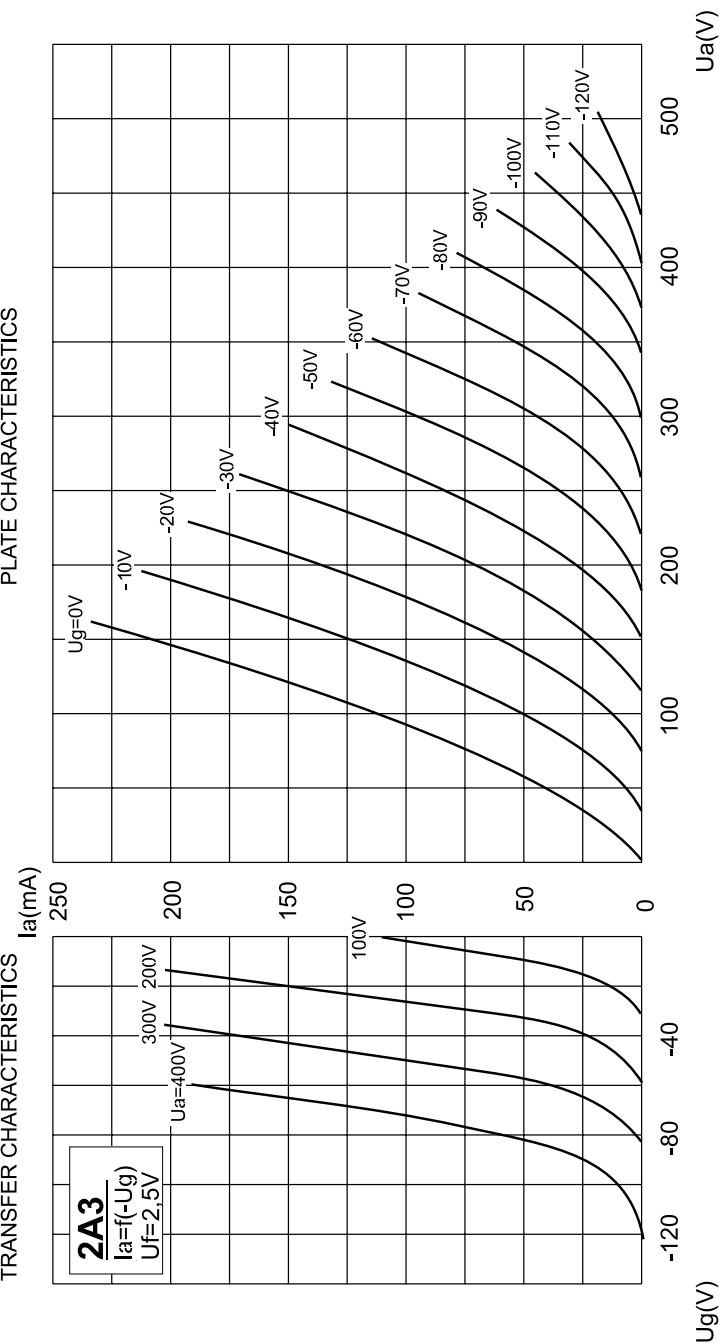




PLATE CHARACTERISTICS



2A3 - 40 W

A. F. TRIODE

Base: 4-PIN CERAMIC BASE

$$U_f = 2,5 V$$

$$I_f = 2,5 A$$

Typical characteristic:

$$U_a = 250 V$$

$$U_g = -45 V$$

$$I_a = 60 mA$$

$$S = 5,25 mA/V$$

$$m = 4,2$$

$$R_i = 800 \Omega$$

Limiting values:

$$U_a = 450 v$$

$$W_a = 40 W$$

Maximum plate current of average tube for fixed bias

$$I_a = 70 mA$$

Maximum plate current for manually adjusted grid bias or self-biasing

$$I_a = 100 mA$$

Capacitances:

$$C_{g1} = 17 pF$$

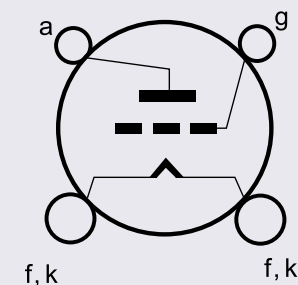
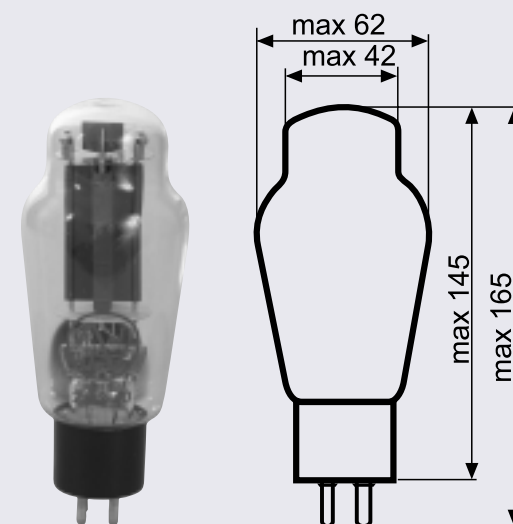
$$C_a = 11 pF$$

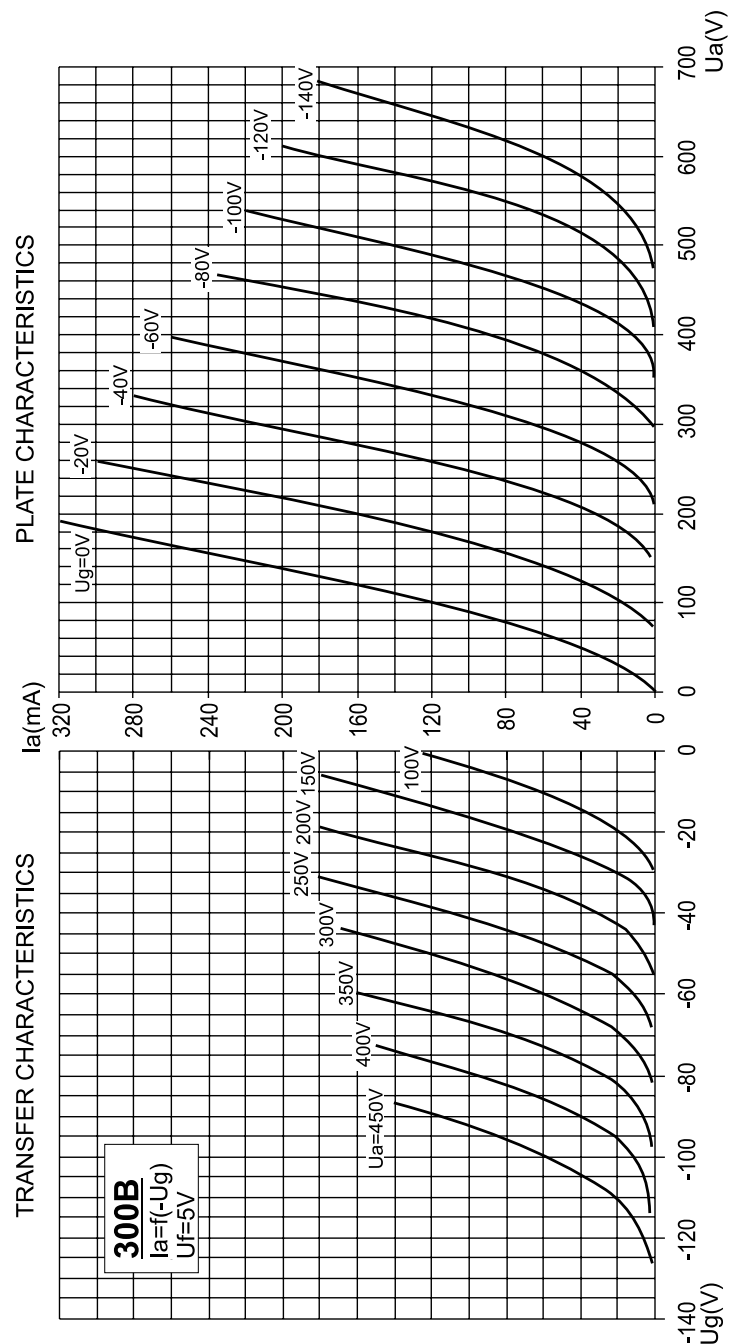
$$C_{g1-a} = 7,5 pF$$

Dimension

and connections:

Moderate power, filamentary triodes for Class A service.





300 B

R. F. TRIODE

Base: 4-PIN CERAMIC BASE

$$U_f = 5 V$$

$$I_f = \text{ca } 1,3 A$$

Typical characteristic:

$$U_a = 300 V$$

$$U_{g1} = -61 V$$

$$I_a = 60 \text{ mA}$$

$$S = 5,5 \text{ mA/V}$$

$$R_i = 700 \Omega$$

$$\mu = 3,85$$

Limiting values:

$$U_a = 450 V$$

$$W_a = 40 W$$

Maximum plate current of average tube for fixed bias

$$I_a = 70 \text{ mA}$$

Maximum plate current for manually adjusted grid bias or self-biasing

$$I_a = 100 \text{ mA}$$

Capacitances:

$$C_{g1} = 17 \text{ pF}$$

$$C_a = 11 \text{ pF}$$

$$C_{g1-a} = 7,5 \text{ pF}$$

Dimension

and connections:

Moderate power, filamentary triodes for Class A service.

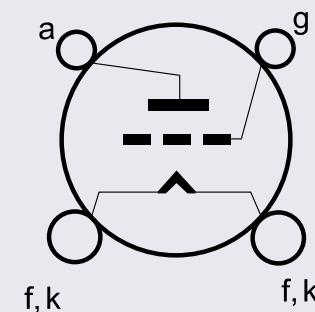
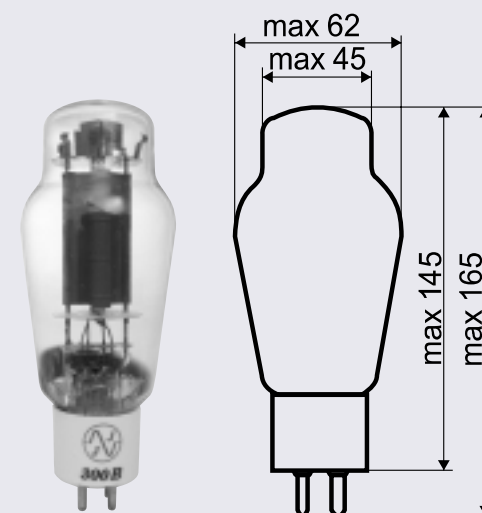
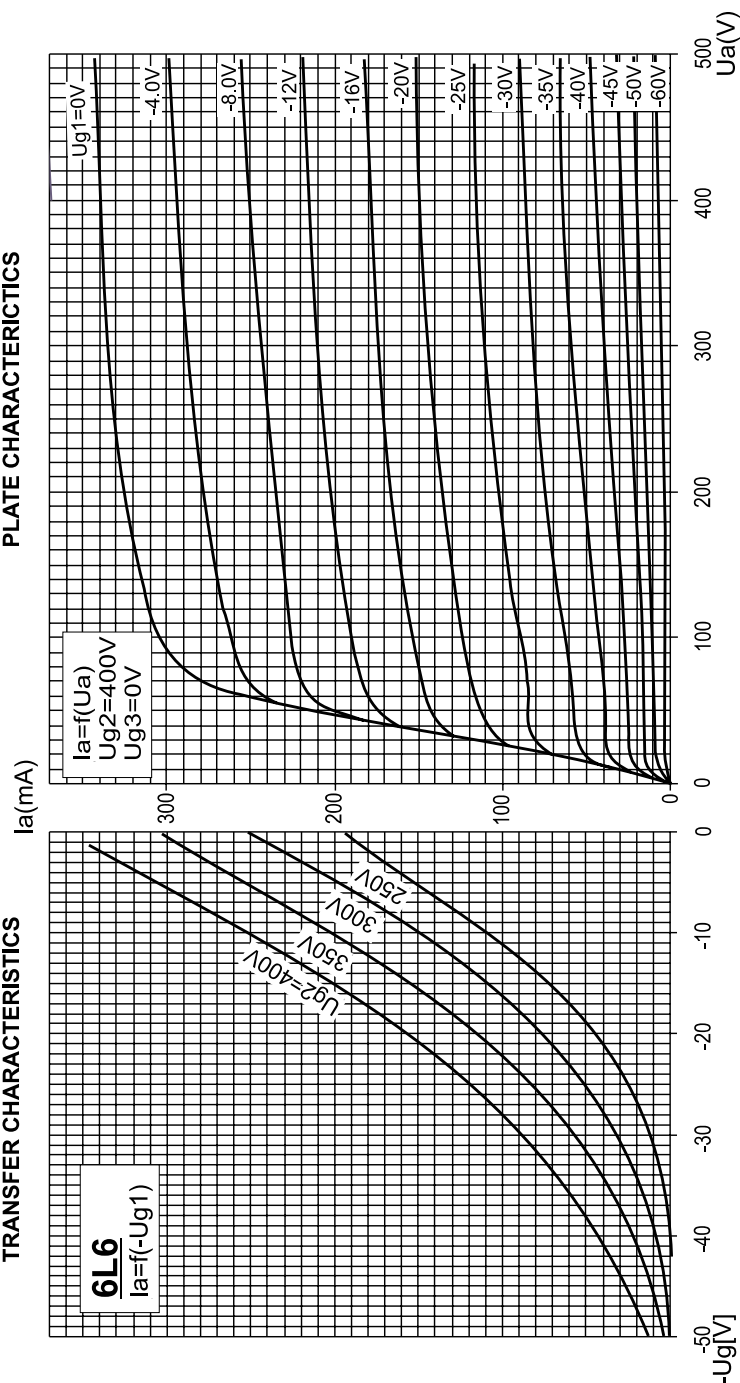




PLATE CHARACTERISTICS

TRANSFER CHARACTERISTICS



6L6 GC

A. F. BEAM PENTODE

Base: OCTAL

$$U_f = 6,3 \text{ V}$$

$$I_f = c_a 0,9 \text{ A}$$

Typical characteristic: Class A1

	<i>Singl tube</i>	<i>Push-Pull</i>
U_a	= 250 V	270 V
U_{g2}	= 250 V	270 V
U_{g1}	= -14 V	-17,5 V
I_a	= 72 mA	134 mA
I_{g2}	= 5 mA	11 mA
R_a	= 22,5 k Ω	-
R_{a-a}	= -	5 k Ω
N	= 6,5 W	17,5 W

Limiting values:

	<i>Triode</i>
U_a	= 450 V
U_{g2}	= 450 V
W_a	= 30 W

	<i>Pentode</i>
U_a	= 500 V
U_{g2}	= 450 V
W_a	= 30 W

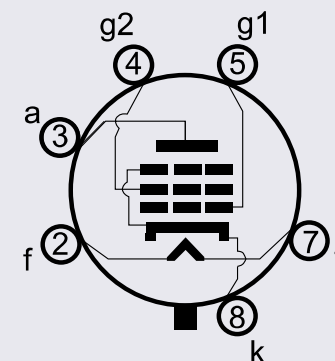
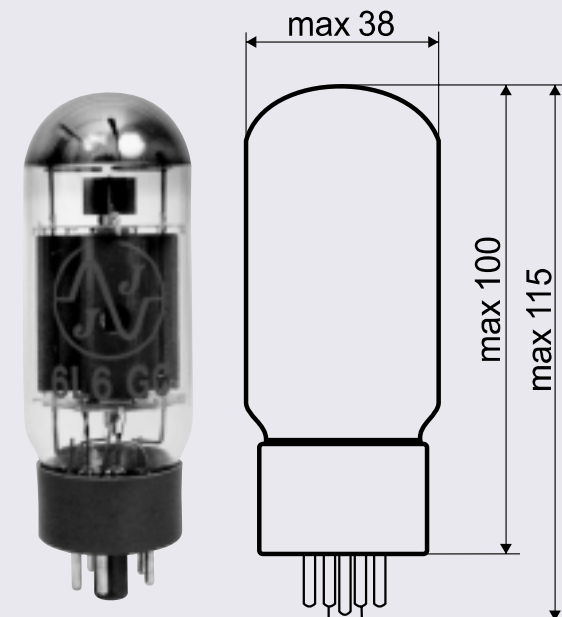
Grid No 1 Circuit Resistance

