

Combined high- μ triode and output pentode for use in audio amplifier circuits.

HEATER

Vh	6.3	V
Ih	660	mA

CAPACITANCES

cap - gt	< 6.0	mpF
cat - g1	< 200	mpF
cgt - g1	< 20	mpF
cat - ap	< 150	mpF

Pentode section

cin	10	pF
ca - g1	< 400	mpF
cgl - h	< 240	mpF

Triode section

cin	2.3	pF
cout	2.5	pF
ca - g	1.4	pF
cgl - h	< 6.0	mpF

CHARACTERISTICS

Pentode section

Va	250	V
Vg2	250	V
Vg1	- 7.0	V
Ia	36	mA
Ig2	6.0	mA
gm	10	mA/V
ra	48	k Ω
μ g1 - g2	21	
- Vg1 max. (Ig1 = + 0.3 μ A)	1.3	V



OPERATING CONDITIONS FOR TRIODE SECTION AS RESISTANCE COUPLED A. F. AMPLIFIER

Cathode bias

Vb	300	250	250	200	V
Ra	220	220	220	220	k Ω
Ia	0.8	0.6	0.6	0.42	mA
Rk	1.2	1.75	1.75	2.6	k Ω
Vout	80	75	70	66	
Vin					
Vout (r.m.s.)	9.0	5.0	3.2	3.2	V
Dtot	0.4	0.4	0.4	0.6	%
* Rg	10	10	0.68	0.68	M Ω

* Grid resistor of following valve.

At lower values of Vb, grid current bias should be used.

Grid current bias (Rg = 10 M Ω)

Zs = 47 k Ω

Vb (V)	Ra (k Ω)	Rg* (M Ω)	Ia (mA)	Dtot (%)	Vout Vin	Vout(r.m.s.) (V)
300	220	10	0.8	0.4	80	9
250	220	10	0.6	0.4	75	5
250	220	0.68	0.6	0.4	70	3.2
200	220	0.68	0.42	0.6	66	3.2

* Grid resistor of following valve.

LIMITING VALUES

Pentode section

Va (b) max.	550	V
Va max.	300	V
pa max.	9.0	W
Vg2 (b) max.	550	V
Vg2 max.	300	V
pg2 max.	1.8	W
Ik max.	55	mA
Rg1 - k max.	0.5	M Ω
Vh - k max.	100	V

Triode section

Va	250	V
Vg	- 1.9	V
Ia	1.2	mA
gm	1.6	mA/V
μ	100	
ra	62	k Ω
- Vg1 max. (Igl = +0.3 μ A)	1.3	V

