V, plate voltage 400 V, first grid voltage minus 16.5 V, second grid voltage 225 V, plate circuit resistance 3.0 k Ω first grid alternating voltage, efficacious 11.7 V)	14	—
First grid cut-off voltage, negative, V (at: filament voltage 6.3 V, plate voltage 400 V, second grid voltage 225 V)	—	58
Slope of characteristic, mA/V (at: filament voltage 6.3 V, anode voltage 400 V, first grid voltage minus 16.5 V, second grid voltage 225 V)	8.2	—
Distortion factor, % (at: filament voltage 6.3 V, plate voltage 400 V, first grid voltage minus 16.5 V, second grid voltage 225 V, plate circuit resistance 3.0 k Ω first grid alternating voltage, efficacious 11.7 V)	—	18.0
Cahtode - heater insulation resistance, M Ω (at: filament voltage 6.3 V, cathode -heater voltage + 300 V)	10.0	—

Operating conditions limits

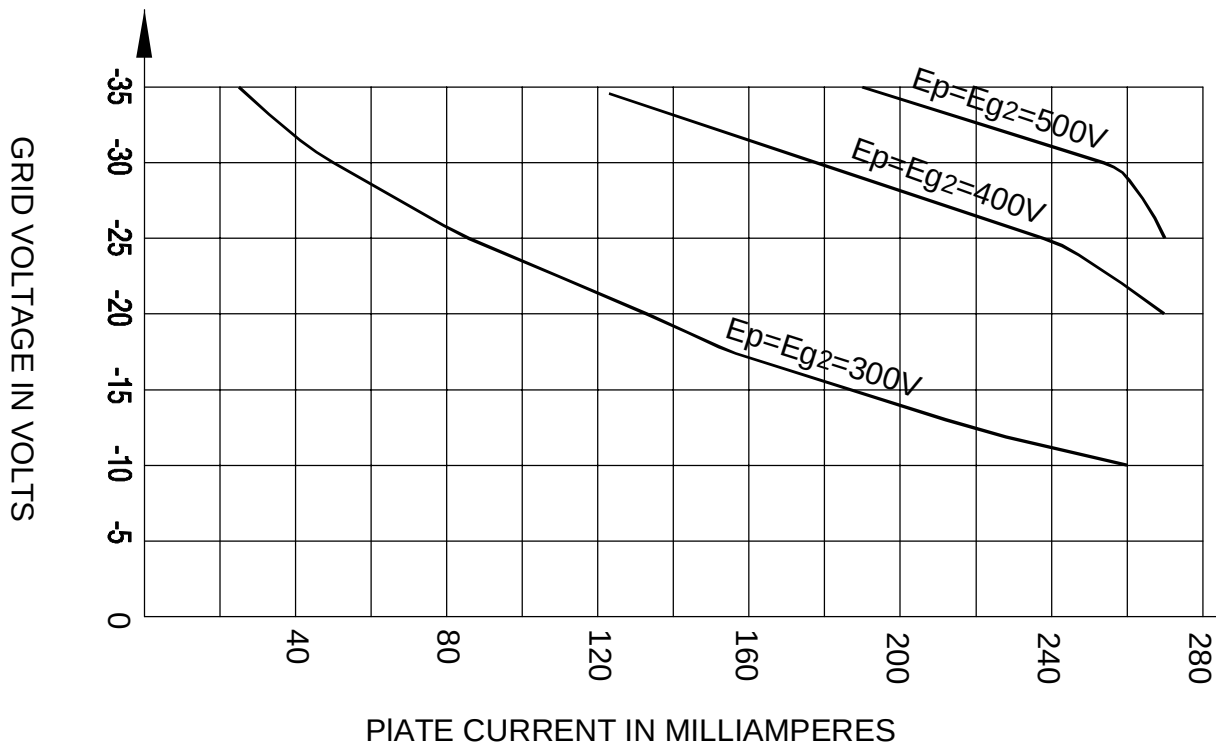
Parameters, units	Nominal	
	triode connection	tetrode connection
Filament voltage, V, min	5.7	5.7
max	6.9	6.9
Cathode - heater voltage, pulse:		
positive polarity at the cathode (average level of the constant component $\leq 300\text{V}$), V, max	300	300
negative polarity at the cathode (average level of the constant component $\leq 100\text{V}$), V, max	200	200
Cathode current, mA	230	192.5
First grid voltage: negative, V, max	300	300
positive, V, max	0	0
Power dissipation at the plate, W, max	42	44
Power dissipation at the second grid, W, max	6.6	6.6
First grid circuit resistance, M Ω , max		
fixed bias	0.051	0.051
self - bias	0.1	0.1
Temperature at the most heated part of the envelope, K°	523	523