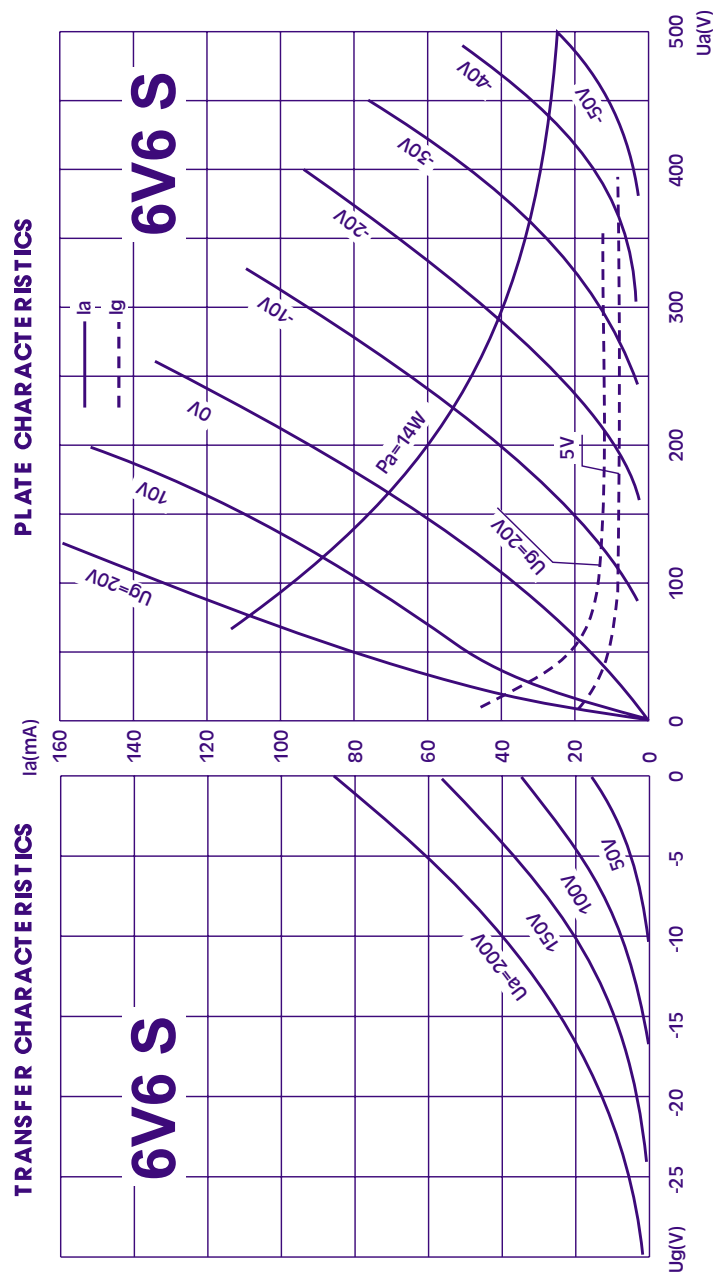
Fixed Bias	0,1 M Ω	0,1 M Ω
Self Bias	0,5 M Ω	0,5 M Ω

Capacitances:

C_{g1}	= 12,5 pF
C_a	= 10 pF
$C_{a/g1}$	= 1,5 pF

Dimension and connections:





6V6 S

A. F. BEAM PENTODE

Base: OCTAL

$$U_f = 6,3 \text{ V}$$

$$I_f = \text{ca } 0,5 \text{ A}$$

Typical characteristic: Class A1

	single tube	Push-Pull
$U_a =$	250 V	250 V
$U_{g2} =$	250 V	250 V
$U_{g1} =$	-12,5 V	-15 V
$I_a =$	45 mA	70 mA
$I_{g2} =$	5 mA	13 mA
$R_a =$	50 k Ω	-
$R_{a-a} =$	-	10 k Ω
$N =$	4,5 W	10W

Limiting values:

	Triode	Pentode
$U_a =$	450 V	500 V
$U_{g2} =$	450 V	450 V
$W_a =$	10 W	14 W

Grid No 1 Circuit Resistance

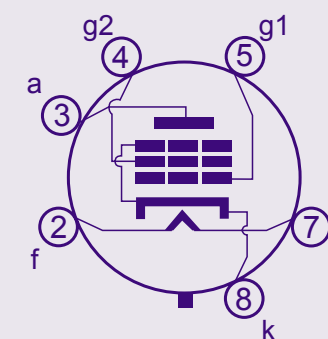
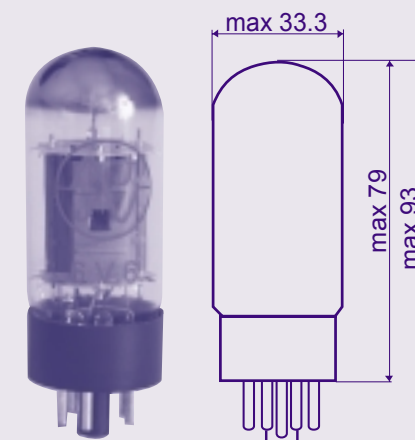
Fixed Bias	0,1 M Ω	0,1 M Ω
Self Bias	0,5 M Ω	0,5 M Ω

Capacitances:

$C_{g1} =$	9 pF
$C_a =$	8,5 pF
$C_{a/g1} =$	0,7 pF

Substitutes: 5871, 6AY5, 6P6C, 6V6C, 6V6CT, 6V6GTA, 6V6CTY, 6V6Y, 7184, CV509, CV510, CV511, OSW3106, VT107, VT227, WT2100082, WTT123, 7408

Dimension and connections:



7027

A. F. BEAM PENTODE

Base: OCTAL

$$U_f = 6,3 \text{ V}$$
$$I_f = \text{cca } 0,9 \text{ A}$$

Typical characteristic: Class A1:

	<i>Singl tube</i>	<i>Push-Pull</i>
U_a	= 250 V	270 V
U_{g2}	= 250 V	270 V
U_{g1}	= -14 V	-17,5 V
$I_{a_{\text{m}}}$	= 72 mA	134 mA
I_{g2}	= 5 mA	11 mA
R_a	= 22,5 k Ω	
R_{a-a}	= -	5 k Ω
N	= 6,5 W	17,5 W

Limiting values:

	Triode
U_a	= 450 V
U_{g2}	= 450 V
W_a	= 30 W
	Pentode
U_a	= 500 V
U_{g2}	= 450 V
W_a	= 30 W

Grid No 1 Circuit Resistance

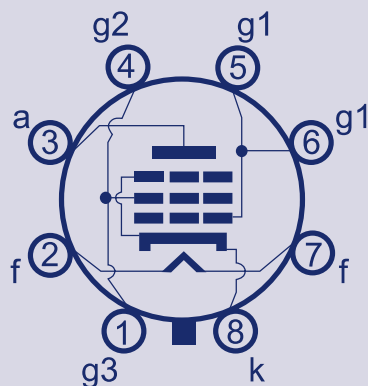
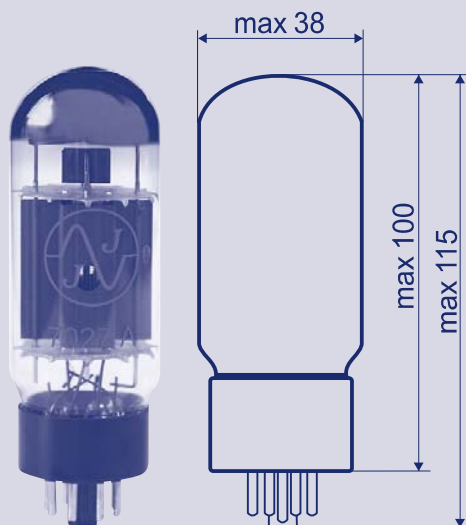
Fixed Bias	0,1 MW	0,1 MW
Self Bias	0,5 MW	0,5 MW

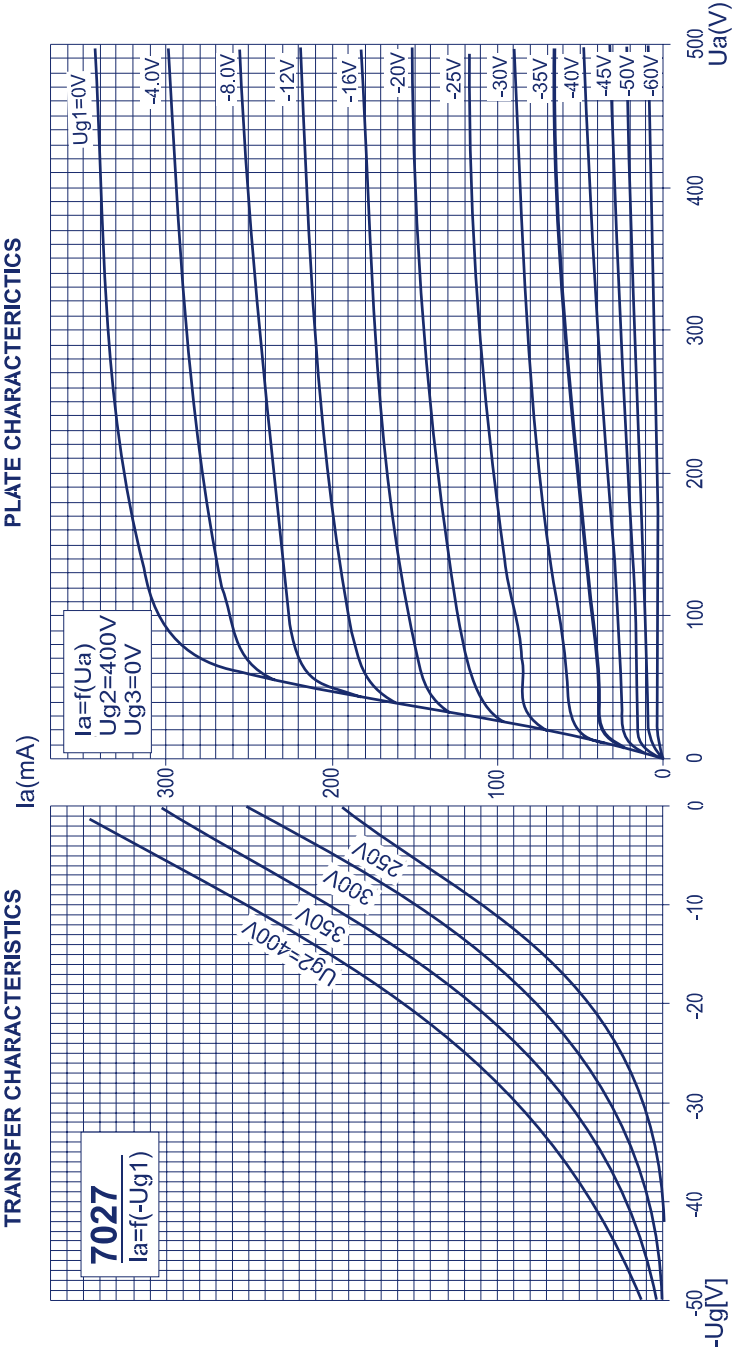
Capacitances:

C_{g1}	= 12,5 pF
C_a	= 10 pF
$C_{a/g1}$	= 3 pF

NEW

Dimension and connections:





Excellence with every decibel

Excellence with every decibel

Excellence with every decibel

7591 S

POWER PENTODE

Base: OCTAL

$$U_f = 6,3 \text{ V}$$

$$I_f = 0,8 \text{ A}$$

Typical characteristic:

Class A1 amplifier

$$U_a = 300 \text{ V}$$

$$U_{g2} = 300 \text{ V}$$

$$U_{g1} = -10 \text{ V}$$

$$I_a = 60 \text{ mA}$$

$$I_{g2} = 8 \text{ mA}$$

$$S = 10 \text{ mA/V}$$

$$R_i = 29 \text{ k}\Omega$$

$$\mu = 16,8$$

Limiting values:

$$U_a = 550 \text{ V}$$

$$U_{g2} = 440 \text{ V}$$

$$W_a = 19 \text{ W}$$

$$W_{g2} = 3,3 \text{ W}$$

$$I_k = 85 \text{ mA}$$

$$R_{g1} = \begin{array}{l} \text{max } 0,3 \text{ M}\Omega \\ \text{(fixed bias)} \\ \text{max } 1 \text{ M}\Omega \\ \text{(cathode bias)} \end{array}$$

$$U_{kf} = \text{max } 200 \text{ V}$$

Capacitances:

$$C_{g1} = 10 \text{ pF}$$

$$C_a = 5 \text{ pF}$$

$$C_{a/g1} = 0,25 \text{ pF}$$

Dimension

and connections:

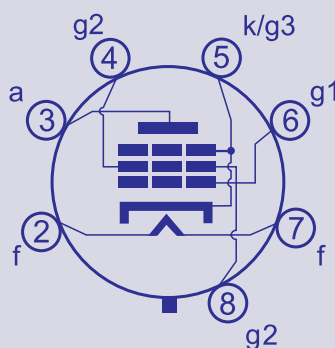
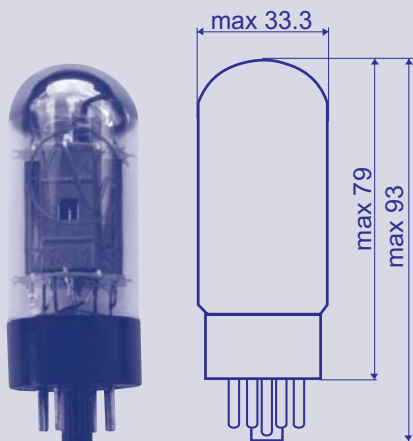
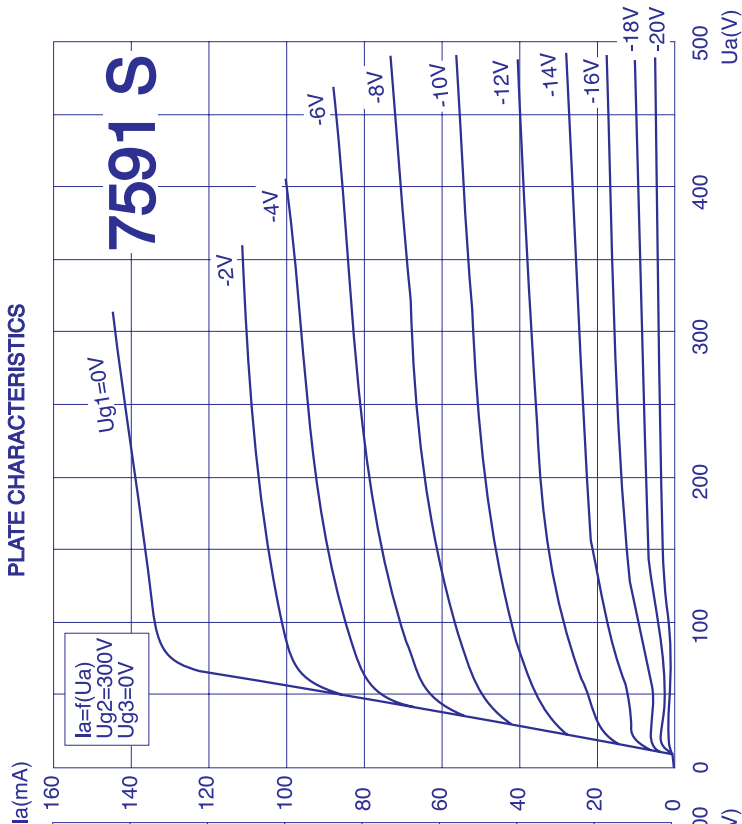