OPERATING CONDITIONS AS SINGLE VALVE AMPLIFIER

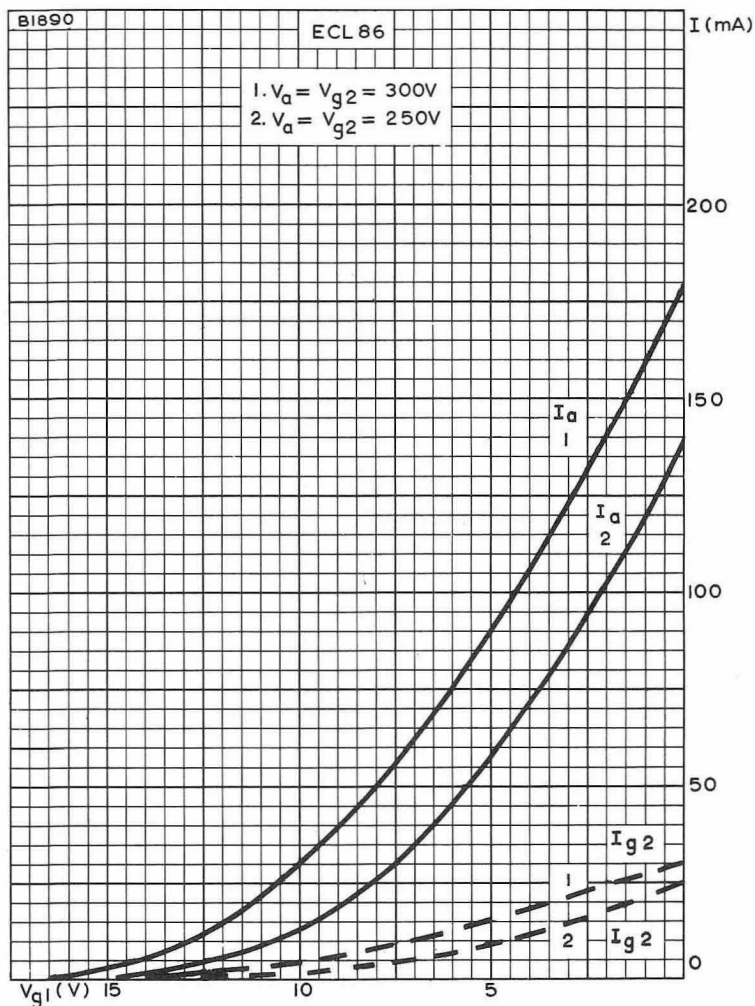
Pentode section

Va	250	250	V
Vg2	250	250	V
Rk	270	170	Ω
Ia	27	37	mA
Ig2	8.2	10	mA
Ra	10	7.0	k Ω
Pout	2.8	4.0	W
Vin (r.m.s.)	2.7	3.2	V
Dtot	10	10	%
Vin (r.m.s.) (Pout = 50 mW)	280	300	%

OPERATING CONDITIONS FOR TWO VALVES IN PUSH-PULL

Cathode bias

Va (b)	250	300	V
Vg2 (b)	250	300	V
Rk (per valve)	180	260	Ω
Ra - a	8.2	9.1	k Ω
Ia (o)	2 x 32.5	2 x 31	mA
Ia (max. sig.)	2 x 35.5	2 x 37	mA
Ig2 (o)	2 x 5.6	2 x 5.5	mA
Ig2 (max. sig.)	2 x 8.9	2 x 10.6	mA
Vin (g1 - g1) r.m.s.	11.0	16.8	V
Pout	10	13.6	W
Dtot	5.0	4.0	%
Vin (r.m.s.) (Pout = 50 mW)	480	520	mV



ANODE AND SCREEN-GRID CURRENTS PLOTTED AGAINST CONTROL-GRID VOLTAGE, PENTODE SECTION.

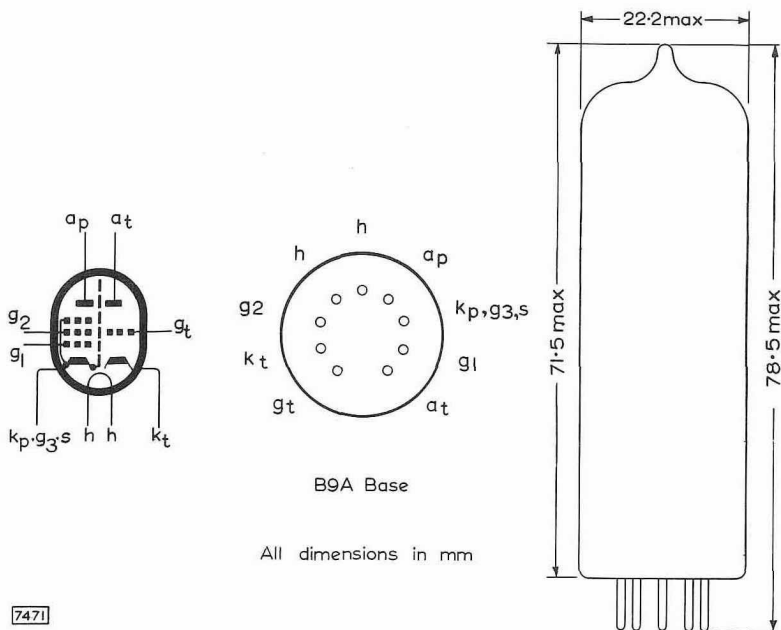
Triode section

V_a (b) max.	550	V
V_a max.	300	V
p_a max.	500	mW
I_k max.	4.0	mA
$R_g - k$ max.	1.0	$M\Omega$
$V_h - k$ max.	100	V