6550EH, KT88EH, KT88SV,
KT88 Genalex

$I_p=f(E_{g1})$

$E_f=6.3V$

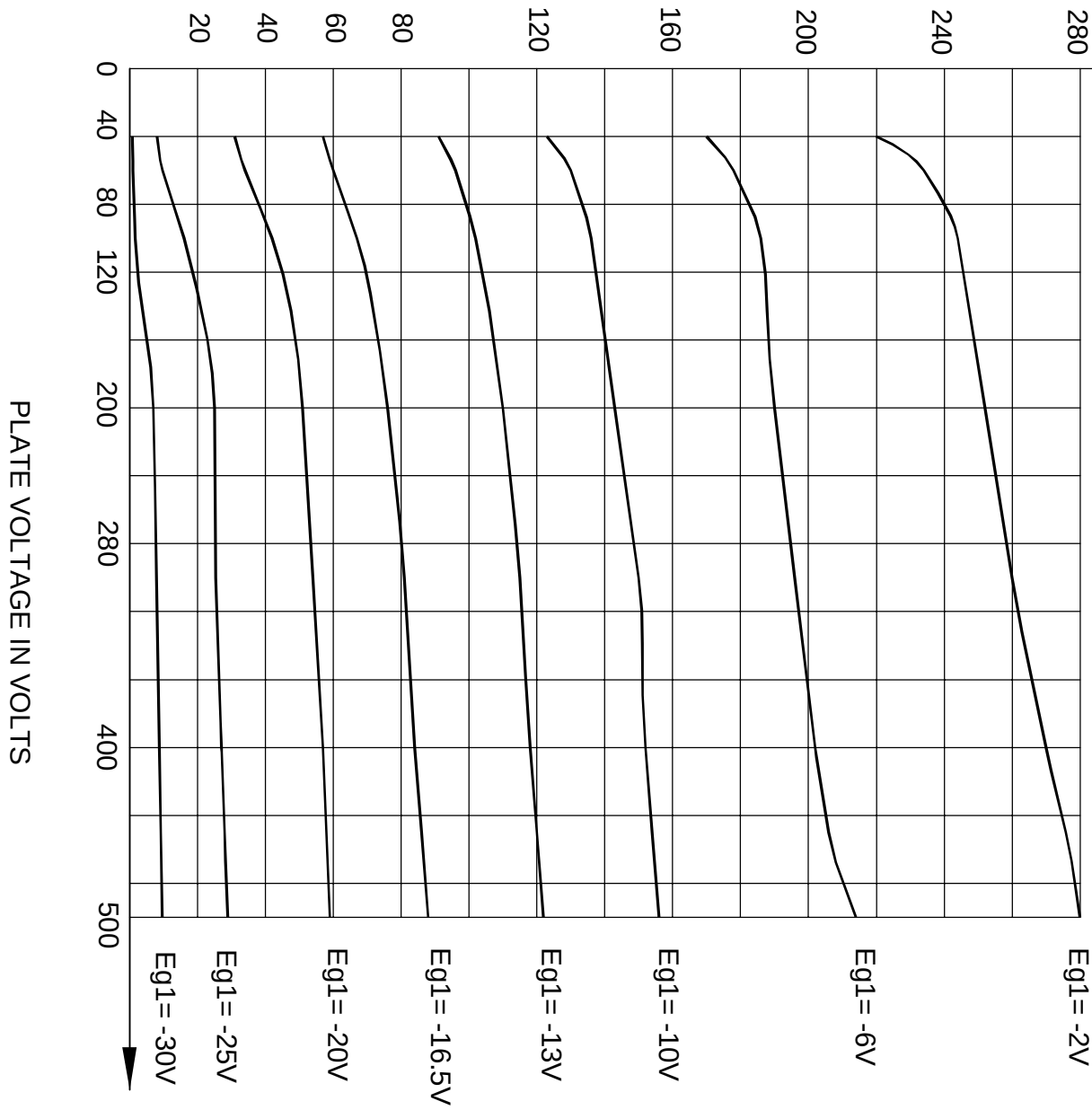
$I_p(mA)$



$I_p=f(E_p)$

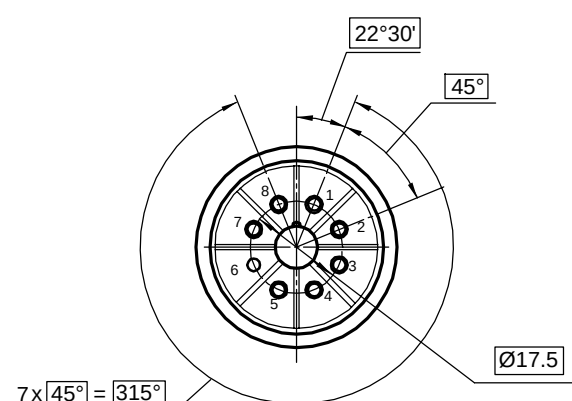
$E_f=6.3V, E_{g2}=250V$

$I_p(mA)$

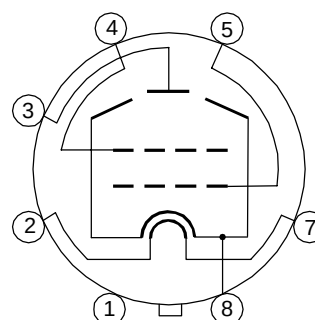


Vacuum tube KT90EH is a beam tetrode in the glass bulb with octal base, with equipotential cathode, designed to amplify low frequency power in the output stages of HI - FI audio.

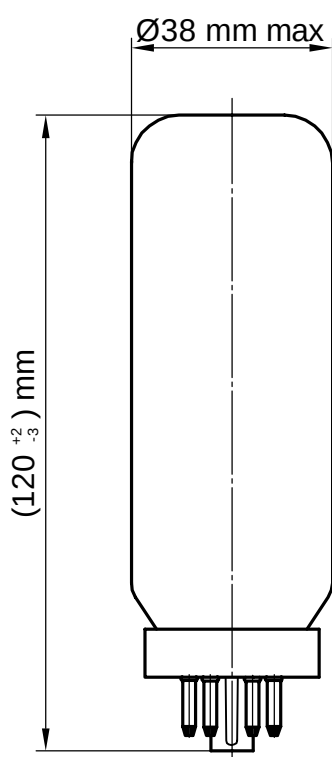
Pin arrangement



Electrode -to - lead connection diagram



Dimensions



Lead designation	Name of electrode
1	Free
2, 7	Heater
3	Plate
4	Grid 2
5	Grid 1
6	No
8	Cathode, beam-forming screen