PLATE CHARACTERISTICS



TRIODE CHARACTERISTICS

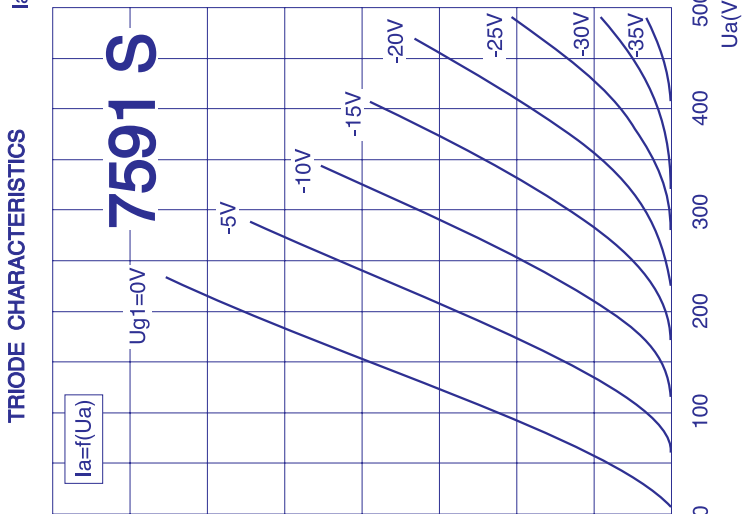
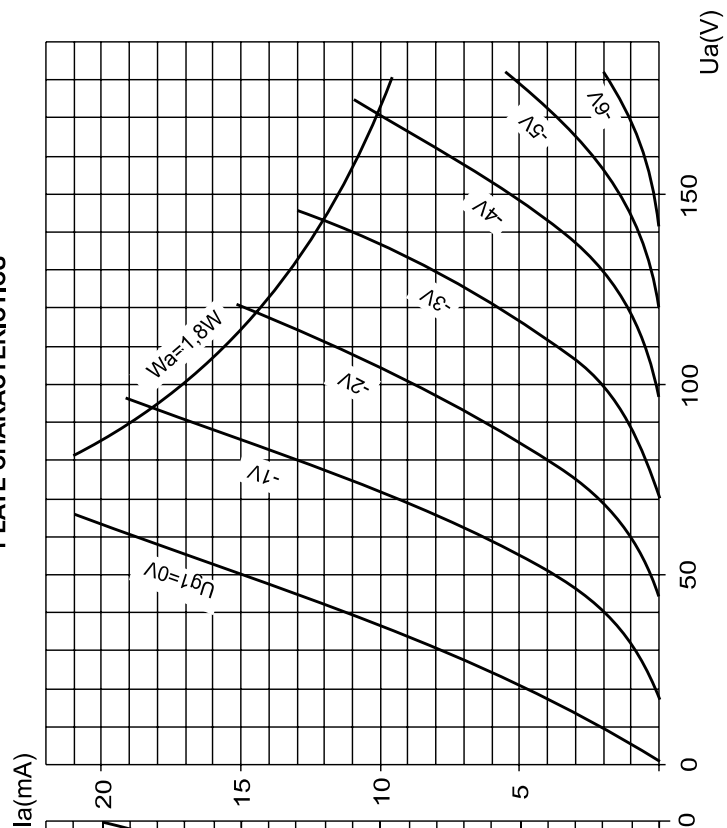
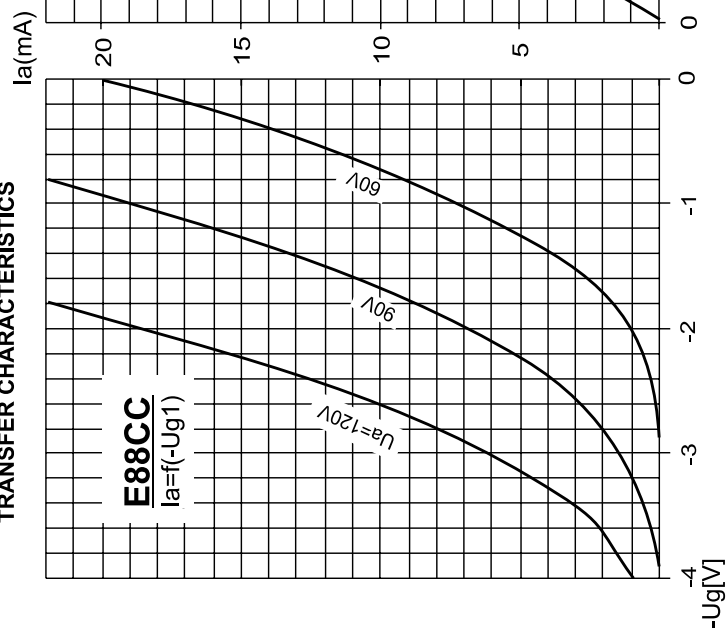




PLATE CHARACTERISTICS



TRANSFER CHARACTERISTICS



E88CC

R. F. DOUBLE TRIODE

Base: NOVAL

$$U_f = 6,3 \text{ V}$$

$$I_f = 365 \text{ mA}$$

Typical characteristic:

$$U_a = 90 \text{ V}$$

$$U_g = -1,3 \text{ V}$$

$$I_a = 15 \text{ mA}$$

$$S = 12,5 \text{ mA/V}$$

$$R_i = 2,6 \text{ k}\Omega$$

$$\mu = 33$$

Limiting values:

$$U_{a0} = 550 \text{ V}$$

$$U_{a(Ia=0)} = 400 \text{ V}$$

$$U_a = 220 \text{ V}$$

$$U_{a(W_{ar} < 0,8 \text{ W})} = 250 \text{ V}$$

$$P_{aR} = 1,5 \text{ W}$$

$$W_{g1R} = 0,03 \text{ W}$$

$$I_k = 20 \text{ mA}$$

$$U_g = -100 \text{ V}$$

$$R_g = 1 \text{ M}\Omega$$

$$U_{+k/f-} = 120 \text{ V}$$

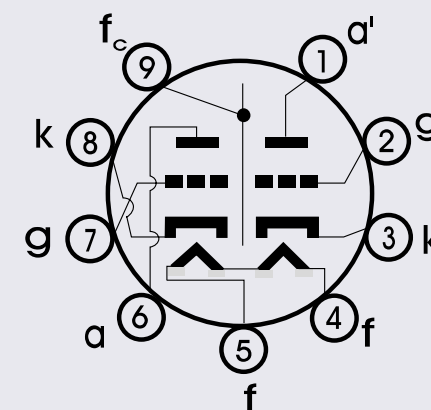
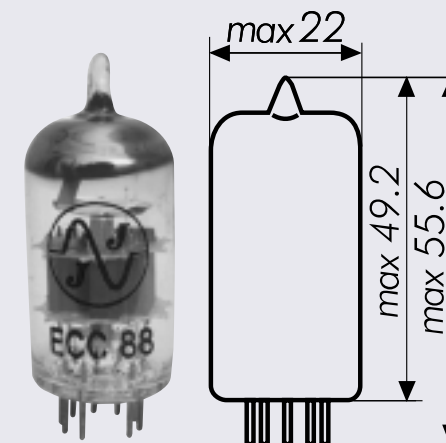
$$U_{-k/f+} = 60 \text{ V}$$

$$R_{k/f} = 20 \text{ k}\Omega$$

Capacitances:

system I.	system II.
$C_{g/k} = 3,1$	$3,1 \text{ pF}$
$C_a = 0,18$	$0,18 \text{ pF}$
$C_{g/a} = 1,4$	$1,4 \text{ pF}$

Dimension and connections:



ECC802S

A. F. twin triode with separate cathodes, non microphonic

Base: NOVAL

$$U_f = 6,3 \text{ V}/12,6 \text{ V}$$

$$I_f = \text{ca. } 300/150 \text{ mA}$$

Typical characteristic:

$$U_a = 250 \text{ V}$$

$$R_k = 800 \, \Omega$$

$$I_a = 10,5 \text{ mA}$$

$$S = 2,2 \text{ mA/V}$$

$$R_i = 7,7 \text{ k}\Omega$$

$$\mu = 17$$

Limiting values:

$$U_a = 330 \text{ V}$$

$$W_a = 3 \text{ W}$$

$$I_k = 22 \text{ mA}$$

$$U_g = -55 \text{ V}$$

$$R_g = 1 \text{ M}\Omega$$

$$U_{k/f} = 100 \text{ V}$$

Capacitances:

system I.

$$C_{g/k} = 1,6$$

$$C_a = 0,5$$

$$C_{g/a} = 1,5$$

system II.

$$C_{g/k} = 1,6 \text{ pF}$$

$$C_a = 0,4 \text{ pF}$$

$$C_{g/a} = 1,5 \text{ pF}$$

NEW

Dimension and connections:

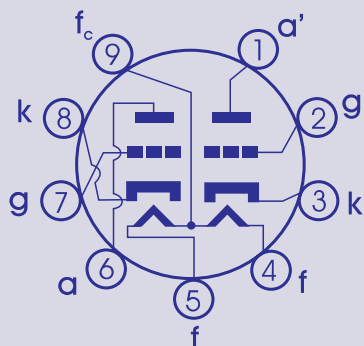
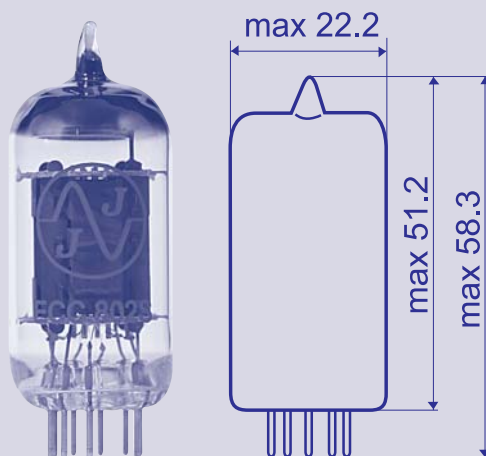
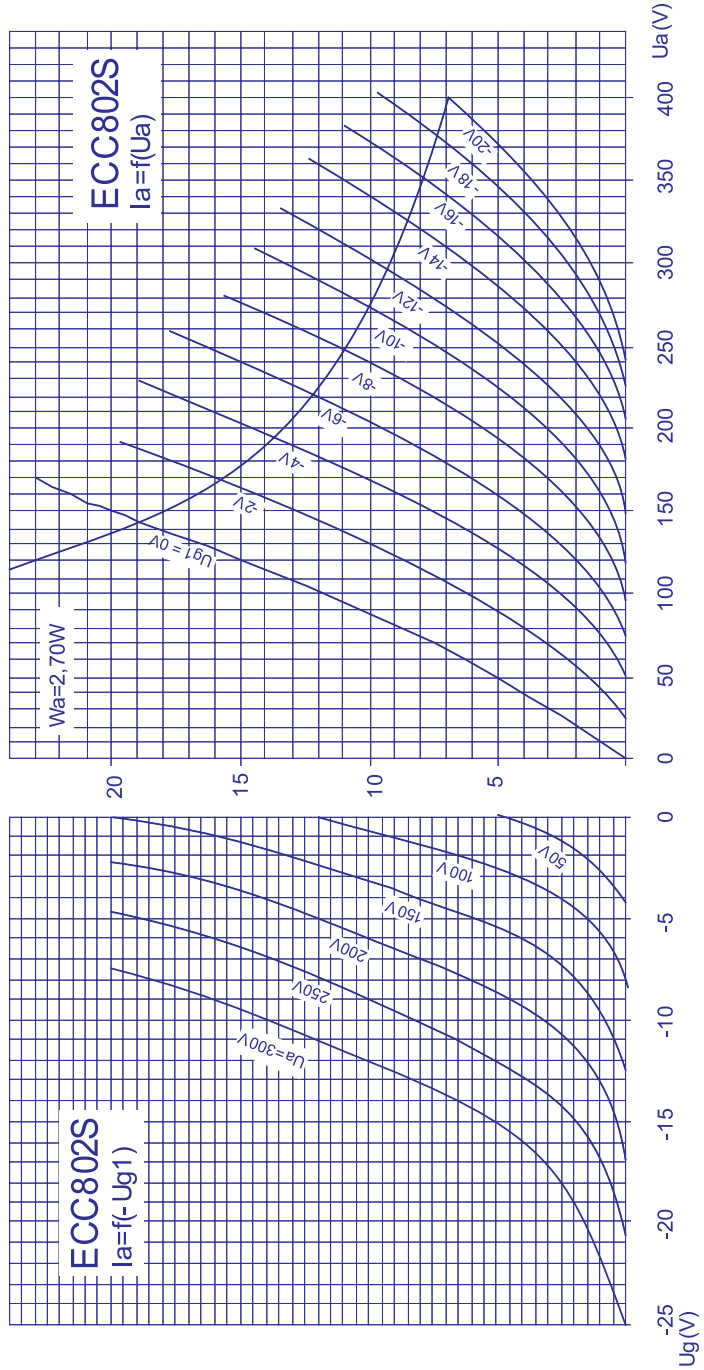




PLATE CHARACTERISTICS

$I_a(\text{mA})$



ECC 803

A. F. twin triode with separate cathodes, non microphonic

Base: NOVAL

$$U_f = 6,3/12,6 \text{ V}$$

$$I_f = \text{ca. } 300/150 \text{ mA}$$

Typical characteristic:

$$U_a = 250 \text{ V}$$

$$R_k = 1 \text{ k}\Omega$$

$$I_a = 1,2 \text{ mA}$$

$$S = 1,6 \text{ mA/V}$$

$$R_i = 62,5 \text{ k}\Omega$$

$$\mu = 100$$

Limiting values:

$$U_a = 330 \text{ V}$$

$$W_a = 1,2 \text{ W}$$

$$I_k = 9 \text{ mA}$$

$$U_g = -55 \text{ V}$$

$$R_g = 2,2 \text{ M}\Omega$$

$$U_{k/f} = 200 \text{ V}$$

Capacitances:

system I.

$$C_{g/k} = 1,6$$

$$C_a = 0,46$$

$$C_{g/a} = 1,7$$

system II.

$$C_{g/k} = 1,6 \text{ pF}$$

$$C_a = 0,34 \text{ pF}$$

$$C_{g/a} = 1,7 \text{ pF}$$

Operating

characteristics:

Resistance - coupled amplifier

$$U_b = 250 \quad 250 \quad 250 \quad \text{V}$$

$$R_a = 47 \quad 100 \quad 220 \quad \text{k}\Omega$$

$$I_a = 1,18 \quad 0,86 \quad 0,48 \quad \text{mA}$$

$$R_g = 1 \quad 1 \quad 1 \quad \text{M}\Omega$$

$$R_k = 1,2 \quad 1,5 \quad 2,7 \quad \text{k}\Omega$$

Dimension and connections:

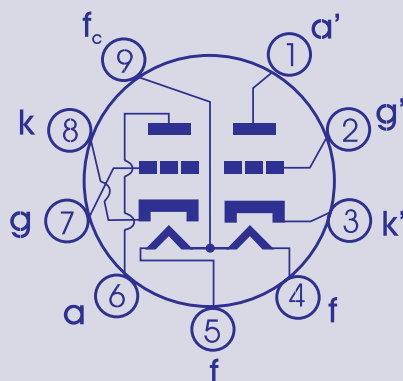
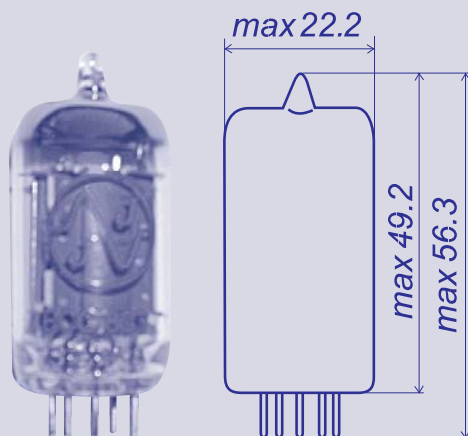
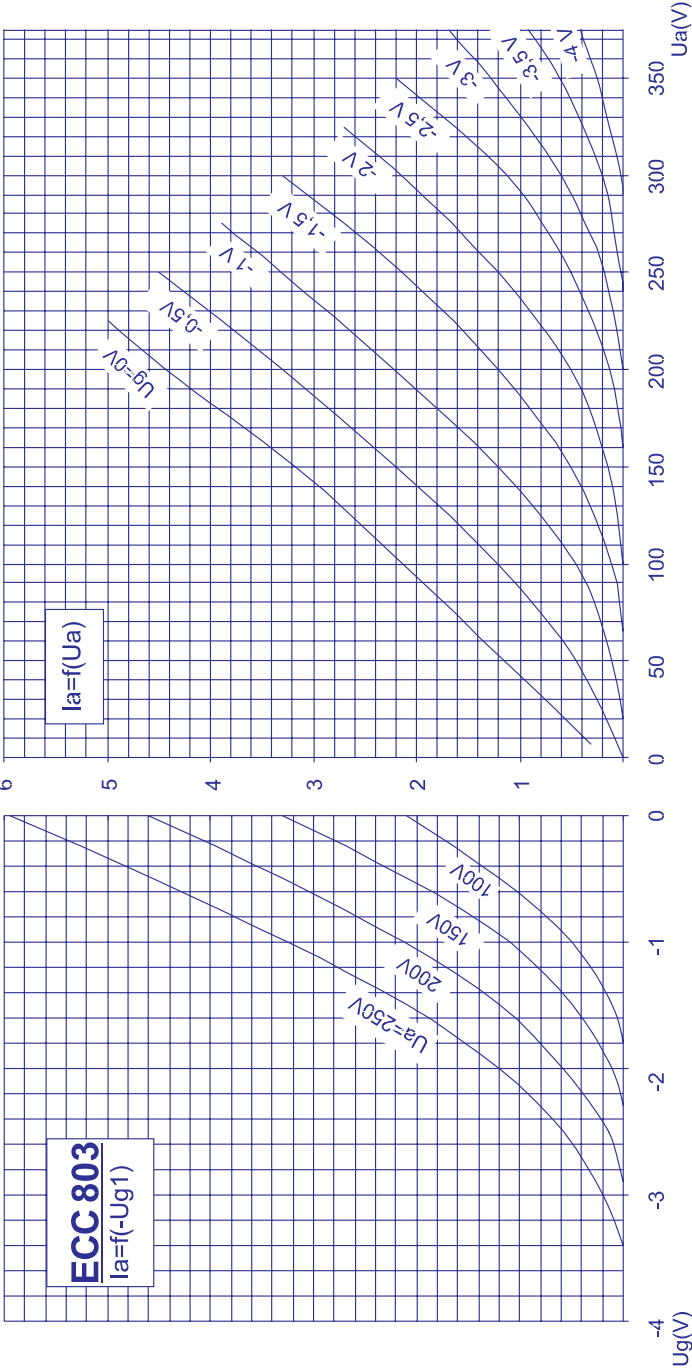
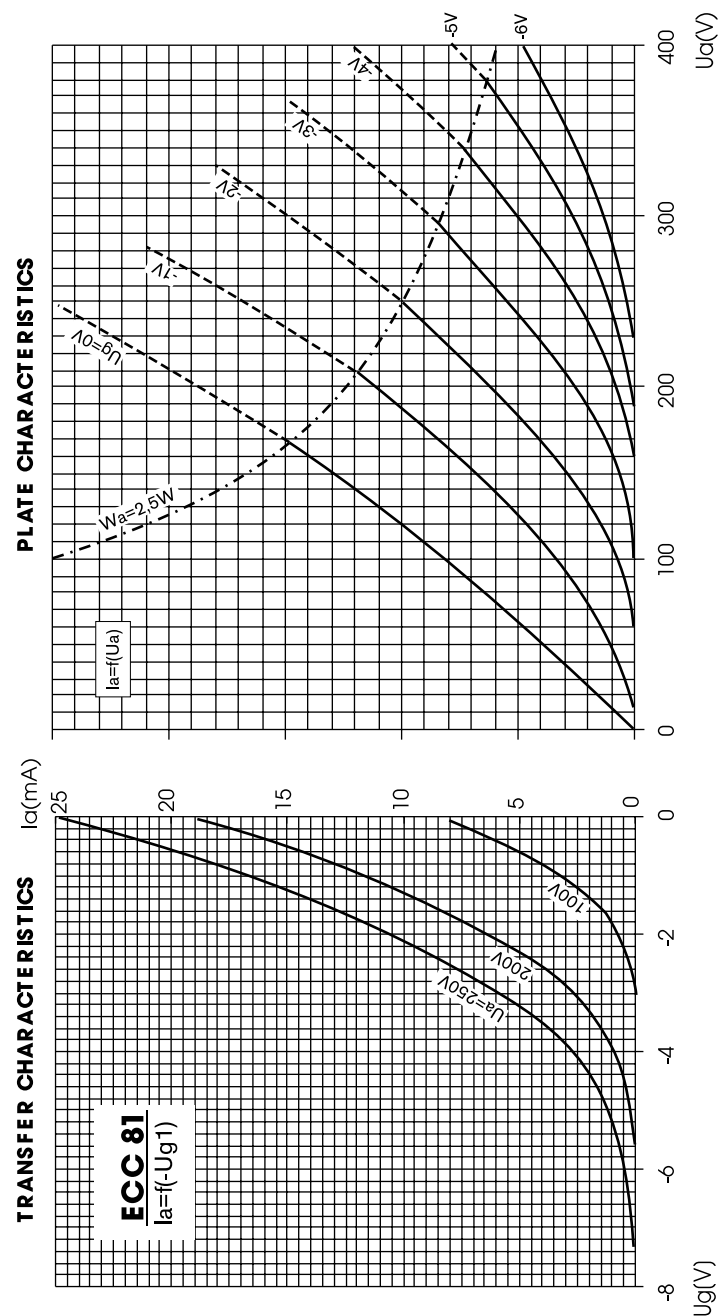




PLATE CHARACTERISTICS

TRANSFER CHARACTERISTICS





ECC81

A. F. DOUBLE TRIODE
Base: NOVAL

$U_f = 6,3 \text{ or } 12,6 \text{ V}$
 $I_f = 300 \text{ or } 150 \text{ mA}$

Typical characteristic:

$U_a = 250 \text{ V}$
 $I_a = 10 \text{ mA}$
 $U_g = -2 \text{ V}$
 $S = 5,5 \text{ mA/V}$
 $\mu = 60$
 $R_i = 11 \text{ k}\Omega$

Limiting values:

$U_a = 300 \text{ V}$
 $W_a = 2,5 \text{ W}$
 $I_k = 15 \text{ mA}$
 $U_g = -50 \text{ V}$
 $U_{k/f} = 90 \text{ V}$
 $R_g = 1 \text{ M}\Omega$

Dimension and connections:

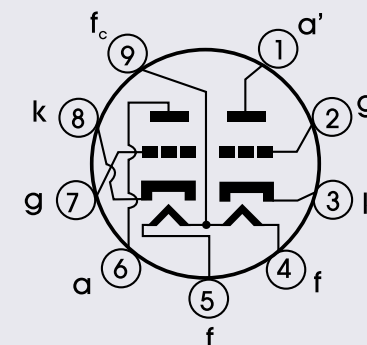
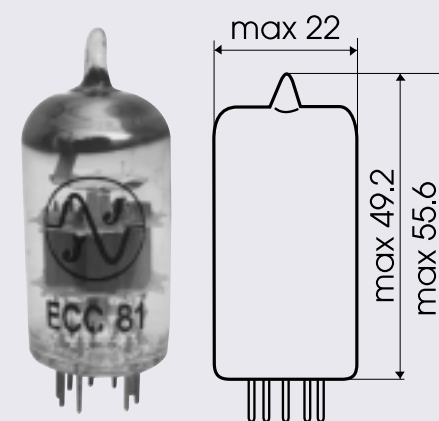
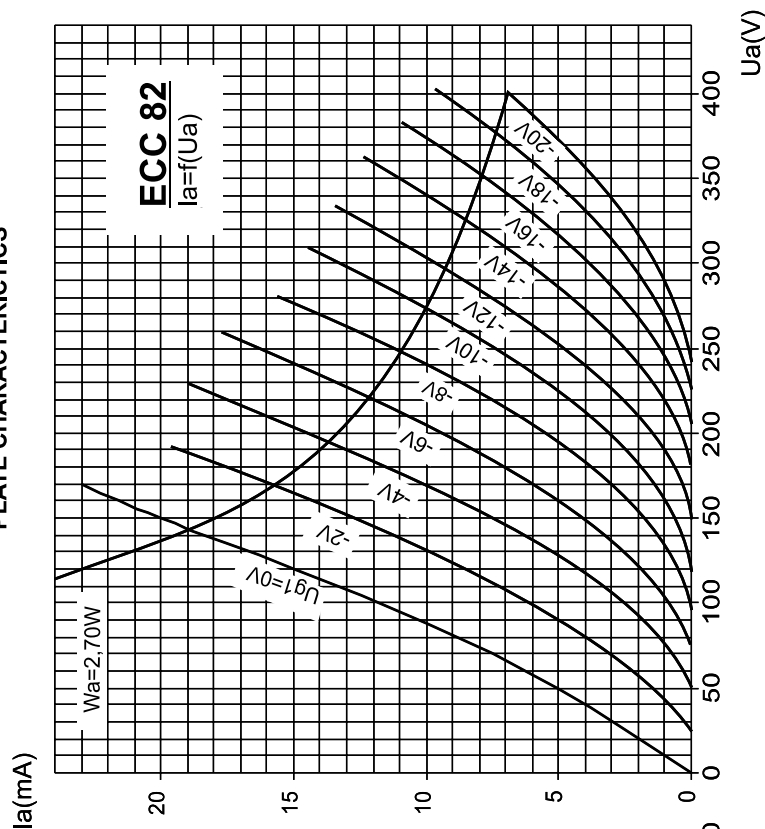
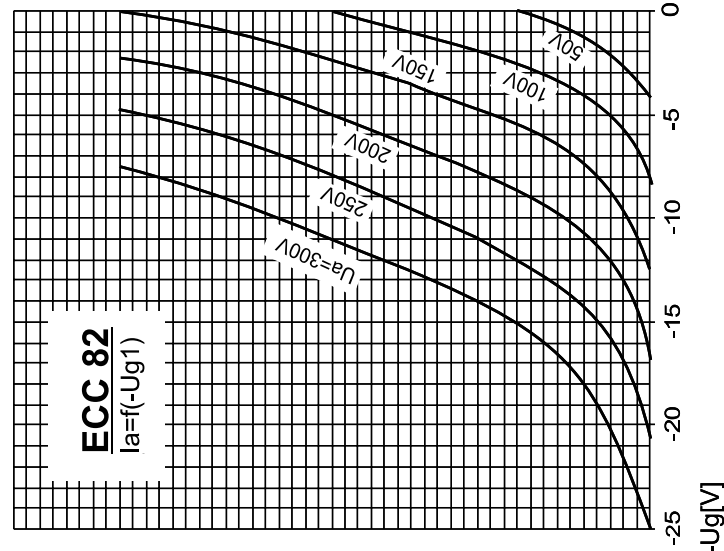




PLATE CHARACTERISTICS



TRANSFER CHARACTERISTICS



ECC82

R. F. DOUBLE TRIODE

Base: NOVAL

$$U_f = 6,3/12,6 \text{ V}$$

$$I_f = \text{ca.} 300/150 \text{ mA}$$

Typical characteristic:

$$U_a = 250 \text{ V}$$

$$U_g = -8,5 \text{ V}$$

$$I_a = 10,5 \text{ mA}$$

$$S = 2,2 \text{ mA/V}$$

$$R_i = 7,7 \text{ k}\Omega$$

$$\mu = 17$$

Limiting values:

$$U_a = 300 \text{ V}$$

$$W_a = 2,75 \text{ W}$$

$$I_k = 20 \text{ mA}$$

$$U_g = -50 \text{ V}$$

$$R_g = 1 \text{ M}\Omega$$

$$U_{k/f} = 180 \text{ V}$$

$$R_{k/f} = 150 \text{ k}\Omega$$

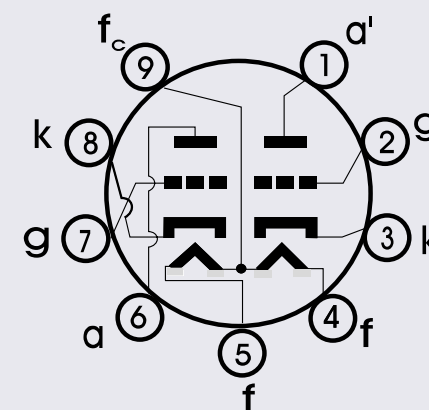
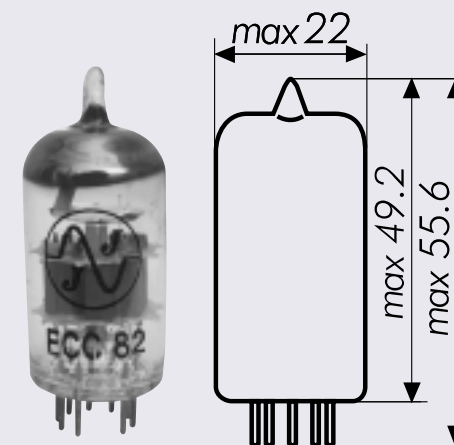
Capacitances:

	system I.	system II.
$C_{g/k}$	= 1,9	1,9 pF
C_a	= 1,9	1,8 pF
$C_{g/a}$	= 1,63	1,63 pF

As phase inverter:

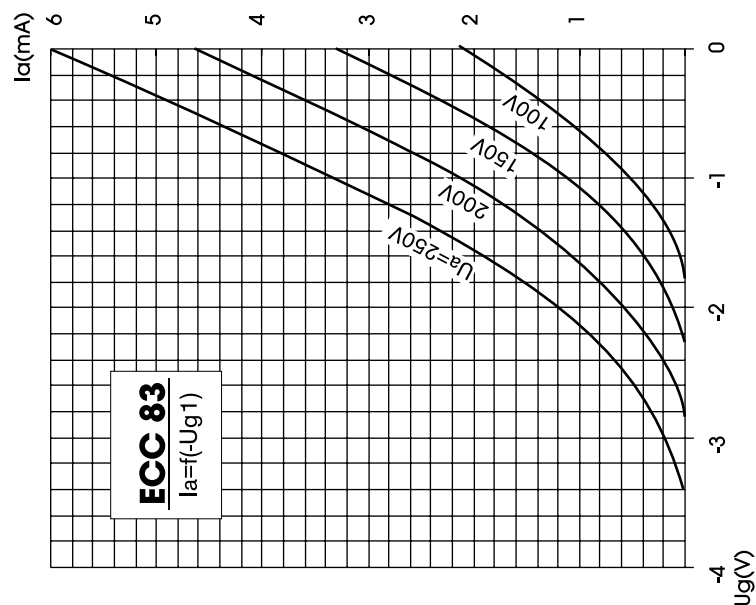
U_b	= 250	350 V
I_a	= 0,7	1,0 mA
$I_{a'}$	= 0,68	0,93 mA
U_o/U_{g1}	= 11	11
U_o	= 15	24 V _{RMS}
d_{tot}	= 1	1 %

Dimension and connections:

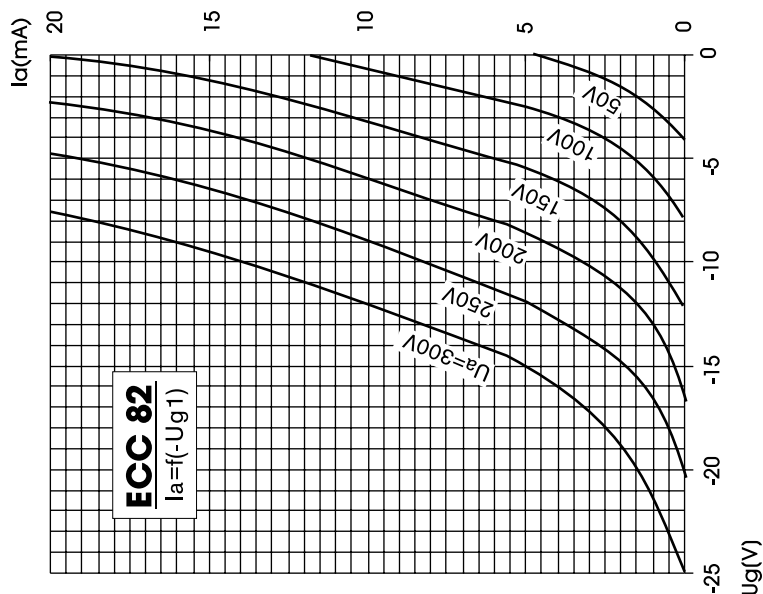




TRANSFER CHARACTERISTICS



TRANSFER CHARACTERISTICS



ECC832

Combined double triode for special purposes

Base: NOVAL

$$U_f = 6,3 \text{ or } 12,6 \text{ V}$$

$$I_f = 300 \text{ or } 150 \text{ mA}$$

Typical characteristic:

	system I. (pin 6,7,8)	system II. (pin 1,2,3)
U_a	= 250 V	250 V
U_g	= -2 V	-8,5 V
I_a	= 1,2 mA	10,5 mA
S	= 1,6 mA/V	2,2 mA/V
R_i	= 62,5 k Ω	7,7 k Ω
μ	= 100	17

Limiting values:

Capacitances:

Please, refer to specs. of
ECC 83 (for system I) or
ECC 82 (for system II)

Note: ECC 823

Possibility to supply this tube
„on request“ of customer with
reverse pin order pin # 1, 2, 3 -
ECC 83, pin # 6, 7, 8 - ECC 82.
There is not international equi-
valent of this tube. In JJ catalo-
gues is under ECC 823.

Dimension and connections:

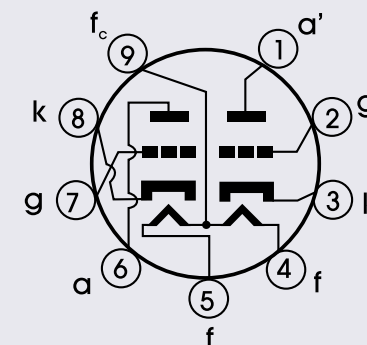
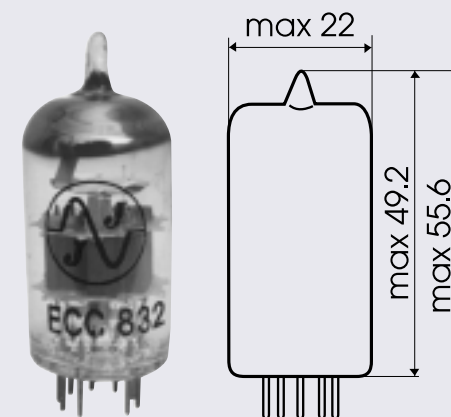
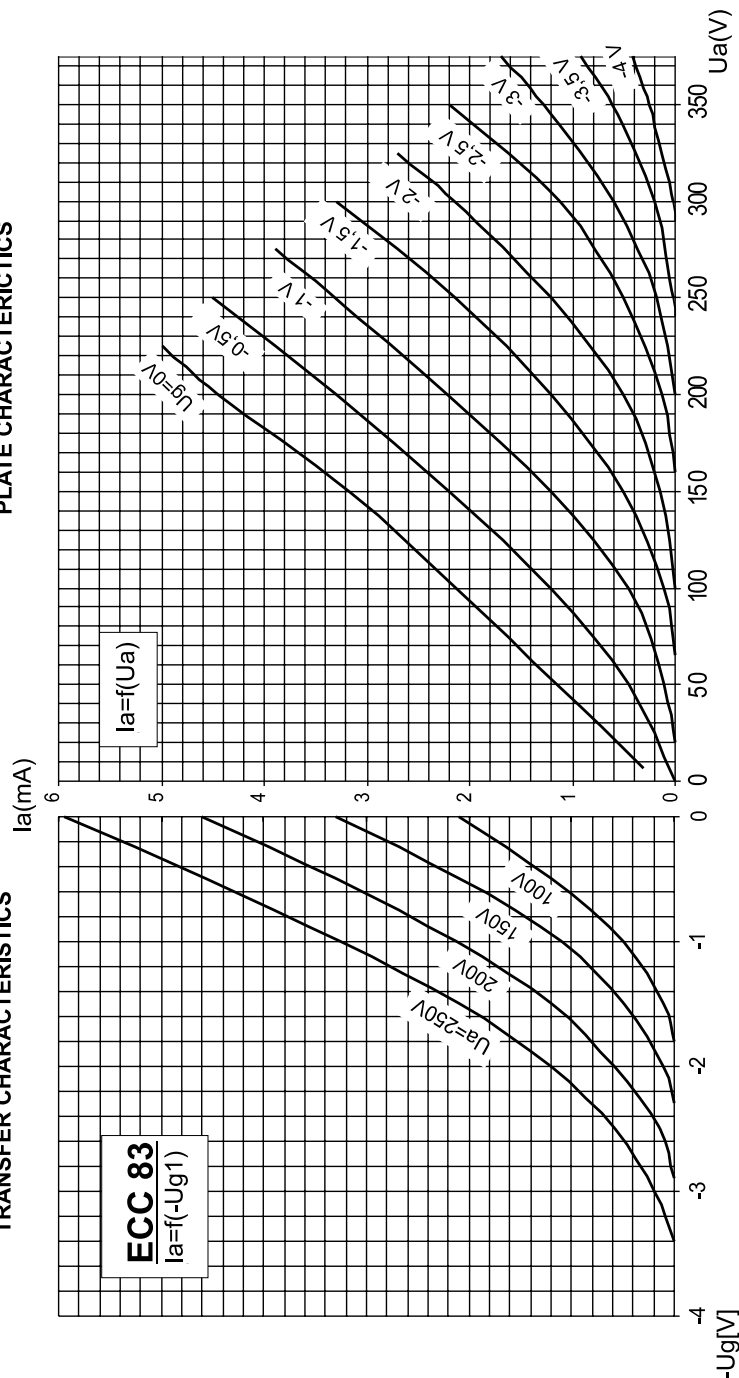




PLATE CHARACTERISTICS

TRANSFER CHARACTERISTICS



ECC83 S

R. F. DOUBLE TRIODE
Base: NOVAL

$$U_f = 6,3/12,6 \text{ V}$$

$$I_f = \text{ca.} 300/150 \text{ mA}$$

Typical characteristic:

$$U_a = 250 \text{ V}$$

$$U_g = -2 \text{ V}$$

$$I_a = 1,2 \text{ mA}$$

$$S = 1,6 \text{ mA/V}$$

$$R_i = 62,5 \text{ k}\Omega$$

$$\mu = 100$$

Limiting values:

$$U_a = 300 \text{ V}$$

$$W_a = 1 \text{ W}$$

$$I_k = 8 \text{ mA}$$

$$U_g = -50 \text{ V}$$

$$R_g = 2,2 \text{ M}\Omega$$

$$U_{k/f} = 180 \text{ V}$$

$$R_{k/f} = 150 \text{ k}\Omega$$

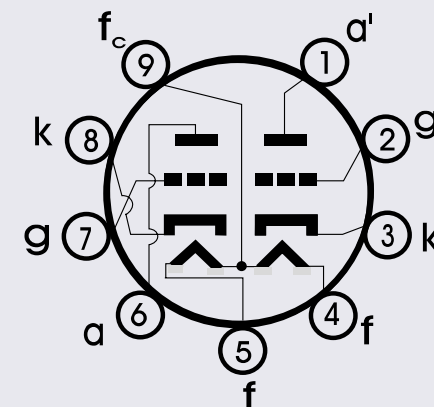
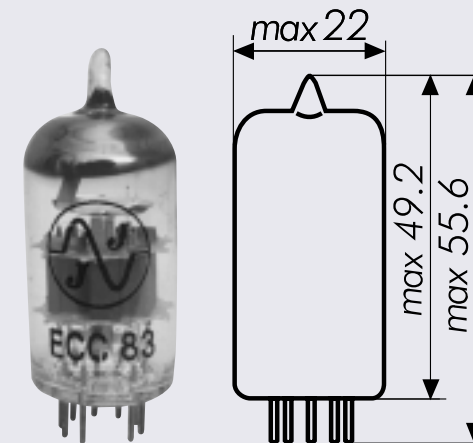
Capacitances:

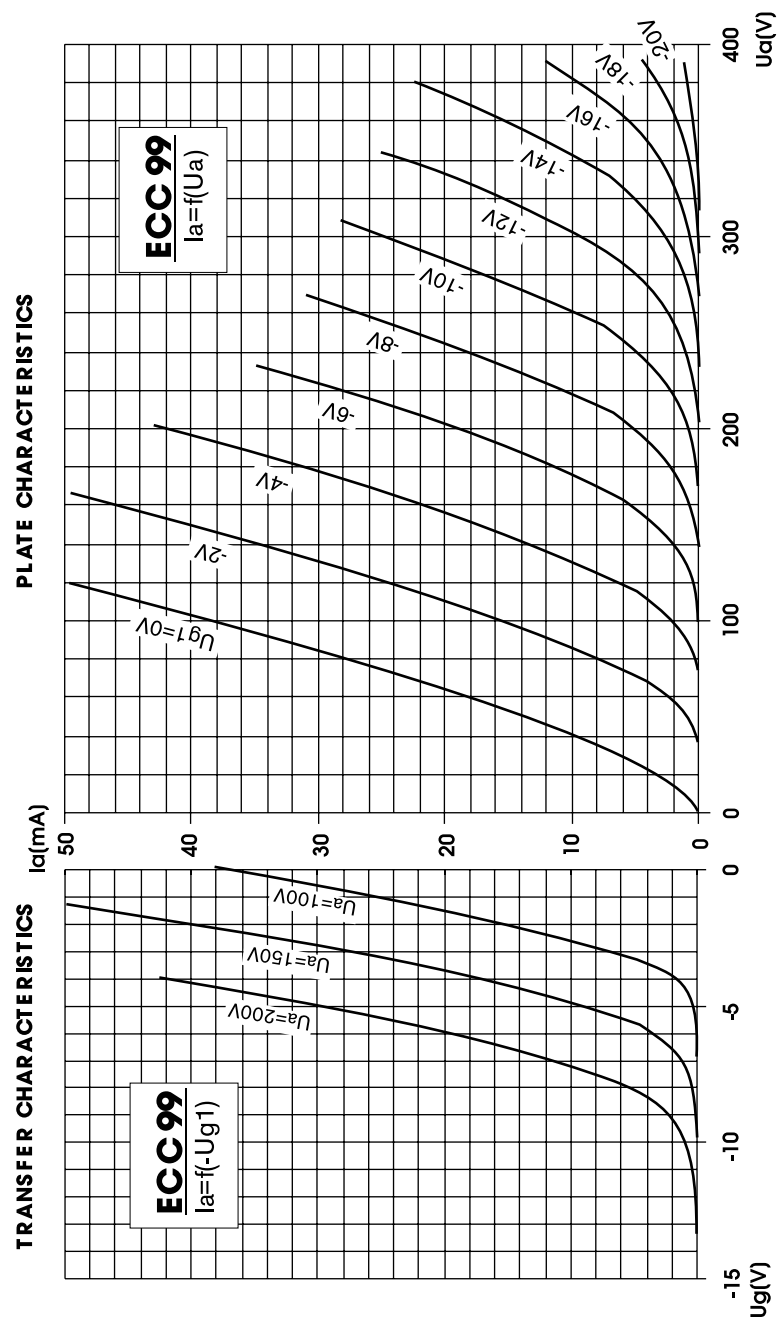
	system I.	system II.
$C_{g/k} = 1,6$	1,6 pF	
$C_a = 0,33$	0,33 pF	
$C_{g/a} = 1,7$	1,7 pF	

Operating characteristics:

$U_b =$	250	400	250	400	250	400	V
$R_a =$	47	47	100	100	220	220	k Ω
$R_g =$	150	150	330	330	680	680	k Ω
$R_k =$	1,2	0,68	1,5	0,82	2,7	1,2	k Ω
$I_a =$	1,18	2,45	0,86	1,72	0,48	1,02	mA

Dimension and connections:





ECC99

R. F. DOUBLE TRIODE
Base: NOVAL

$U_f = 6,3$ or $12,6$ V
 $I_f = 800$ or 400 mA

Typical characteristic:

$U_a = 150$ V
 $U_g = -4$ V
 $I_a = 18$ mA
 $S = 9,5$ mA/V
 $R_i = 2,3$ k Ω
 $\mu = 22$

Limiting values:

$U_a = 400$ V
 $I_k = 60$ mA
 $U_{k/f} = 200$ V
 $W_a = 5$ W

Capacitances:

	system I.	system II.
$C_{g/k}$	$= 5,8$	$5,8$ pF
C_a	$= 0,91$	$0,81$ pF
$C_{g/a}$	$= 5,1$	$5,1$ pF

Recommended use:

Driver of power triodes such as 300 B, 2A3..., Output stage headphone amplifiers, preamplifiers, power stage little P-P triode amplifiers (10W-4xECC99) and parallel voltage power supplies. Can be used instead of 5687, E182CC, 6840, 6BL7.