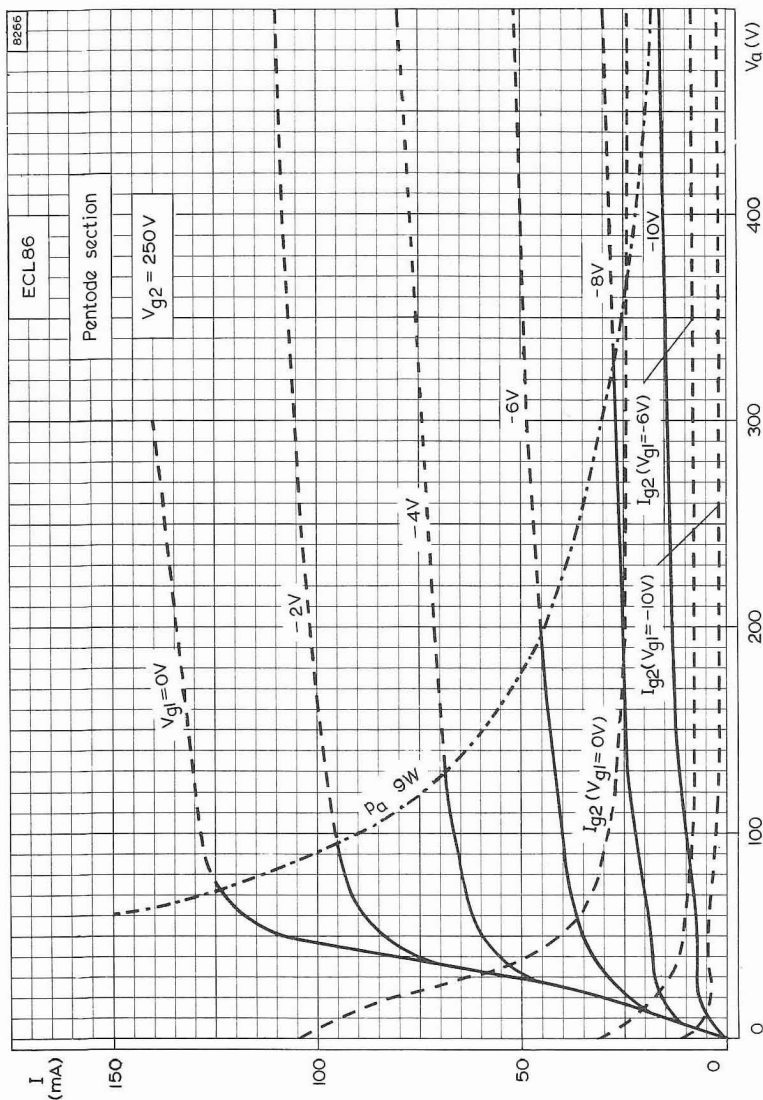
OPERATING NOTES

1. Microphony

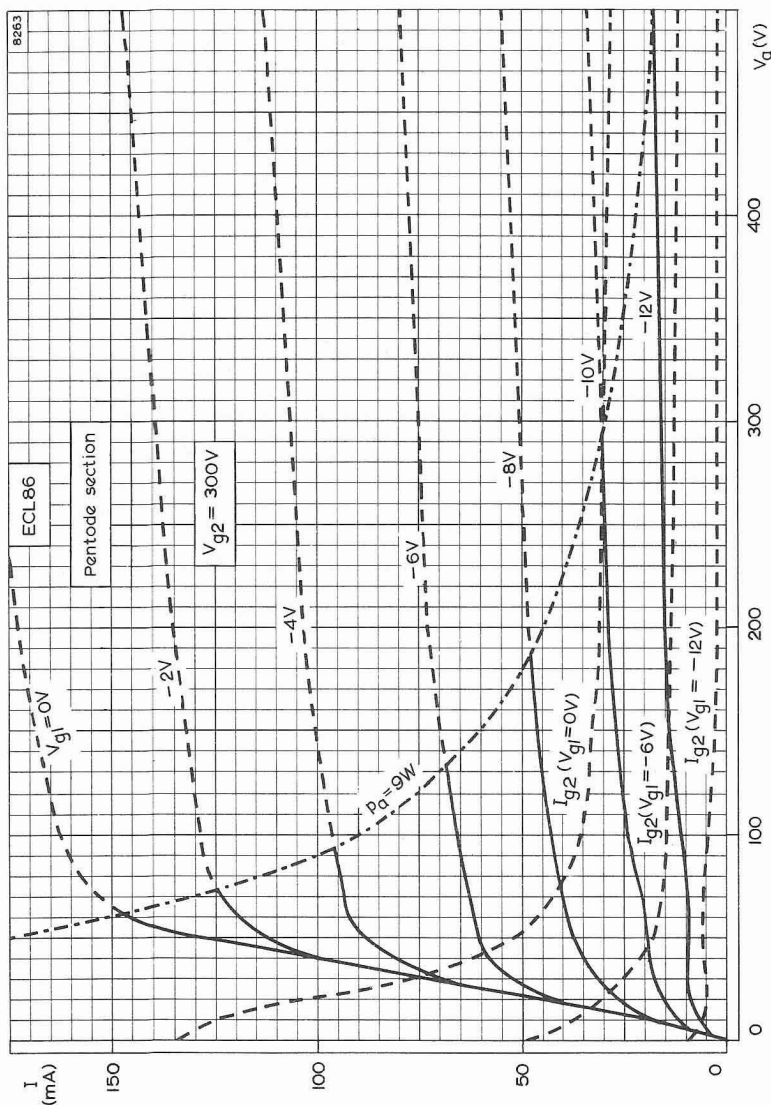
This valve may be used without special precautions against microphony in equipment where the input voltage is not less than 4 mV for an output of 50 mW.