Electrical parameters

KT90EH

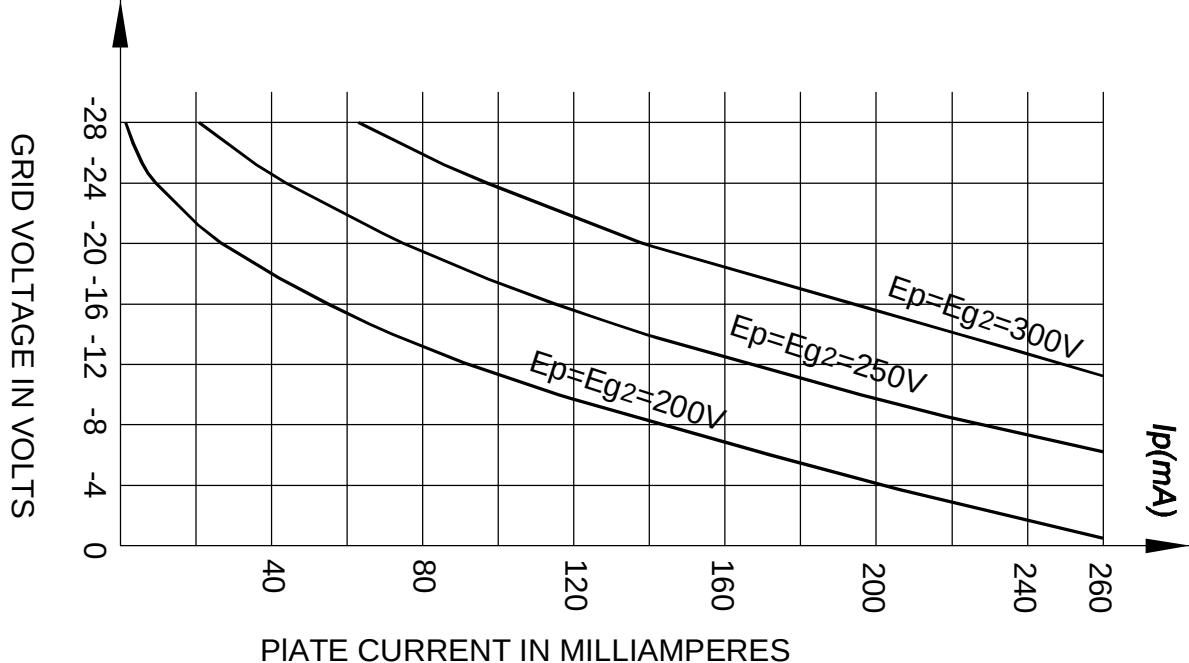
Parameters, conditions and units	Nominal	
	min	max
First grid reverse current, μA (at: filament voltage 6.3 V, plate voltage 250 V, first grid voltage minus 14.0 V, second grid voltage 250 V, first grid circuit resistance 0.51 M Ω)	—	0.5
Heater current, A	1.65	1.95
Plate current, mA (at: filament voltage 6.3 V, plate voltage 250 V, first grid voltage minus 14.0 V, second grid voltage 250 V)	115	165
Second grid current, mA (at: filament voltage 6.3 V, plate voltage 250 V, first grid voltage minus 14.0 V, second grid voltage 250 V)	—	23
Output power, W (at: filament voltage 6.3 V, plate voltage 250 V, first grid voltage minus 14.0 V, second grid voltage 250 V, plate circuit resistance 2.0 k Ω , first grid alternating voltage, efficacious 9.9 V)	12	—
First grid cut-off voltage, negative, V (at: filament voltage 6.3 V, plate voltage 250 V, second grid voltage 250 V)	—	50
Slope of characteristic, mA/V (at: filament voltage 6.3 V, anode voltage 250 V, first grid voltage minus 14.0 V, second grid voltage 250 V)	10.8	—
Distortion factor, % (at: filament voltage 6.3 V, plate voltage 250 V, first grid voltage minus 14.0 V, second grid voltage 250 V, plate circuit resistance 2.0 k Ω , first grid alternating voltage, efficacious 9.9 V)	—	14.0
Cathode - heater insulation resistance, M Ω (at: filament voltage 6.3 V, cathode -heater voltage ± 300 V)	10	—

Operating conditions limits

Parameters, units	Nominal	
	min	max
Filament voltage, V	6.0	6.6
Cathode - heater voltage, V	—	± 300
Cathode current, mA	—	230
First grid voltage, negative, V	—	200
Power dissipation at the plate, W	—	46
Power dissipation at the second grid, W	—	8
First grid circuit resistance for each, M Ω		
fixed bias	—	0.24
self - bias	—	0.51

$I_p = f(E_{g1})$

$E_f = 6.3V$



$I_p = f(E_p)$

$E_f = 6.3V, E_{g2} = 250V$