Note:

Outlets on some of these types, could have different set-up.

Dimension and connections:

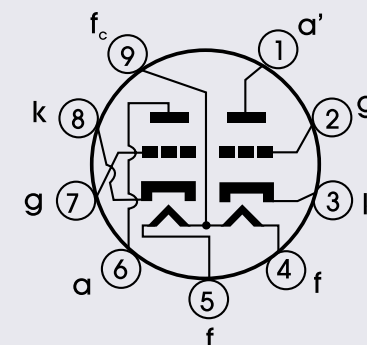
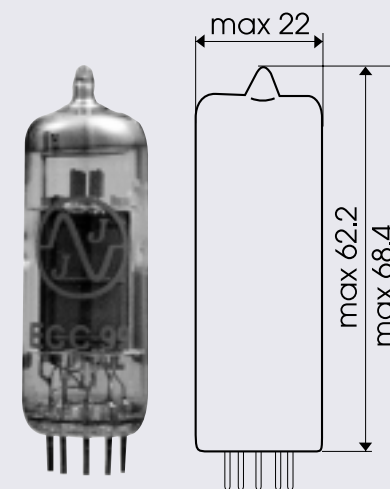
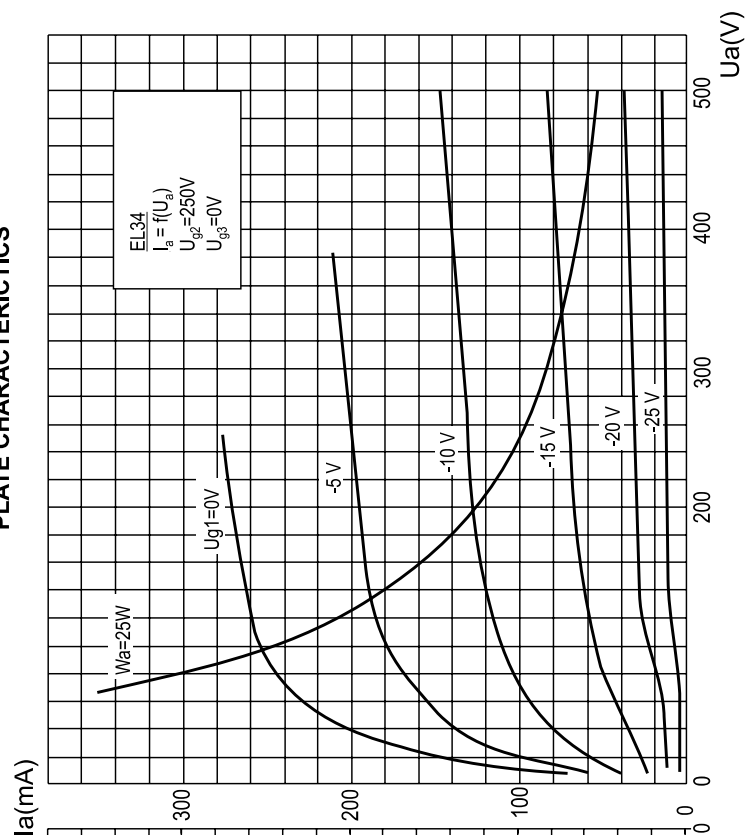
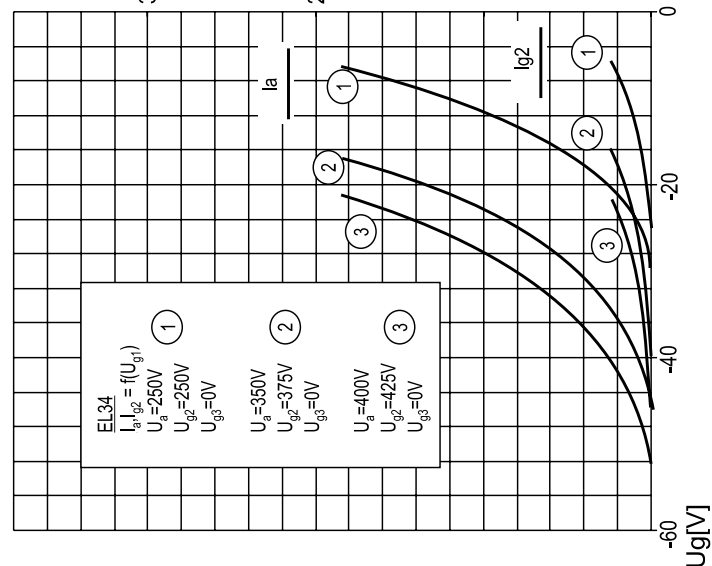




PLATE CHARACTERISTICS



TRANSFER CHARACTERISTICS



EL34, E34L

A. F. OUTPUT PENTODE

Base: OCTAL

$$U_f = 6,3 V$$

$$I_f = C_a 1,5 A$$

Typical characteristic:

$$U_a = 250 V$$

$$U_{g3} = 0 V$$

$$U_{g2} = 265 V$$

$$U_{g1} = -10 V; -13,5 V$$

(for EL34)

$$-13,5 V; -16,5 V$$

(for E34L)

$$I_a = 100 mA$$

$$I_{g2} = 14,9 mA$$

$$S = 11 mA/V$$

$$R_i = 15 k\Omega$$

$$\mu_{g2/g1} = 11$$

$$I_{az} (U_{g1} = -30 V) < 7 mA$$

Limiting values:

$$U_{a0} = 2000 V$$

$$U_a = 800 V$$

$$W_{a(max)} = 25 W$$

$$U_{g20} = 800 V$$

$$U_{g2} = 450 V$$

$$W_{g2(max)} = 8 W$$

$$I_k = 150 mA$$

$$U_{k/f} = 100 V$$

$$R_{k/f} = 20 k\Omega$$

Capacitances:

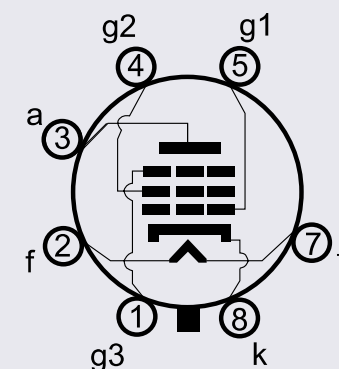
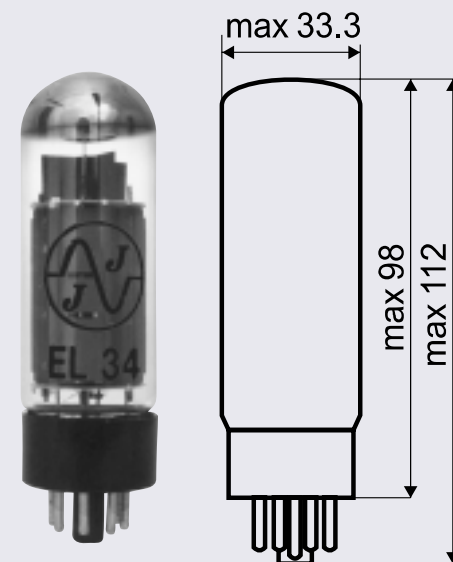
$$C_{g1} = 15,5 pF$$

$$C_a = 10 pF$$

$$C_{a/g1} = 1,3 pF$$

Red/Blue versions available

Dimension and connections:



EL 509

OUTPUT POWER BEAM PENTODE

Base: OCTAL

$$U_f = 6,3 \text{ V}$$

$$I_f = 2 \text{ A}$$

Typical characteristic:

$$U_a = 160 \text{ V}$$

$$U_{g2} = 160 \text{ V}$$

$$U_{g1} = -30 \text{ V}$$

$$I_a = 200 \text{ mA}$$

$$I_{g2} = 10 \text{ mA}$$

SHORT TERM MEASURING
(ABOUT 3 SEC.)

$$I = \text{min } 700 \text{ mA a.c.}$$

$$U_{\text{sat}} = 30 \text{ V a.c.}$$

Limiting values:

$$U_a = 700 \text{ V}$$

$$U_{g2} = 700 \text{ V}$$

$$W_{g2} = 9 \text{ W}$$

$$I_k = 500 \text{ mA}$$

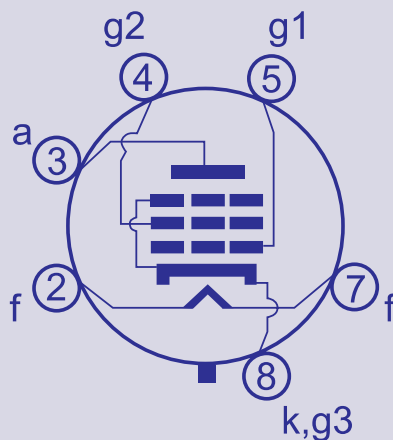
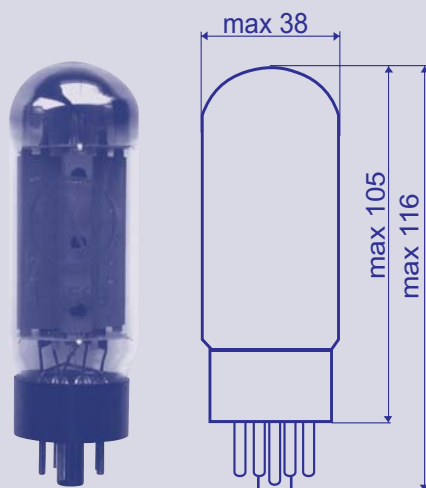
$$U_{kf} = 150 \text{ V}$$

$$W_{a+g2} = \text{max. } 42 \text{ W}$$

Capacitances:

$$C_{a/g1} = 3 \text{ pF}$$

Dimension and connections:



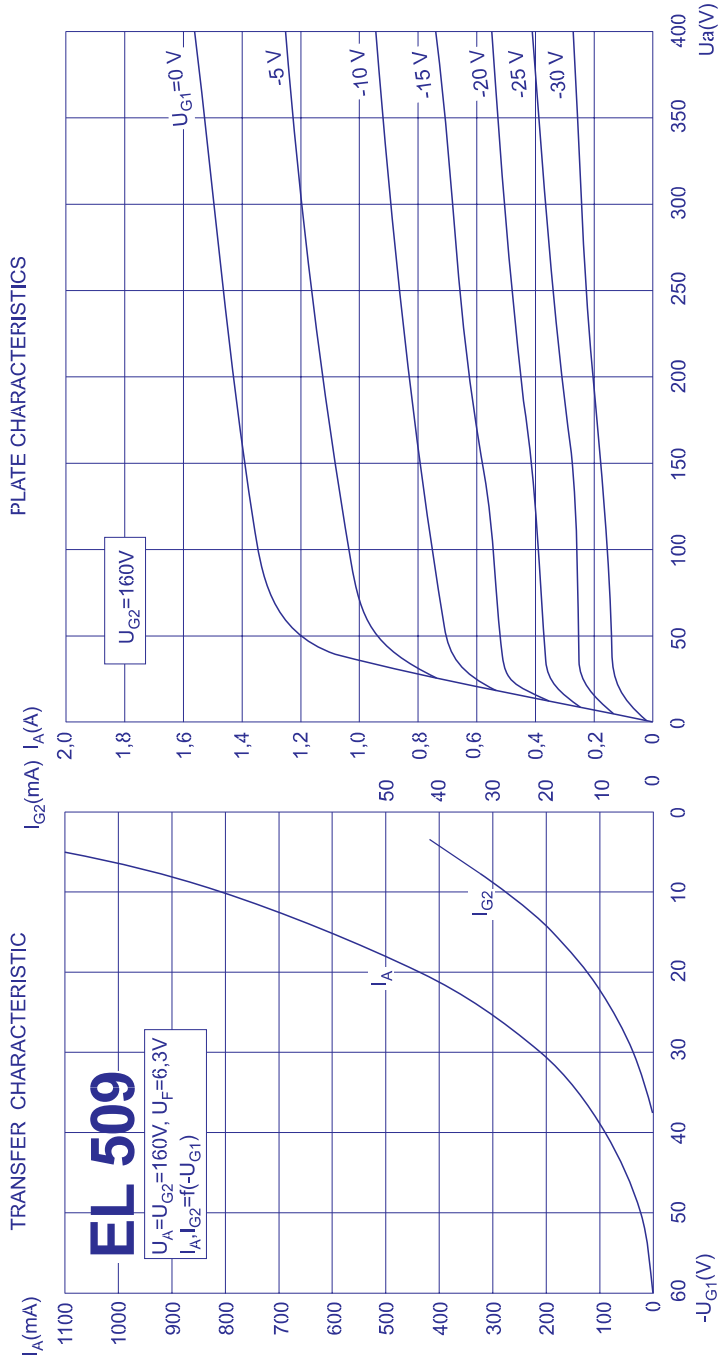
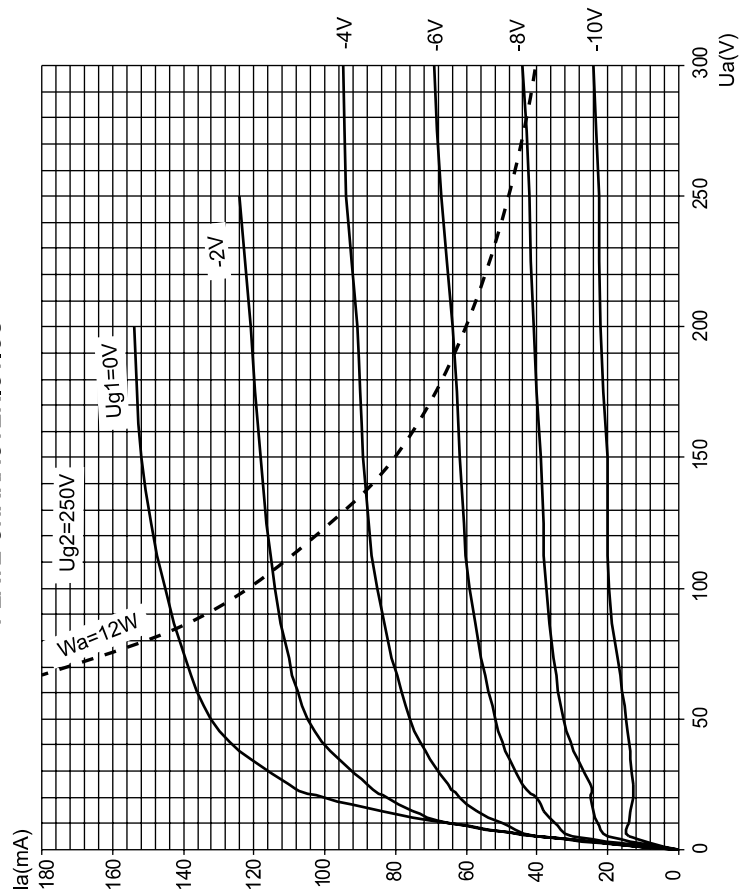
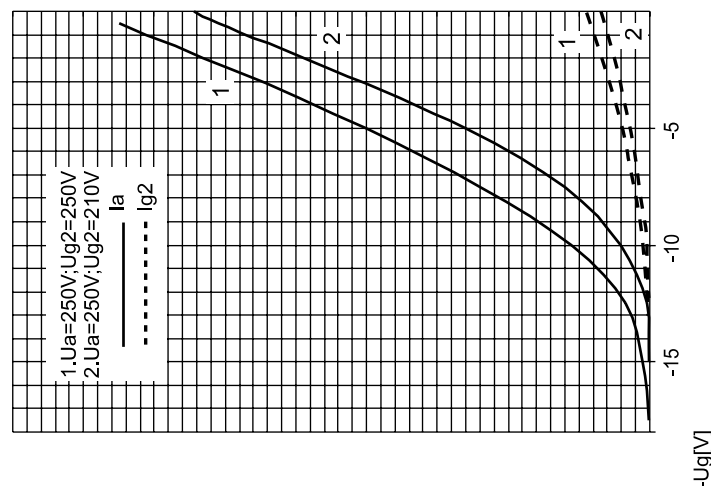