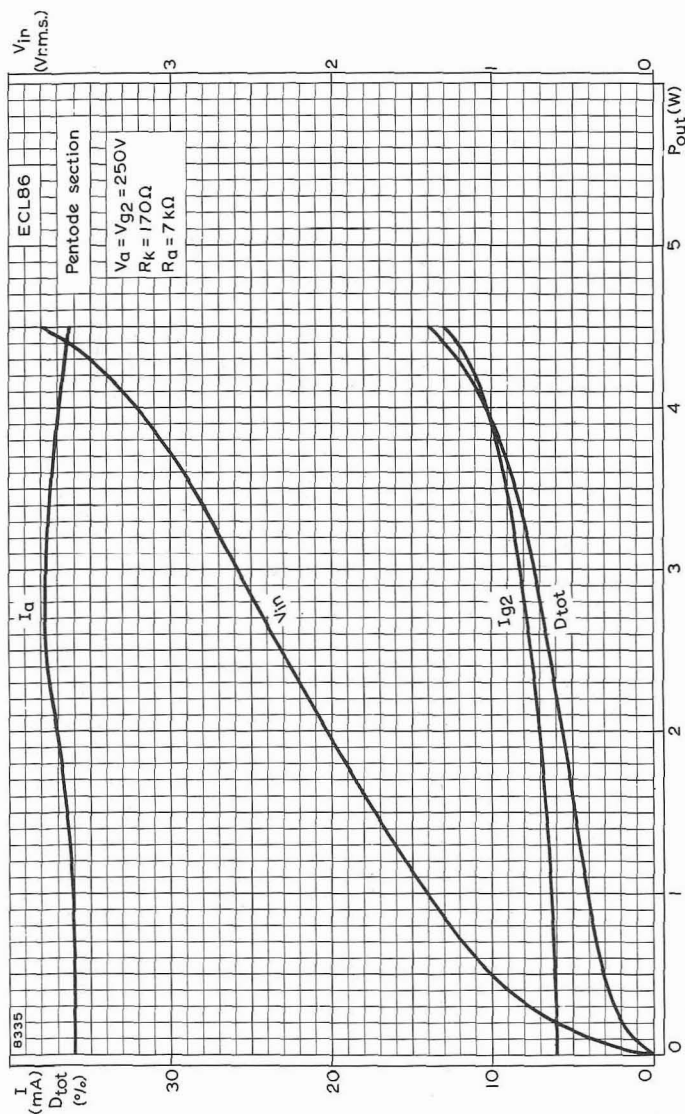
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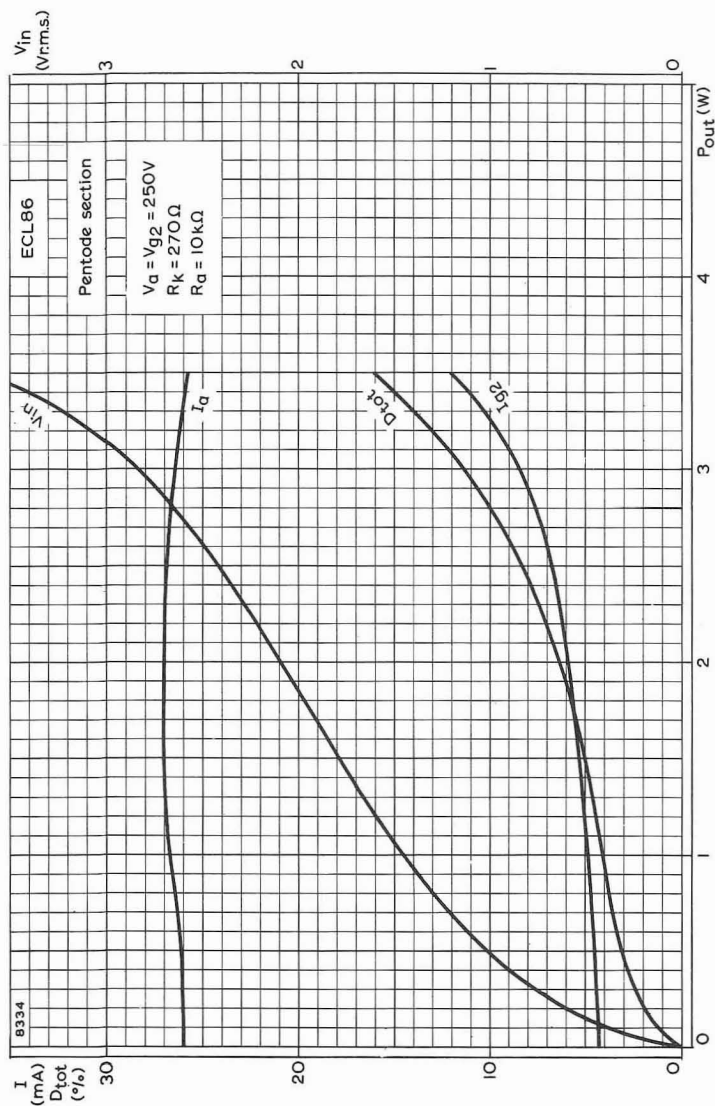
ANODE AND SCREEN-GRID CURRENTS PLOTTED AGAINST ANODE VOLTAGE, WITH CONTROL-GRID VOLTAGE AS PARAMETER. PENTODE SECTION $V_{g2} = 250$ V.



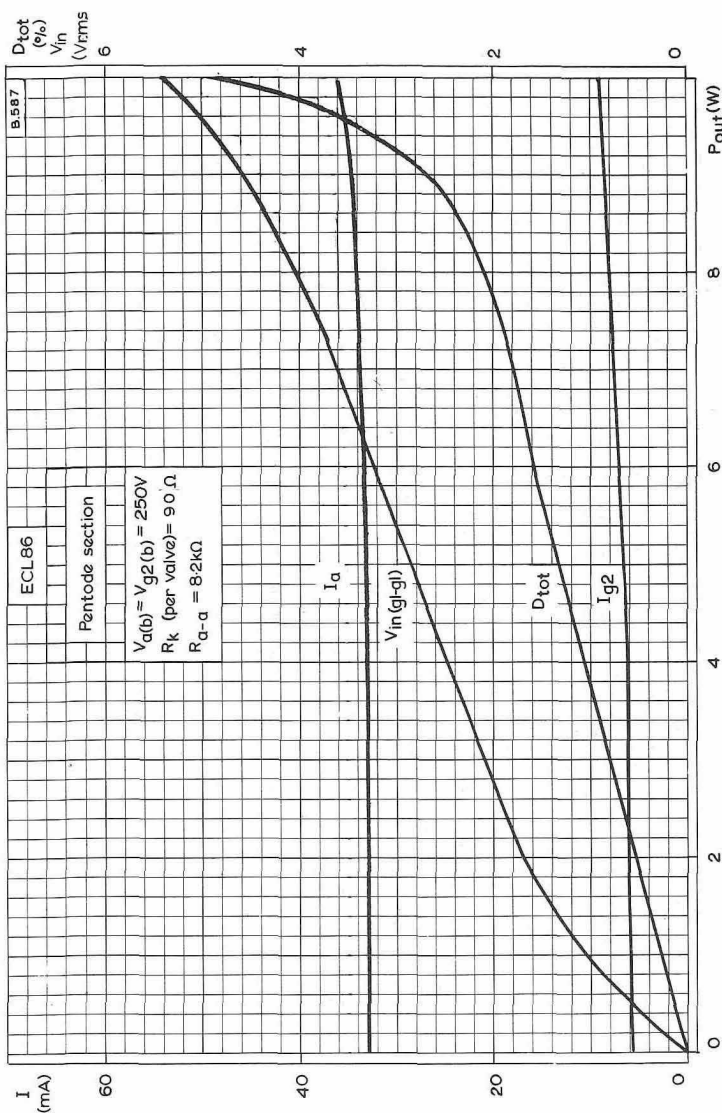
ANODE AND SCREEN-GRID CURRENTS PLOTTED AGAINST ANODE VOLTAGE, WITH CONTROL-GRID VOLTAGE AS PARAMETER.
PENTODE SECTION $V_{g2} = 300V$.



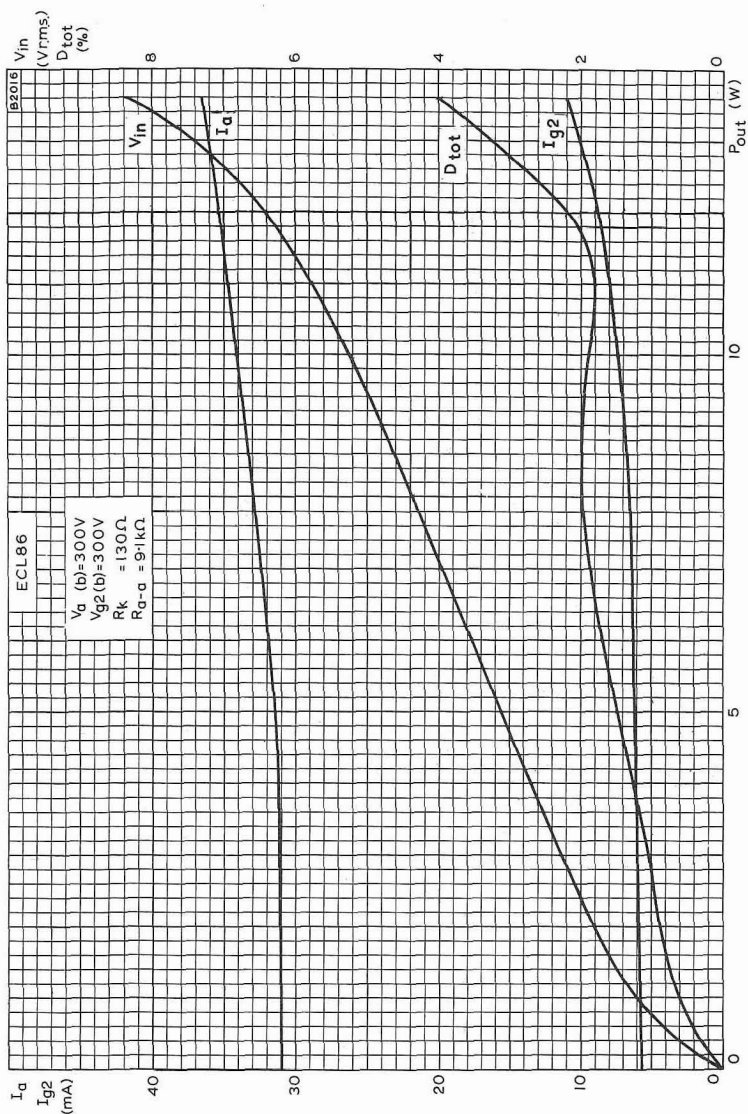
PERFORMANCE OF ECL86 AS SINGLE VALVE AMPLIFIER.
PENTODE SECTION $V_a = V_{g2} = 250V$, $R_k = 170\Omega$.



PERFORMANCE OF ECL86 AS SINGLE VALVE AMPLIFIER.
PENTODE SECTION $V_a = V_{g2} = 250V$, $R_k = 270\Omega$.



PERFORMANCE OF ECL86 IN PUSH-PULL
 PENTODE SECTION $V_{a(b)} = V_{g2(b)} = 250V$



PERFORMANCE OF ECL86 IN PUSH-PULL
PENTODE SECTION $V_a(b) = V_{g2}(b) = 300V$