PLATE CHARACTERISTICS



TRANSFER CHARACTERISTICS



EL84

R. F. OUTPUT PENTODE

Base: NOVAL

$$U_f = 6,3 V$$

$$I_f = 0,760 mA$$

Typical characteristic:

$$U_a = 250 V$$

$$U_{g2} = 250 V$$

$$U_{g1} = -7,3 V$$

$$I_a = 48 mA$$

$$I_{g2} = 5,5 mA$$

$$S = 11,3 mA/V$$

$$R_i = 40 k\Omega$$

$$\mu_{g1/g2} = 19$$

Class A₁ amplifier:

$$U_a = 250 V$$

$$U_{g2} = 250 V$$

$$R_k = 135 \Omega$$

$$I_a = 48 mA$$

$$I_{g2} = 5,5 mA$$

$$R_a = 5,2 k\Omega$$

$$U_{g1eff(50mW)} = 0,3 V$$

$$U_{g1eff(N)} = 4,3 V$$

$$N(10\%)^1 = 5,7 W$$

$$N^2 = 6 W$$

¹⁾ U_{g1} fest fixed grid bias

²⁾ $I_{g1} + 0,3 \mu A$

Limiting values:

$$U_a = 300 V$$

$$W_a = 12 W$$

$$U_{g2} = 300 V$$

$$W_{g2} = 2 W$$

$$U_{g1} = -100 V$$

$$I_k = 65 mA$$

$$R_{g1} = 1 M\Omega \text{ for automatic bias}$$

$$R_{g1} = 0,3 M\Omega \text{ for fixed bias}$$

$$U_{k/f} = 100 V$$

Capacitances:

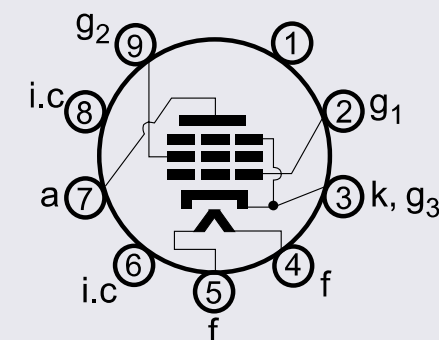
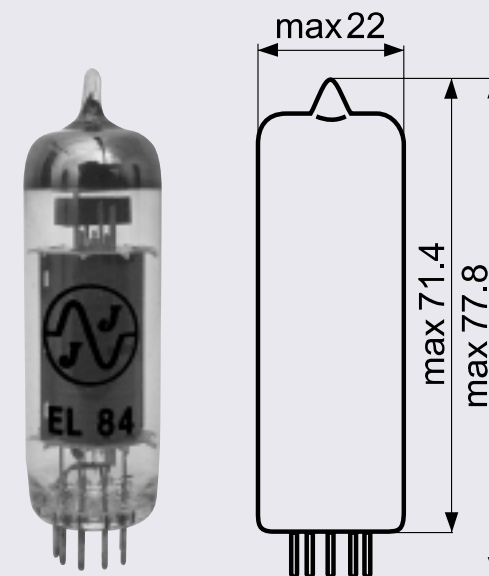
$$C_{g/k} = 10 pF$$

$$C_a = 5,1 pF$$

$$C_{g/a} = 0,6 pF$$

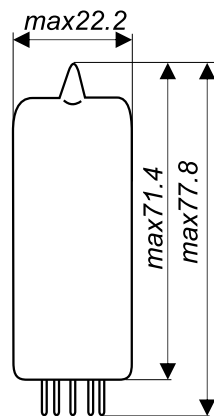
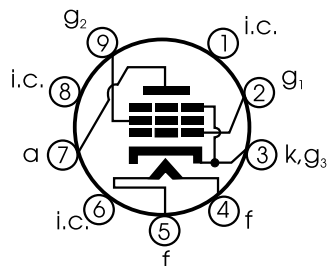
$$C_{g1f} = 0,15 pF$$

Dimension and connections:



EL844

R. F. OUTPUT PENTODE



Base: NOVAL

$$U_i = 6,3 \text{ V}$$

$$I_i = 0,760 \text{ mA}$$

Typical
characteristic:

$$U_a = 250 \text{ V}$$

$$U_{g2} = 250 \text{ V}$$

$$-U_{g1} = 7,2 \text{ V}$$

$$I_a = 10 \text{ mA}$$

$$I_{g2} = 1,5 \text{ mA}$$

$$S = 6,5 \text{ mA/V}$$

$$R_i = 0,1 \text{ M}\Omega$$

Limiting values:

$$U_a = 300 \text{ V}$$

$$U_{g2} = 300 \text{ V}$$

$$U_{g1} = -100 \text{ V}$$

$$W_a = 9 \text{ W}$$

$$W_{g2} = 2 \text{ W}$$

$$I_k = 60 \text{ mA}$$

$$U_{k/f} = 100 \text{ V}$$

$$R_{g1} = 1 \text{ MW for automatic bias}$$

$$R_{g1} = 0,5 \text{ MW for fixed bias}$$

Capacitances:

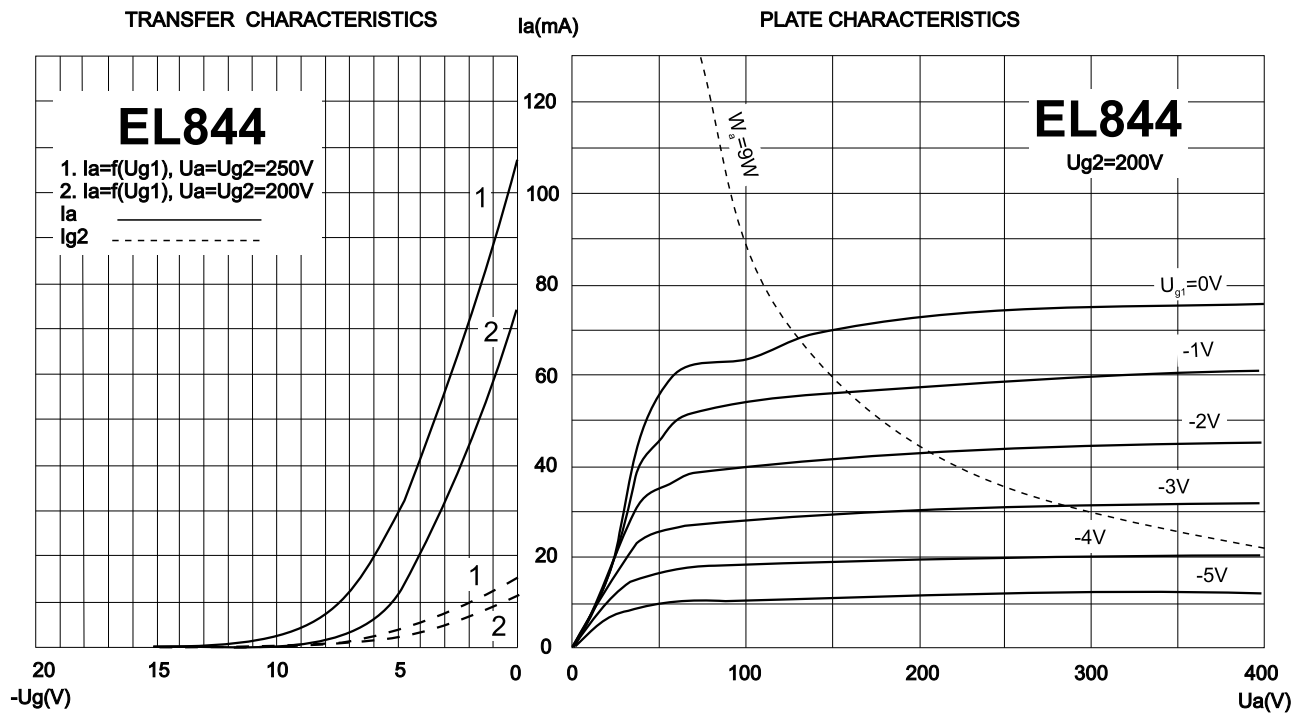
$$C_a = 6,6 \text{ pF}$$

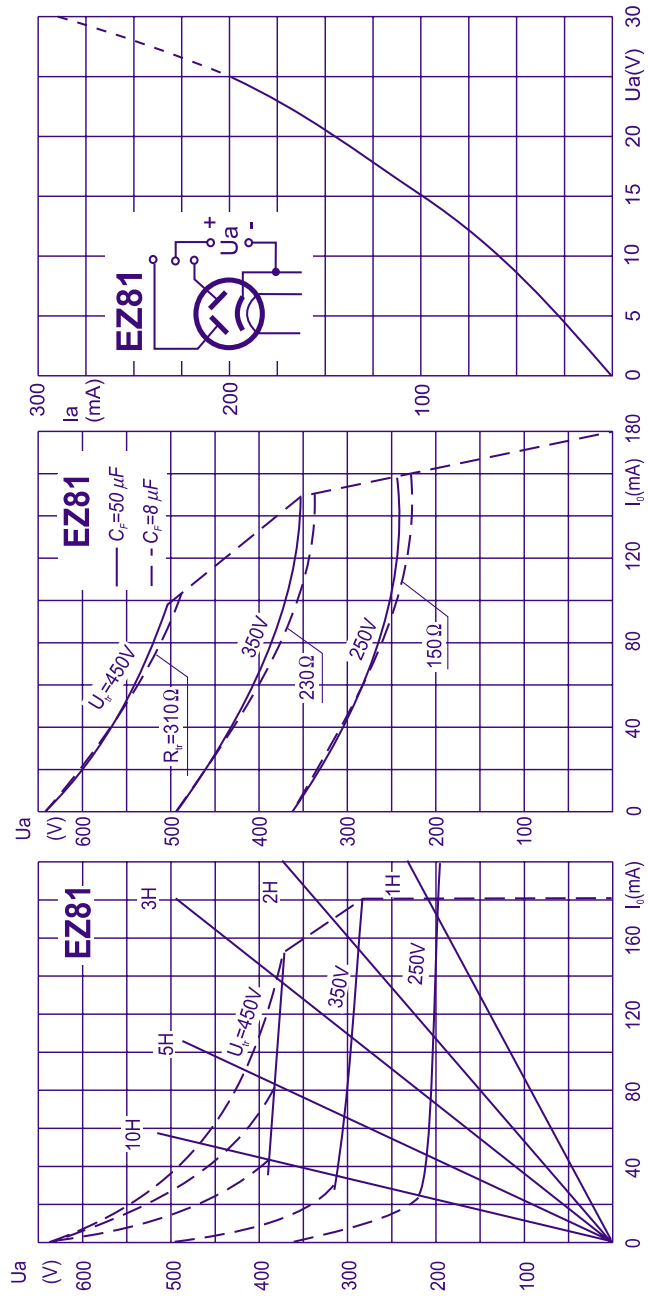
$$C_{g1} = 10,8 \text{ pF}$$

$$C_{g1/a} = 0,1 \text{ pF}$$

$$C_{g1/f} = 0,15 \text{ pF}$$







EZ 81

DOUBLE ANODE RECTIFYING TUBE

Base: NOVAL

$$U_f = 6,3 \text{ V}$$

$$I_f = 1 \text{ A}$$

Typical characteristic:

Capacitor input

$$f = 50 \text{ Hz}$$

$$U_{tr \text{ eff}} = \begin{matrix} 2x250 & 2x350 & 2x450 \end{matrix} \text{ V}$$

$$R_t = \begin{matrix} 2x150 & 2x230 & 2x310 \end{matrix} \Omega$$

$$I_- = \begin{matrix} 160 & 150 & 100 \end{matrix} \text{ mA}$$

$$C = \begin{matrix} 50 & 50 & 50 \end{matrix} \mu\text{F}$$

$$U_- = \begin{matrix} 245 & 352 & 497 \end{matrix} \text{ V}$$

Choke input

$$f = 50 \text{ Hz}$$

$$U_{tr \text{ eff}} = \begin{matrix} 2x250 & 2x350 & 2x450 \end{matrix} \text{ V}$$

$$I_- = \begin{matrix} 180 & 180 & 150 \end{matrix} \text{ mA}$$

$$L = \begin{matrix} 10 & 10 & 10 \end{matrix} \text{ H}$$

$$U_- = \begin{matrix} 199 & 288 & 378 \end{matrix} \text{ V}$$

Limiting values:

$$-U_{a \text{ invp}} = 1300 \text{ V}$$

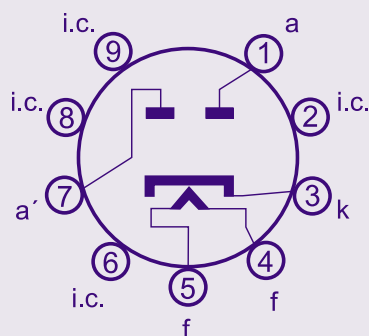
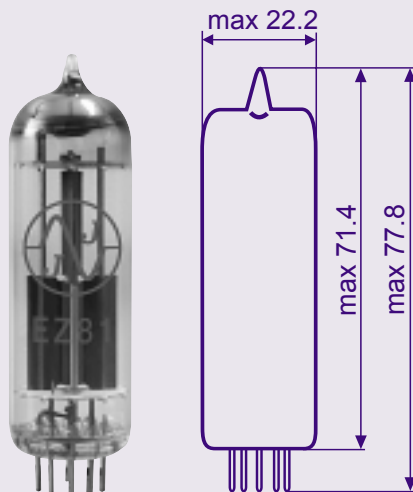
$$I_{a \text{ invp}} = 500 \text{ mA}$$

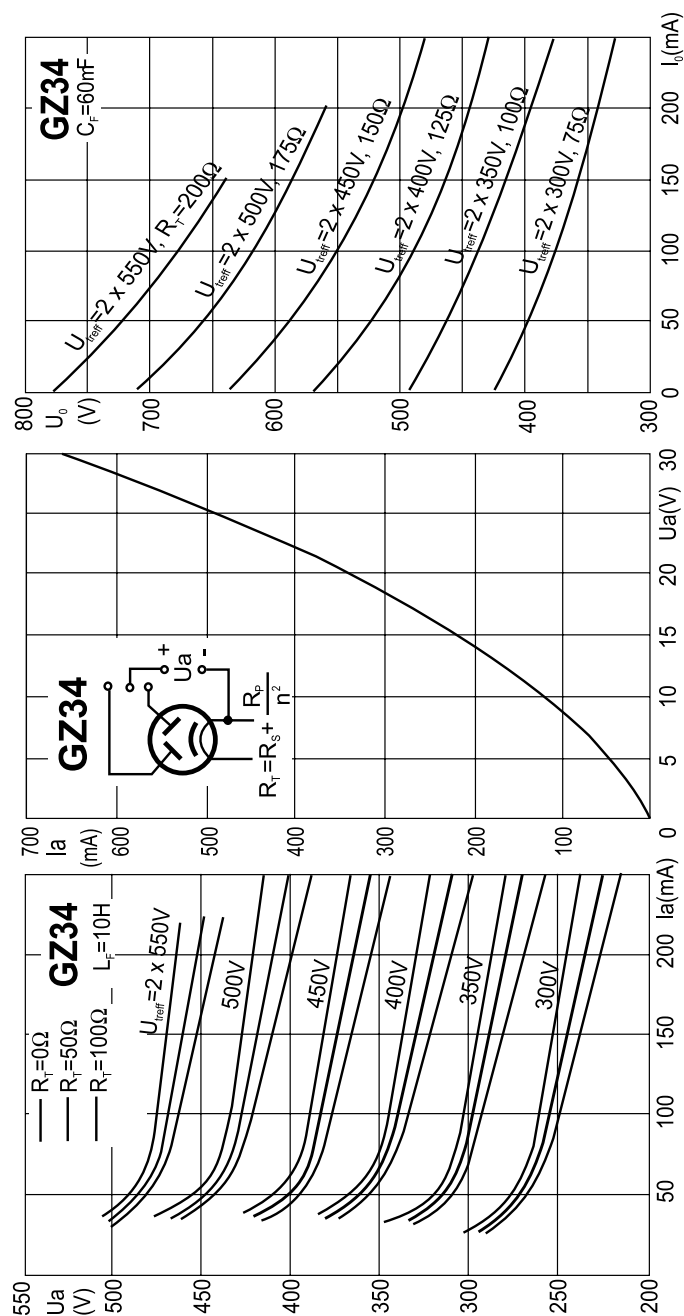
$$U_{kf} = 500 \text{ V}$$

$$C_{filt \text{ max.}} = 50 \mu\text{F}$$

$$L_{min.} = 1 \text{ H}$$

Dimension and connections:





GZ 34 S

DOUBLE ANODE RECTIFYING TUBE

Base: OCTAL

$$U_f = 5 \text{ V}$$

$$I_f = 1,9 \text{ A}$$

Typical characteristic:

Capacitor input

f	=	50 Hz			
U _{treff}	=	2x300	2x400	2x500	2x550 V
I _m	=	250	250	200	160 mA
C	=	60	60	60	60 μF
R _t	=	2x75	2x125	2x175	2x200 Ω
U _m	=	330	430	560	640 V

Choke input

f	=	50 Hz			
U _{treff}	=	2x300	2x400	2x500	2x550 V
I _m	=	250	250	250	225 mA
L	=	10	10	10	10 H
R _t	=	0	0	0	0 Ω
U _m	=	250	330	420	465 V

Limiting values:

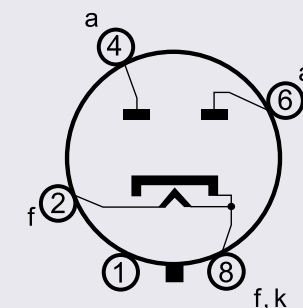
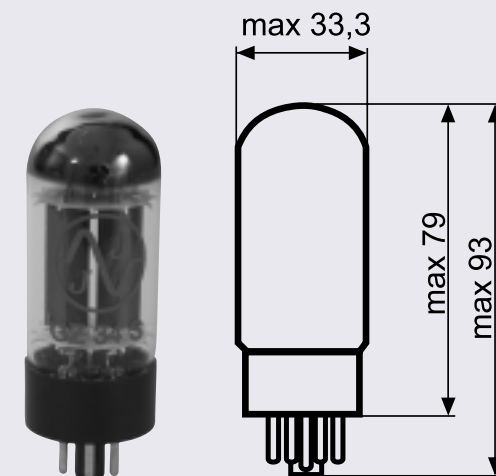
Capacitor input

f	=	50 Hz			
-U _{a invp}	=	1500 V			
I _{a invp}	=	750 mA			
C	=	60 μF			
U _{treff}	=	2x300	2x550	V	
I _m	=	250	160	mA	
R _t	=	2x50	2x175	Ω	

Choke input

f	=	50 Hz			
-U _{a invp}	=	1500 V			
I _{a invp}	=	750 mA			
U _{treff}	=	2x300	2x550	V	
I _m	=	250	225	mA	

Dimension and connections:



KT77

A. F. BEAM PENTODE

Base: OCTAL

$$U_f = 6,3 \text{ V}$$
$$I_f = \text{cca } 1,4 \text{ A}$$

Typical characteristic:

$$U_a = 250 \text{ V}$$
$$U_{g2} = 250 \text{ V}$$
$$-U_{g1} = 15 \text{ V}$$
$$I_a = 100 \text{ mA}$$
$$I_{g2} = 10 \text{ mA}$$
$$S = 10,5 \text{ mA/V}$$
$$R_a = 23 \text{ K}\Omega$$
$$\mu = 11,5$$

Limiting values:

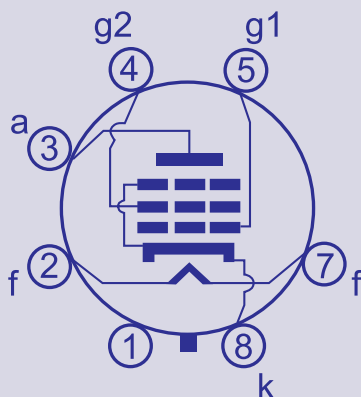
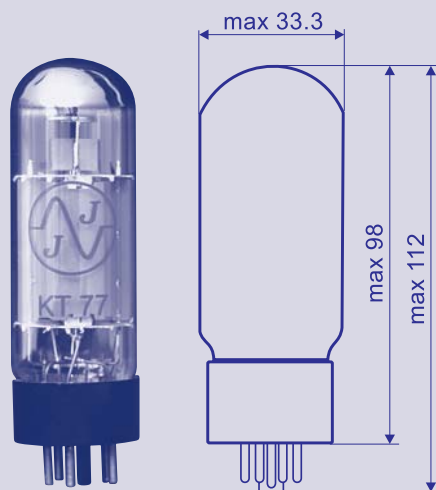
$$U_a = 800 \text{ V}$$
$$U_{g2} = 800 \text{ V}$$
$$U_{a,g2} = 800 \text{ W}$$
$$W_a = 25 \text{ W}$$
$$W_{g2} = 6 \text{ W}$$
$$W_{a,g2} = 28 \text{ W}$$
$$I_k = 180 \text{ mA}$$
$$U_{k/f} = 150 \text{ V}$$
$$-U_{g1} = 200 \text{ V}$$

Capacitances:

$$C_{g1} = 16,5 \text{ pF}$$
$$C_a = 9 \text{ pF}$$
$$C_{a/g1} = 1 \text{ pF}$$

NEW

Dimension and connections:





TRANSFER CHARACTERISTICS

PLATE CHARACTERISTICS

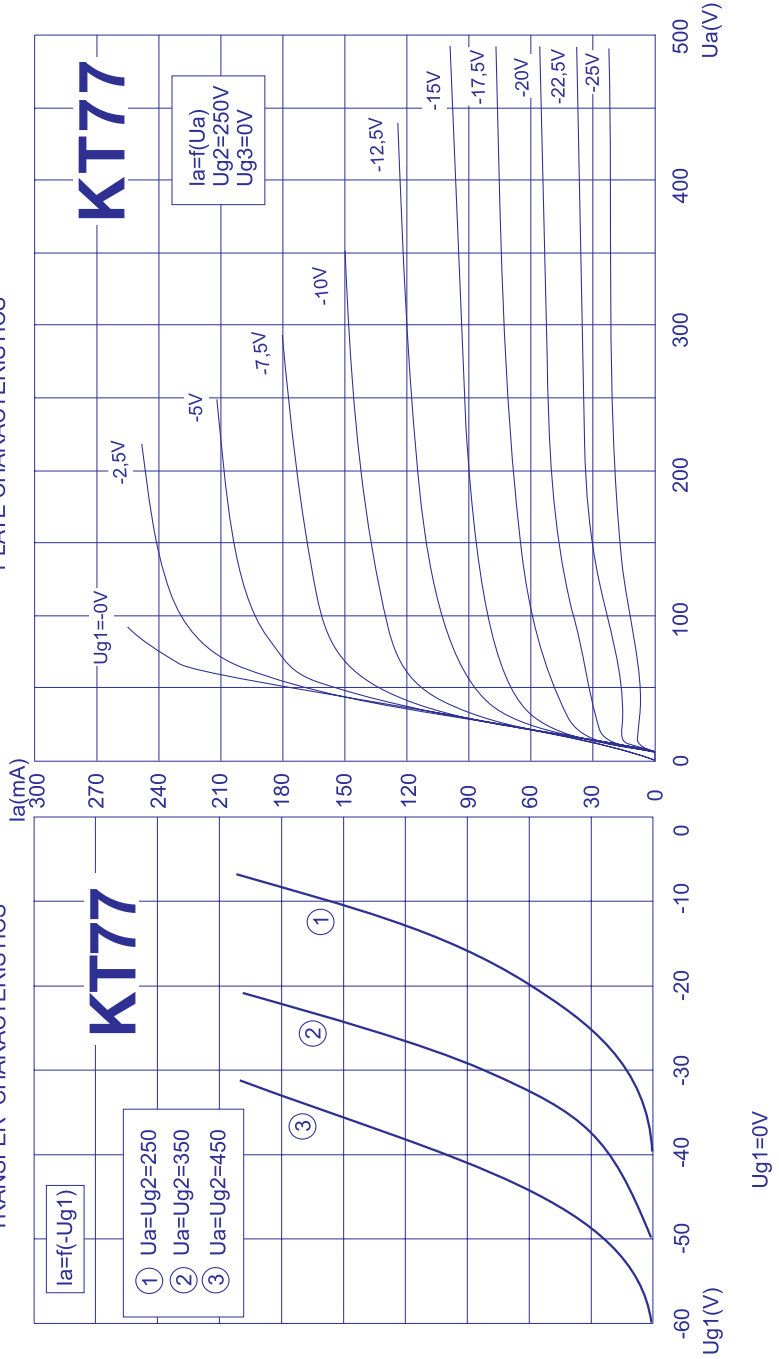
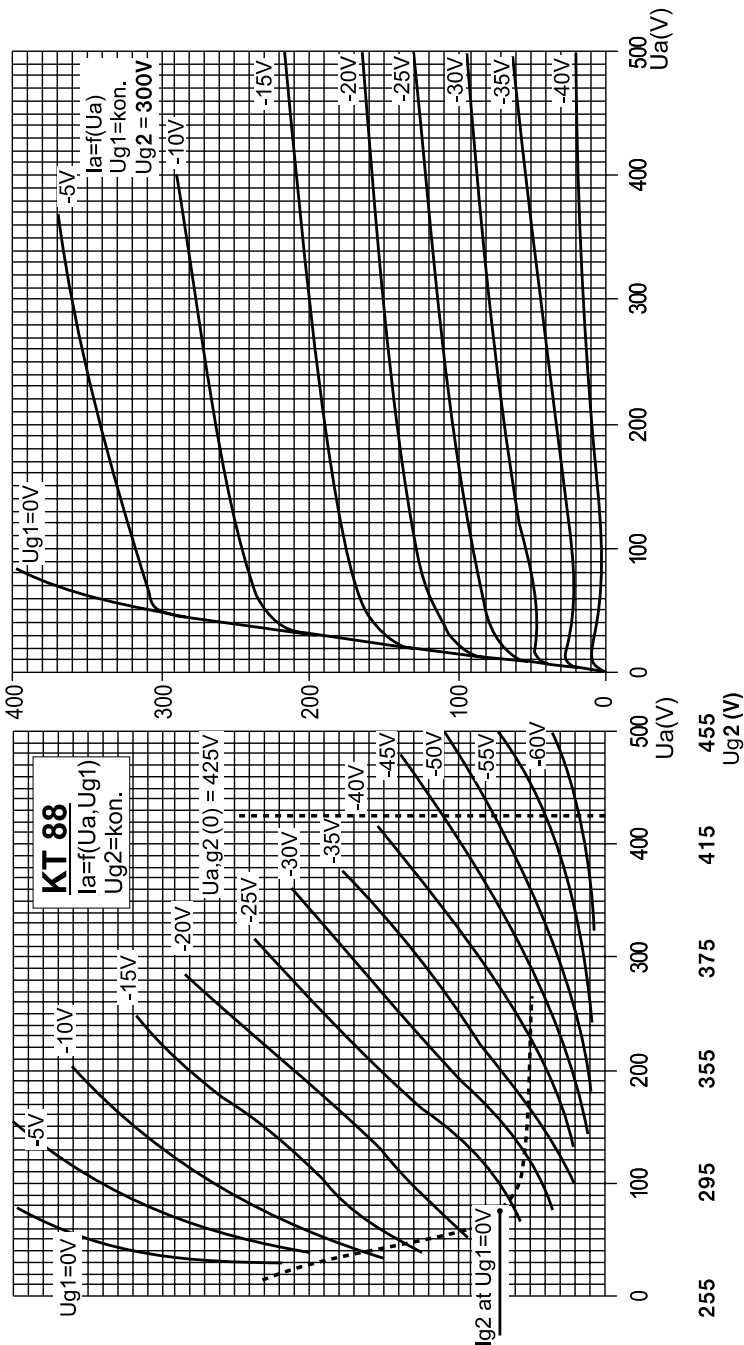




PLATE CHARACTERISTICS

 I_a (mA)

ULTRA - LINEAR CONNECTION - 40% TAPS



KT 88

A. F. BEAM PENTODE

Base: OCTAL

$$U_f = 6,3 \text{ V}$$

$$I_f = C_a 1,6 \text{ A}$$

Typical characteristic:

$$U_a = 250 \text{ V}$$

$$U_{g2} = 250 \text{ V}$$

$$I_a = 140 \text{ mA}$$

$$I_{g2} = \text{max. } 7 \text{ mA}$$

$$-U_{g1} = 15 \text{ V}$$

$$S = 11,5 \text{ mA/V}$$

$$R_i = 12 \text{ k}\Omega$$

$$\mu_{g1-g2} = 8$$

Triode Connected

$$U_{a, g2} = 250 \text{ V}$$

$$I_{a+g2} = 147 \text{ mA}$$

$$-U_{g1} = 15 \text{ V}$$

$$S = 12 \text{ mA/V}$$

$$R_i = 670 \Omega$$

$$\mu = 8$$

Limiting values:

$$U_a = 800 \text{ V}$$

$$U_{g2} = 600 \text{ V}$$

$$U_{a, g2} = 600 \text{ V}$$

$$-U_{g1} = 200 \text{ V}$$

$$W_a = 42 \text{ W}$$

$$W_{g2} = 8 \text{ W}$$

$$W_{a+g2} = 46 \text{ W}$$

$$I_k = 230 \text{ mA}$$

$$U_{k/f} = 250 \text{ V}$$

R_{g1-k} (cathode bias)

$$W_{a+g2} \leq 35 \text{ W } 470 \text{ k}\Omega$$

$$W_{a+g2} > 35 \text{ W } 270 \text{ k}\Omega$$

R_{g1-k} (fixed bias)

$$W_{a+g2} \leq 35 \text{ W } 220 \text{ k}\Omega$$

$$W_{a+g2} > 35 \text{ W } 100 \text{ k}\Omega$$

Capacitances:

$$C_{g1} = 16,5 \text{ pF}$$

$$C_a = 10 \text{ pF}$$

$$C_{g1-a} = 2,3 \text{ pF}$$

Red/Blue versions available

Dimension and connections:

