Annexe 2

simulation

Ampli Yves Cochet Etude de FP1g – FS1g-1

Etude temporelle

signaux rectangulaires

Etude temporelle signaux rectangulaires

(sans charge Rc)

1 Hz – 10 Hz – 20 Hz – 100 Hz – 1000 Hz – 10 kHz – 20 kHz – 100 kHz – 1 MHz

Point de fonctionnement

Calculs

ECC81 1/2 préampli FS1.1g

Uak = +86,8V

Ugk = -1,447V

Ia = +1,447mA

(Input G = 0V)

Point de fonctionnement

Prospice 7.05.01 Build 790

ECC81 1/2 préampli FS1.1g

Uak = +114V

Ugk = -1,28V

Ia = +1,28 mA

(Input G = 0V)

Point de fonctionnement

Mesures:

ECC81 1/2 préampli FS1.1g

Uak = +

Ugk = -

Ia = +

(Input G = 0V)

Datasheet ECC81 (Philips 1969)

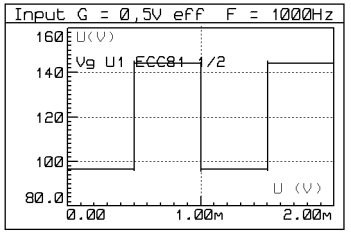
Wa = 2,5 W

-Vg max = 50V

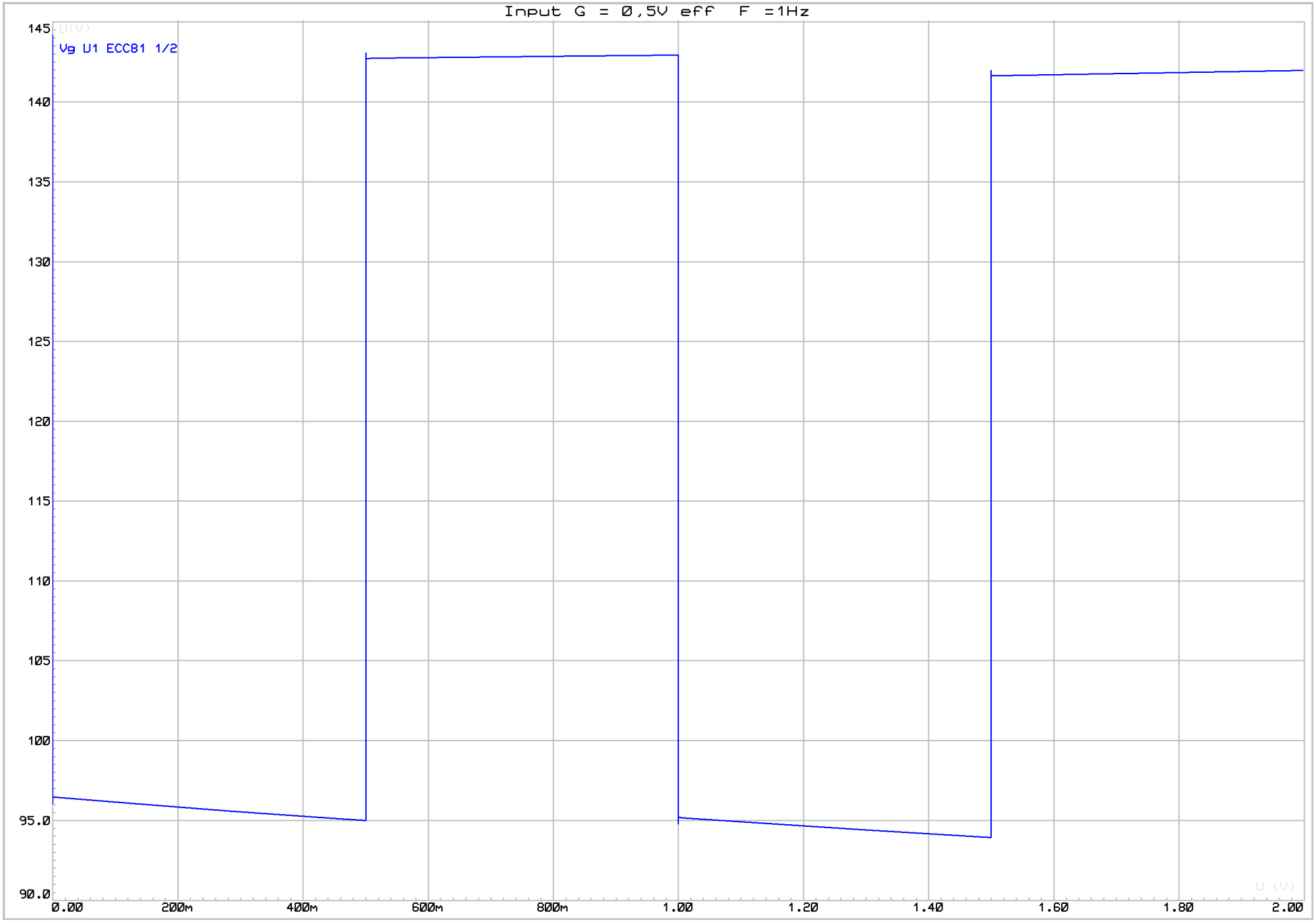
Va max 300V

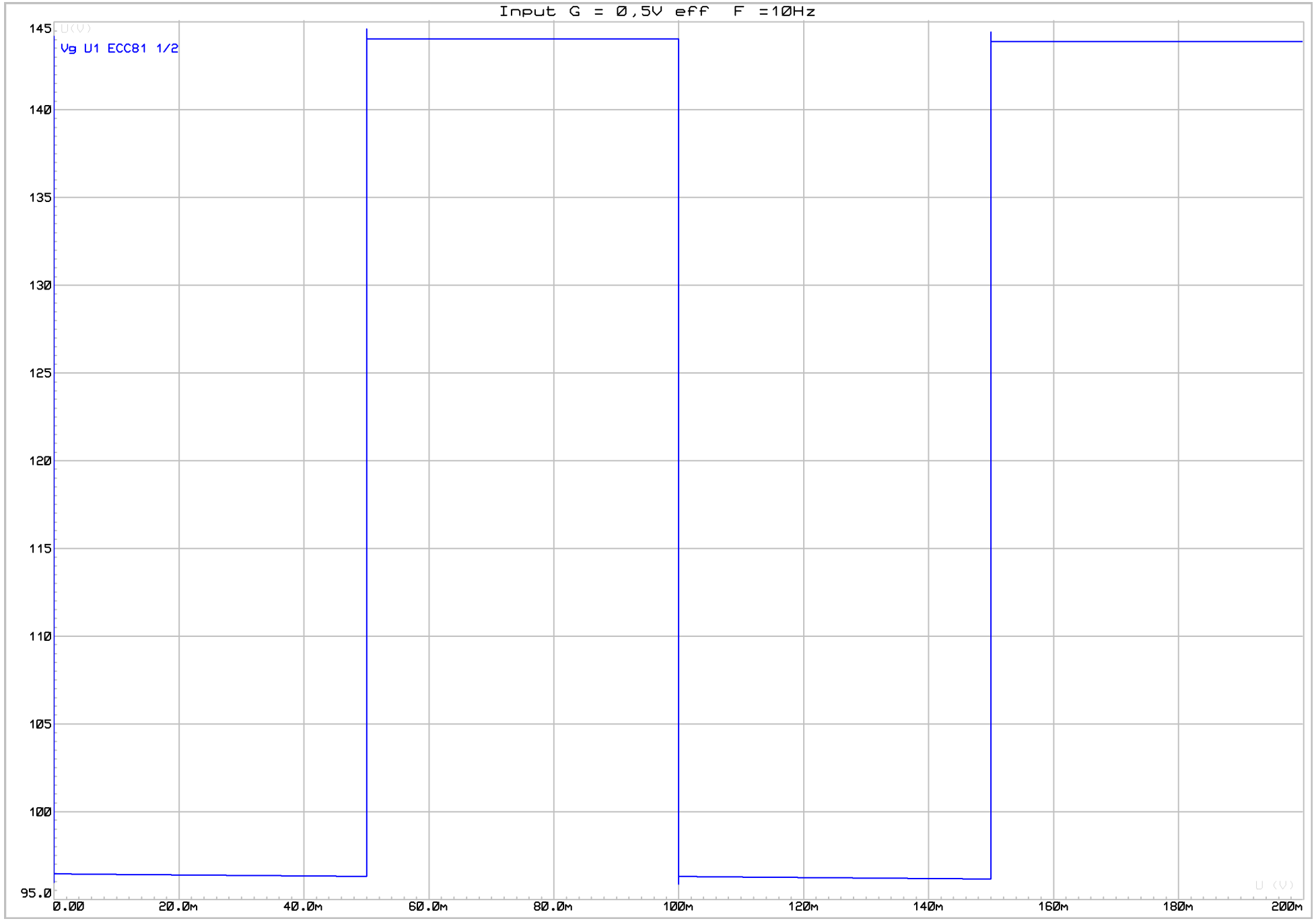
μ = 60

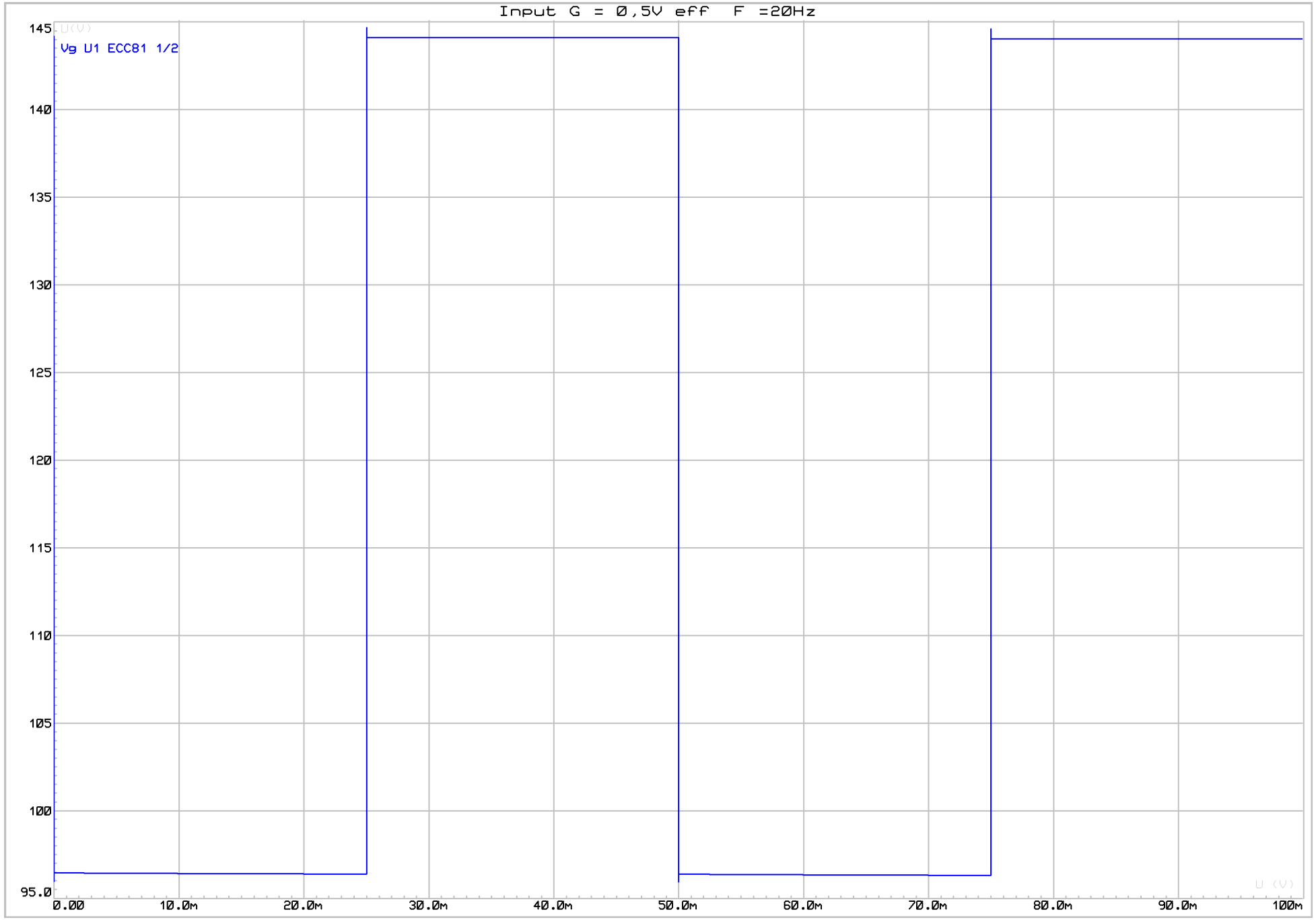
S= 5,5 mA / V

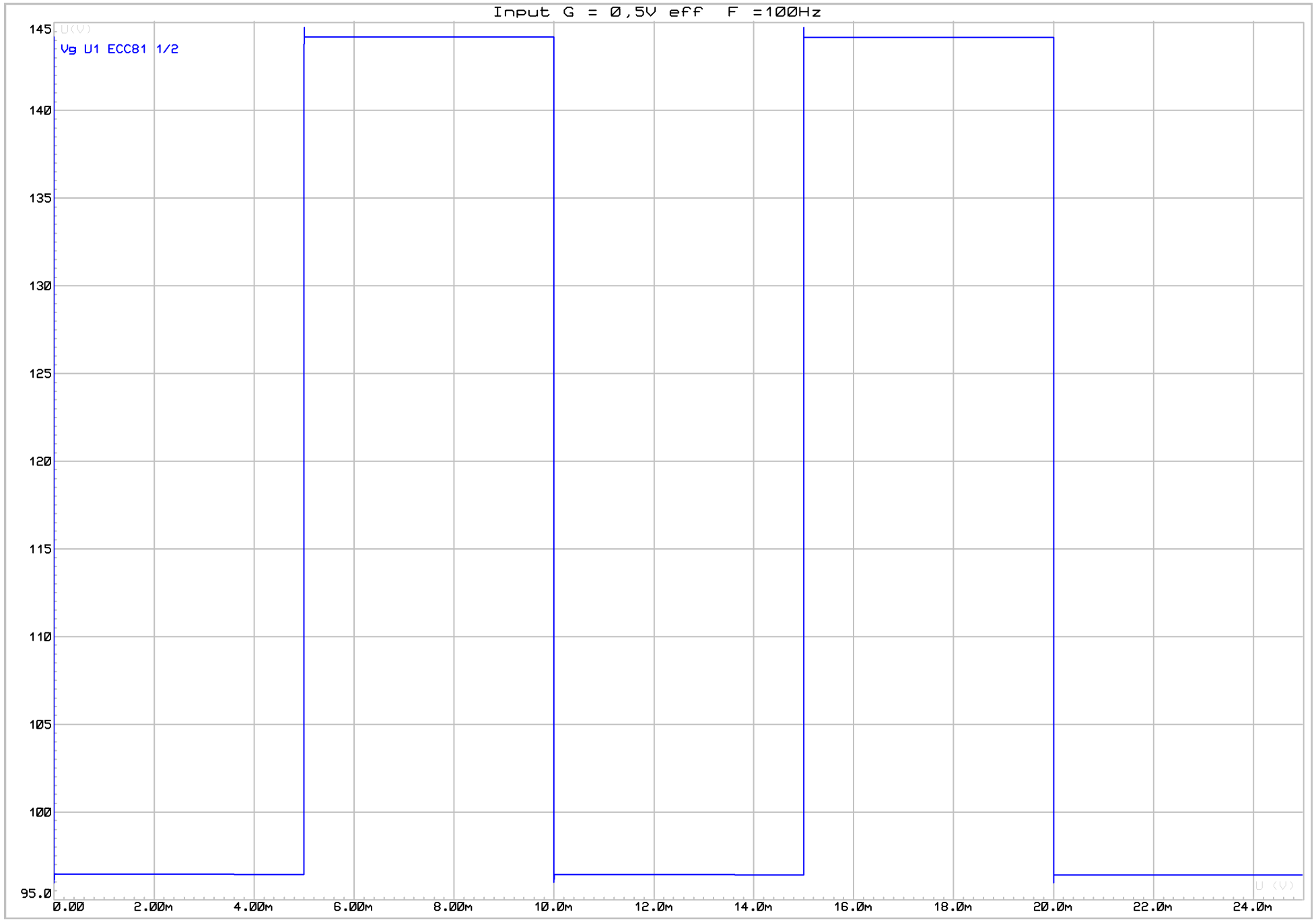


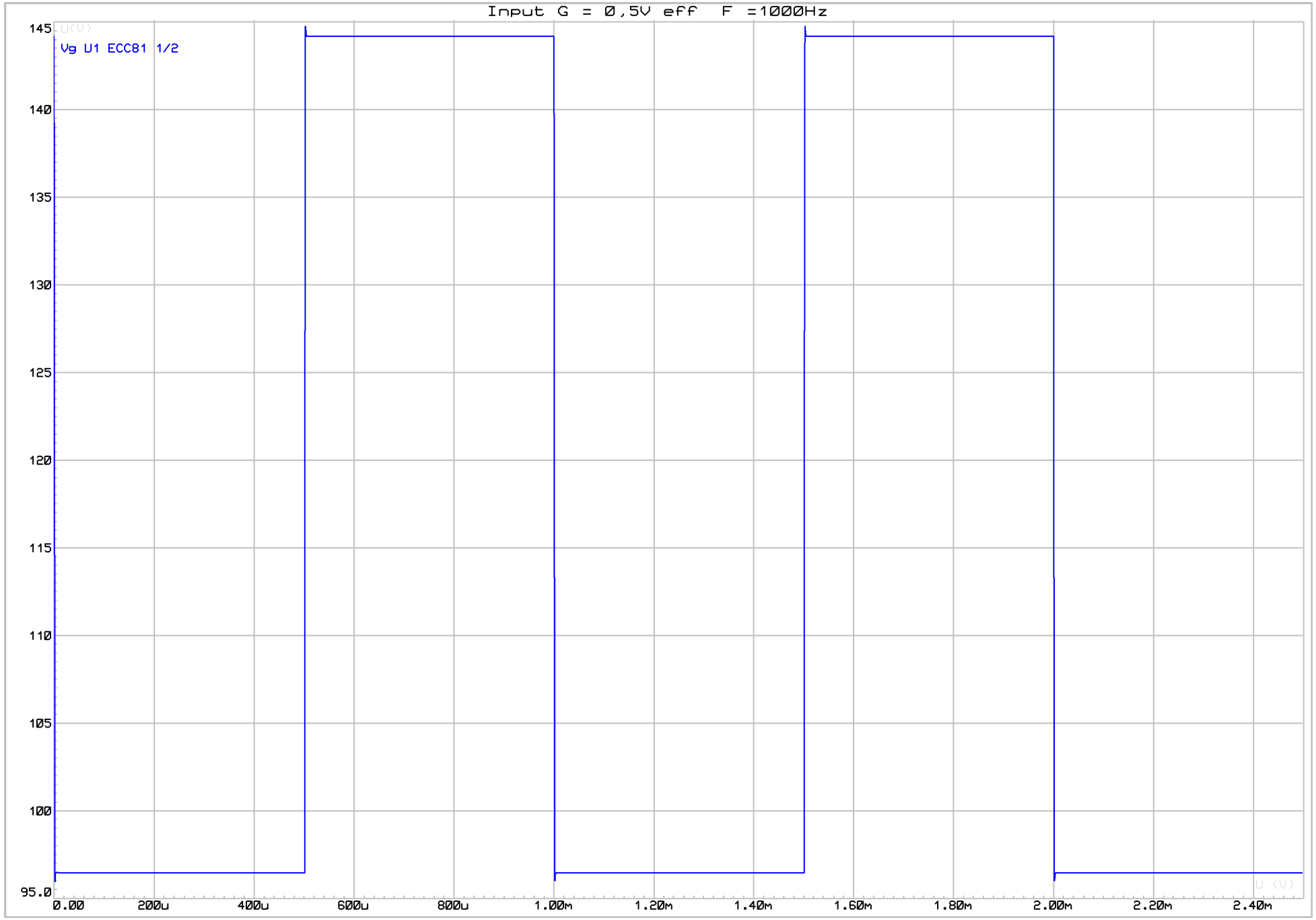
FILE NAME: Ampli Yves Cochet Etude de FP1 g - FS1.1 générateur rectangulaire avec charge		DATE: 11/12/2012
DESIGN TITLE: Ampli Yves COCHET ALP2a		PAGE: 1 of 1
PATH: FS1g_- 1 amplification		
BY: Didier VILLERS	REV: 1e	TIME: 22:22:21

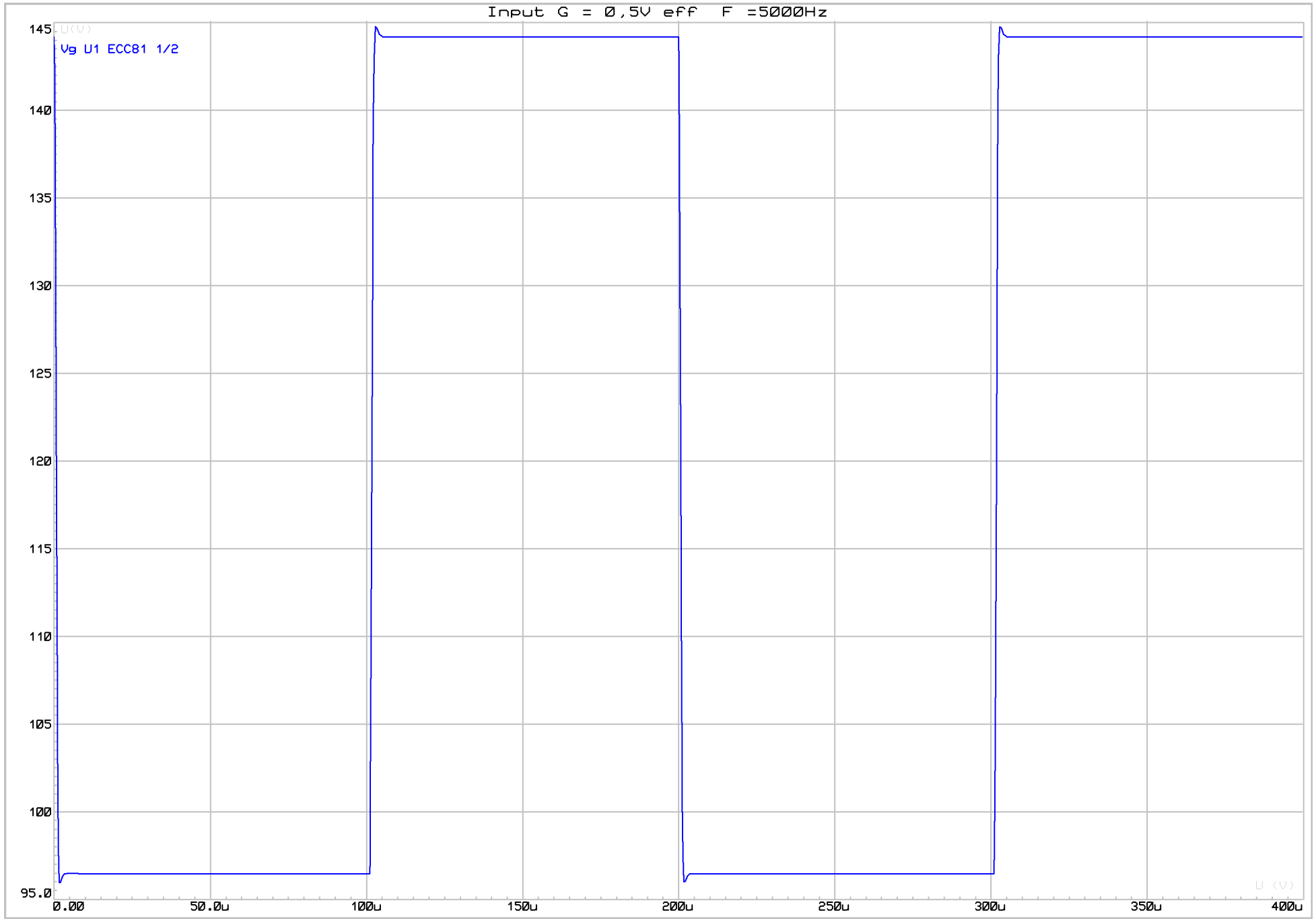

Input G = 0,5V eff F =1Hz
U(V)
Vg U1 ECC81 1/2
145
140
135
130
125
120
115
110
105
100
95.0
90.0
0.00
200m
400m
600m
800m
1.00
1.20
1.40
1.60
1.80
2.00
U (V)

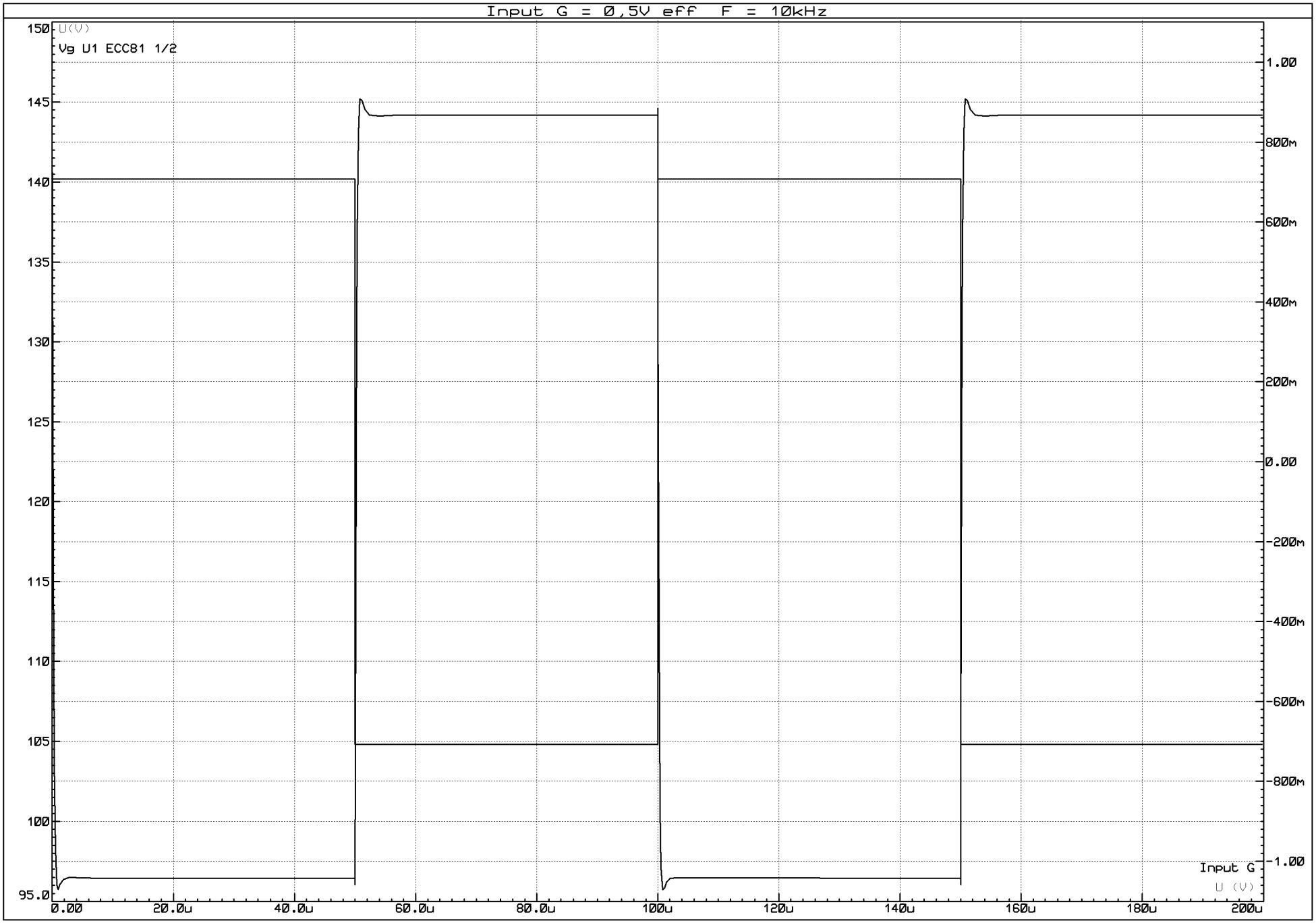

Input G = 0,5V eff F =10Hz
U(V)
Vg U1 ECC81 1/2
145
140
135
130
125
120
115
110
105
100
95.0
0.00
20.0m
40.0m
60.0m
80.0m
100m
120m
140m
160m
180m
200m
t (s)

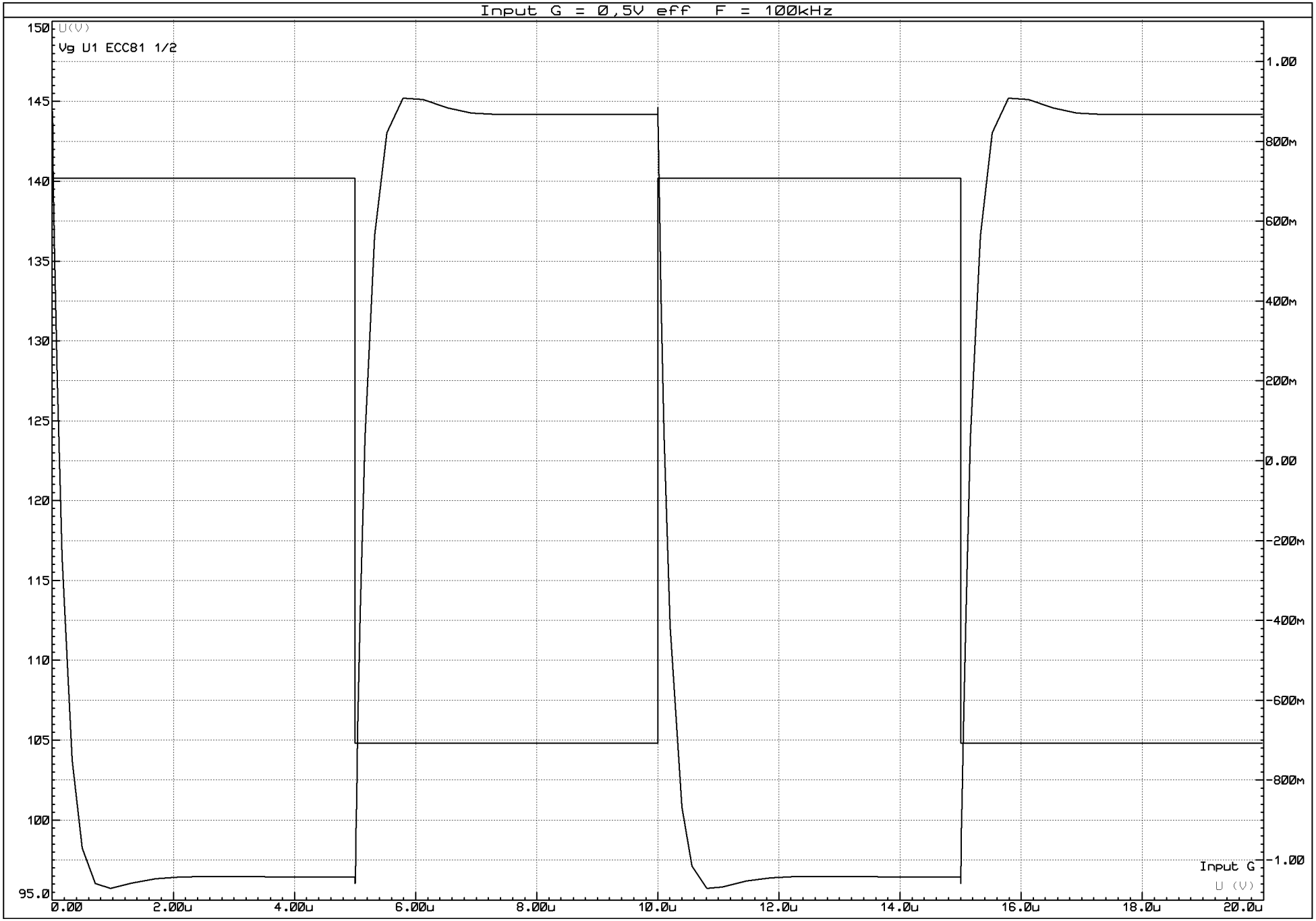

Input G = 0,5V eff F =20Hz
U(V)
Vg U1 ECC81 1/2
145
140
135
130
125
120
115
110
105
100
95.0
0.00
10.0m
20.0m
30.0m
40.0m
50.0m
60.0m
70.0m
80.0m
90.0m
100m
U (V)

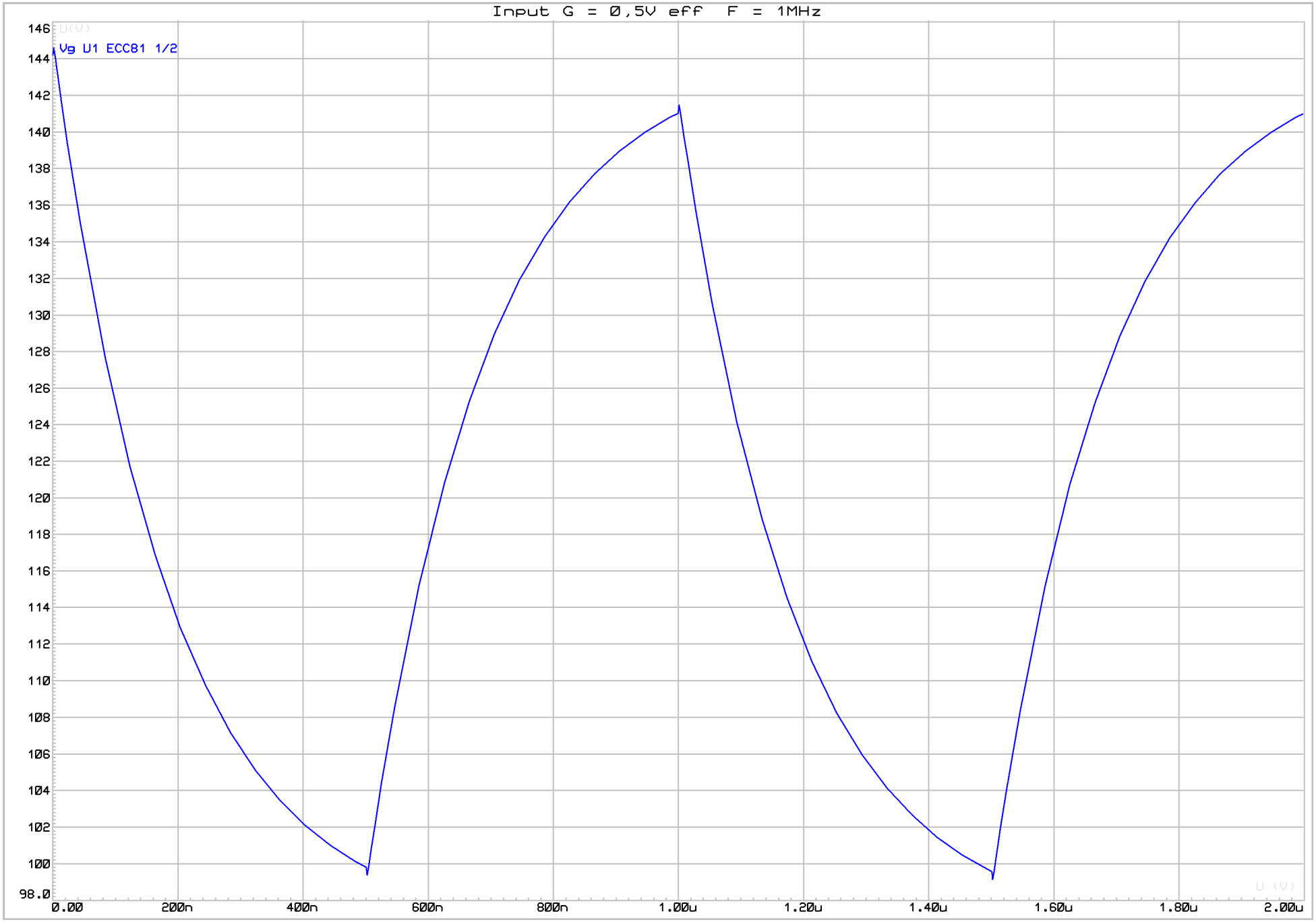

Input G = 0,5V eff F =100Hz
U(V)
Vg U1 ECC81 1/2
145
140
135
130
125
120
115
110
105
100
95.0
0.00
2.00m
4.00m
6.00m
8.00m
10.0m
12.0m
14.0m
16.0m
18.0m
20.0m
22.0m
24.0m
U (V)


Input G = 0,5V eff F =1000Hz
U(V)
Vg U1 ECC81 1/2
145
140
135
130
125
120
115
110
105
100
95.0
0.00
200u
400u
600u
800u
1.00m
1.20m
1.40m
1.60m
1.80m
2.00m
2.20m
2.40m
U (V)


Input G = 0,5V eff F =5000Hz
U(V)
Vg U1 ECC81 1/2
145
140
135
130
125
120
115
110
105
100
95.0
0.00
50.0u
100u
150u
200u
250u
300u
350u
400u
U (V)


Input G = 0,5V eff F = 10kHz
U(V)
Vg U1 ECC81 1/2
150
145
140
135
130
125
120
115
110
105
100
95.0
1.00
800m
600m
400m
200m
0.00
-200m
-400m
-600m
-800m
-1.00
0.00
20.0u
40.0u
60.0u
80.0u
100u
120u
140u
160u
180u
200u
Input G
U (V)


Input G = 0,5V eff F = 100kHz
U(V)
Vg U1 ECC81 1/2
150
145
140
135
130
125
120
115
110
105
100
95.0
1.00
800m
600m
400m
200m
0.00
-200m
-400m
-600m
-800m
-1.00
0.00
2.00u
4.00u
6.00u
8.00u
10.0u
12.0u
14.0u
16.0u
18.0u
20.0u
Input G
U (V)


Input G = 0,5V eff F = 1MHz
U(V)
Vg U1 ECC81 1/2
146
144
142
140
138
136
134
132
130
128
126
124
122
120
118
116
114
112
110
108
106
104
102
100
98.0
0.00
200n
400n
600n
800n
1.00u
1.20u
1.40u
1.60u
1.80u
2.00u
t (s)

Etude temporelle signaux rectangulaires

(avec charge Rc)

1 Hz – 10 Hz – 20 Hz – 100 Hz – 1000 Hz – 5000 Hz – 10 kHz – 20 kHz – 100 kHz – 500kHz – 1 MHz

Point de fonctionnement

Calculs

ECC81 1/2 préampli FS1.1g

Uak = +86,8V

Ugk = -1,447V

Ia = +1,447mA

(Input G = 0V)

Point de fonctionnement

Prospice 7.05.01 Build 790

ECC81 1/2 préampli FS1.1g

Uak = +114V

Ugk = -1,28V

Ia = +1,28 mA

(Input G = 0V)

Point de fonctionnement

Mesures:

ECC81 1/2 préampli FS1.1g

Uak = +

Ugk = -

Ia = +

(Input G = 0V)

Datasheet ECC81 (Philips 1969)

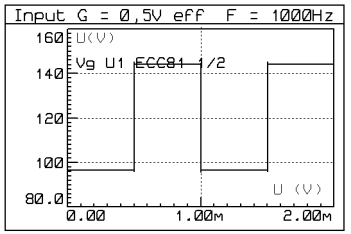
Wa = 2,5 W

-Vg max = 50V

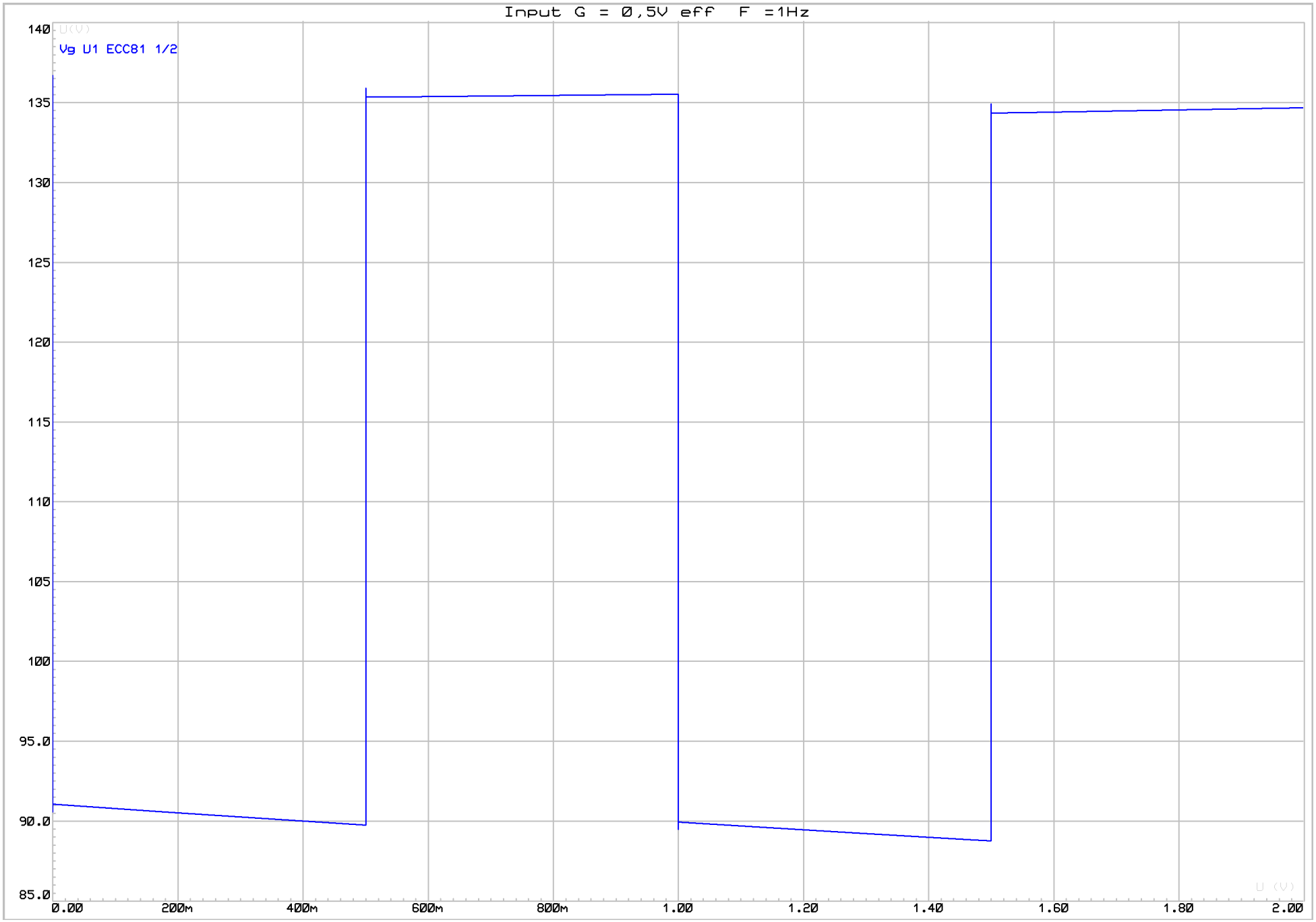
Va max 300V

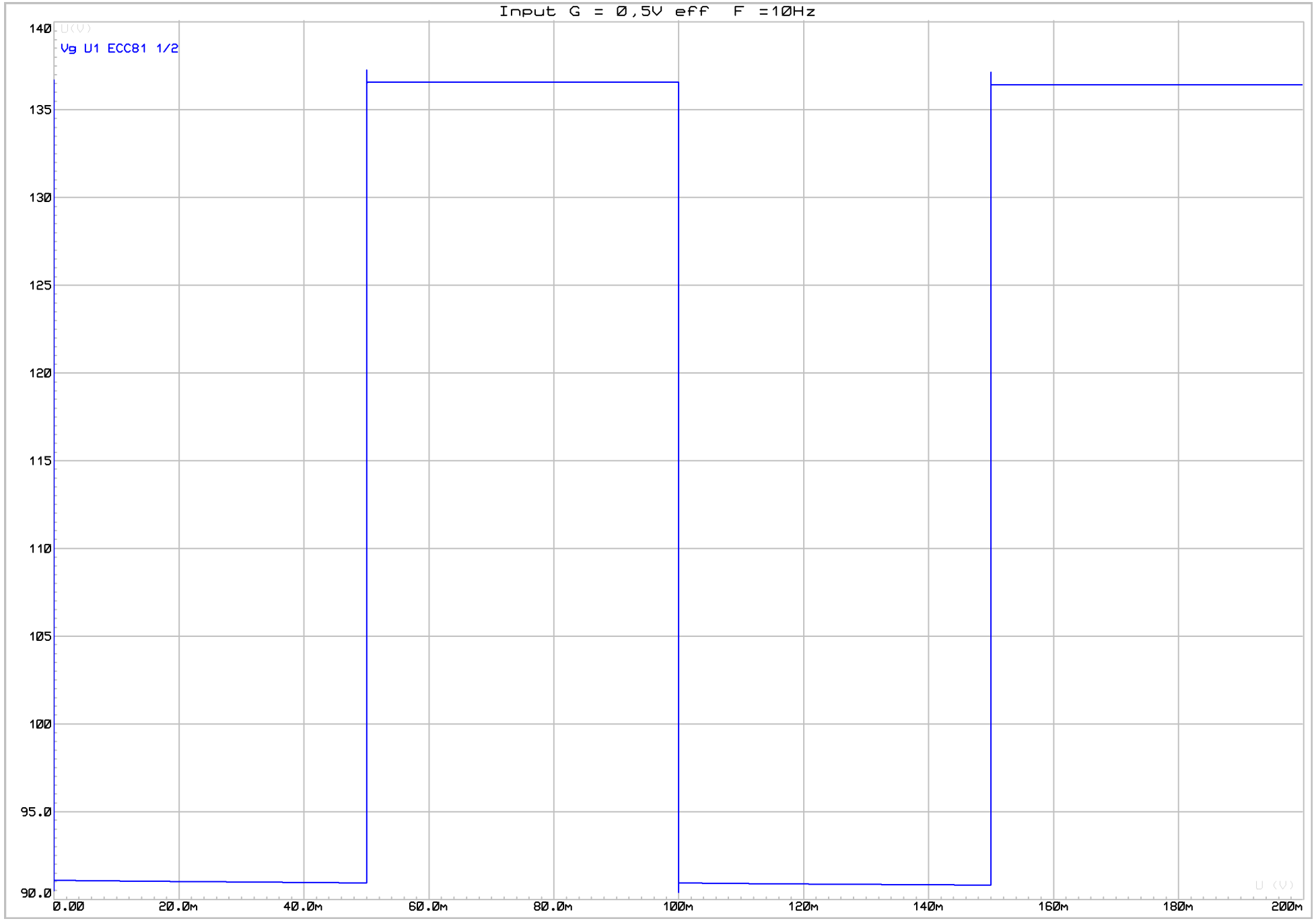
μ = 60

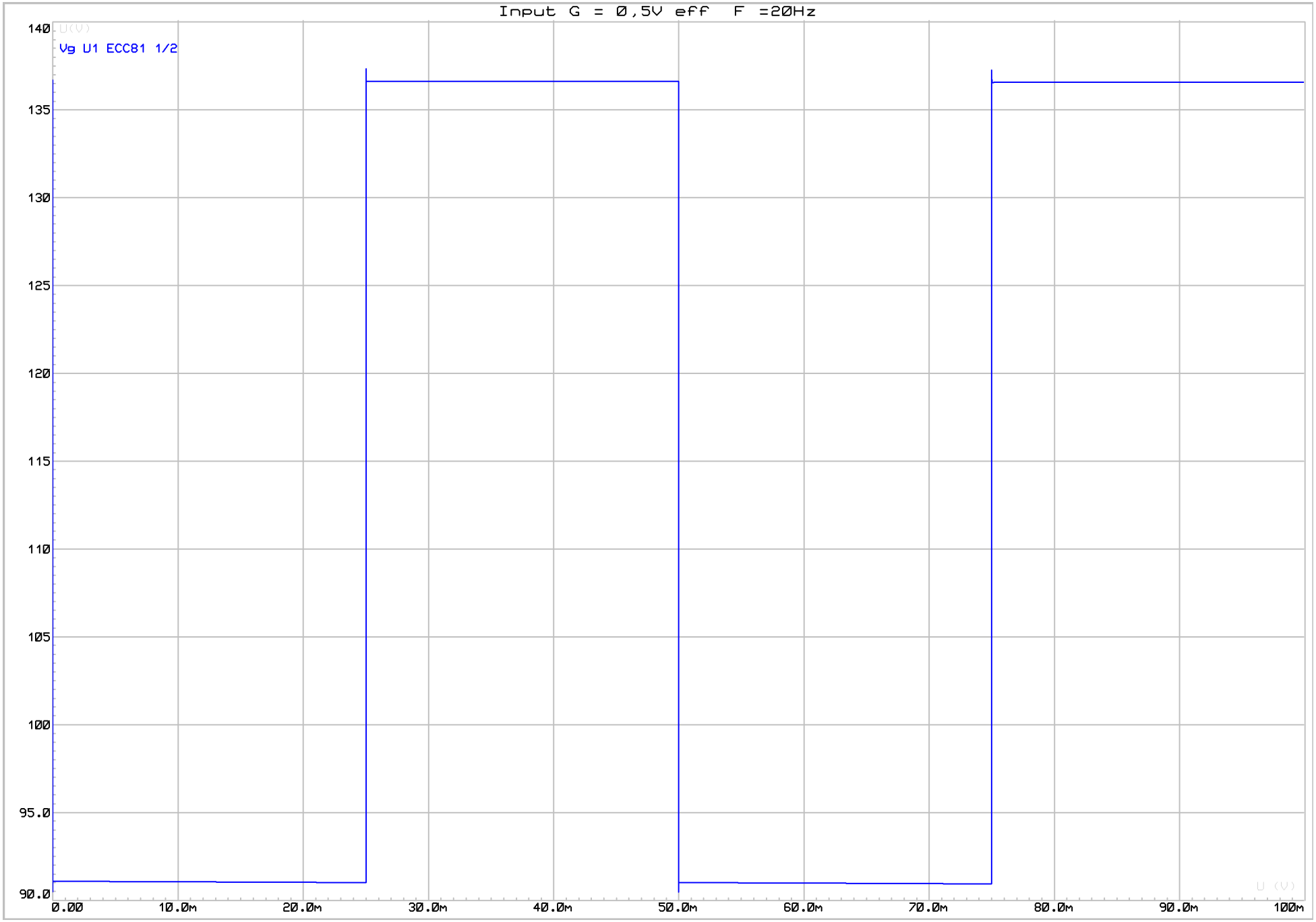
S= 5,5 mA / V

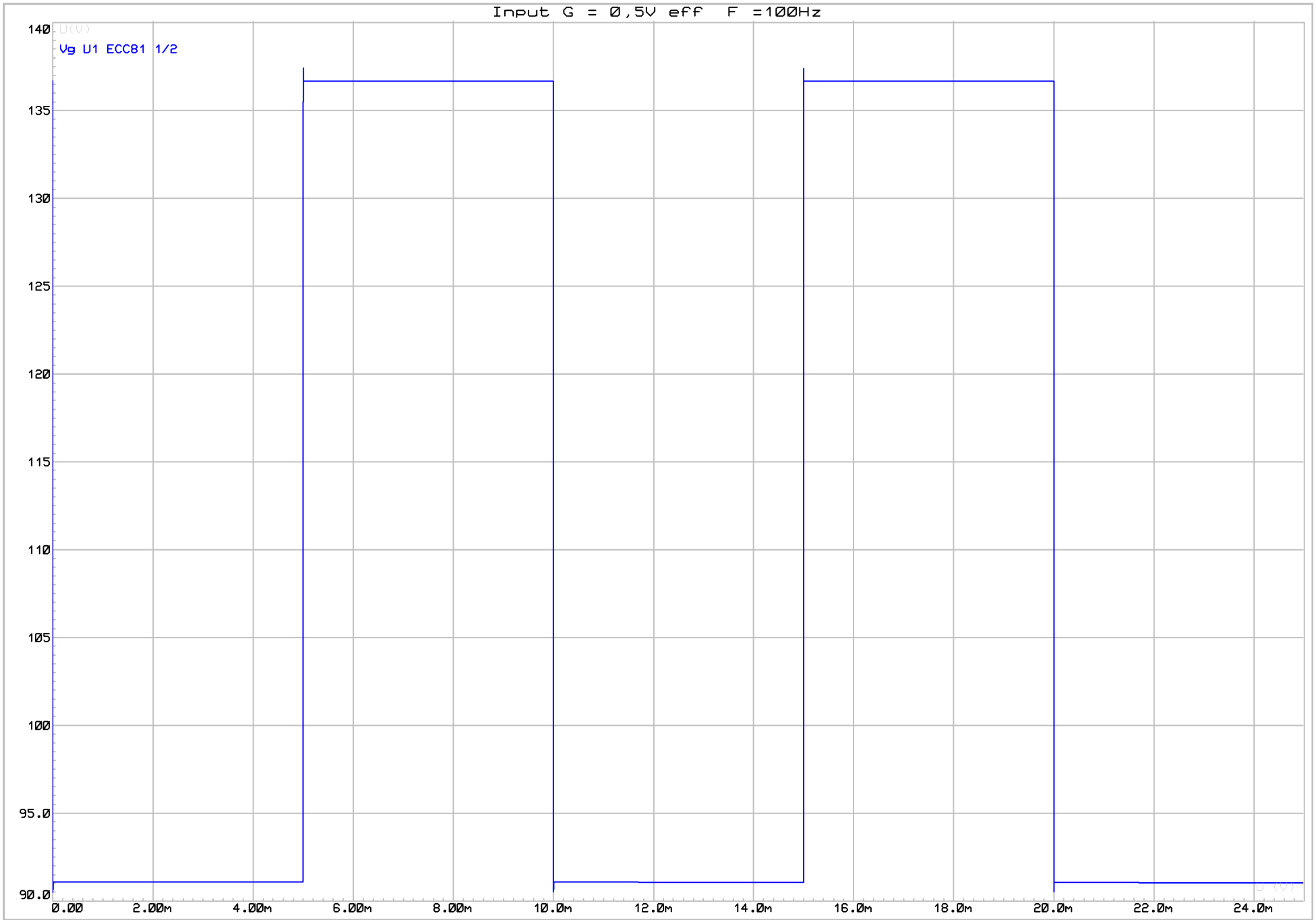


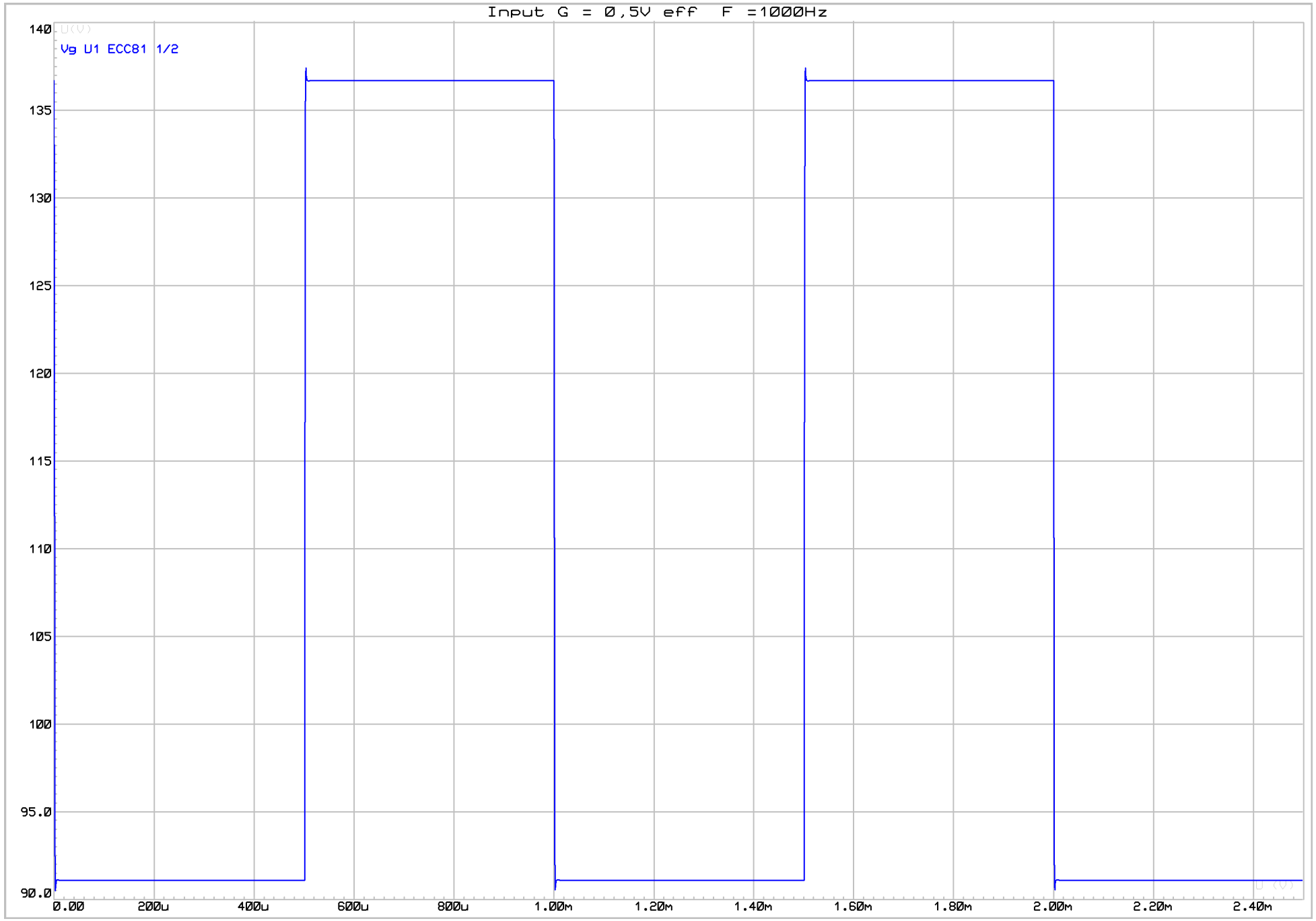
FILE NAME: Ampli Yves Cochet Etude de FP1 g - FS1.1 générateur rectangulaire avec charge		DATE: 11/12/2012
DESIGN TITLE: Ampli Yves COCHET ALP2a		PAGE: 1 of 1
PATH: FS1g_- 1 amplification		
BY: Didier VILLERS	REV: 1e	TIME: 22:22:21

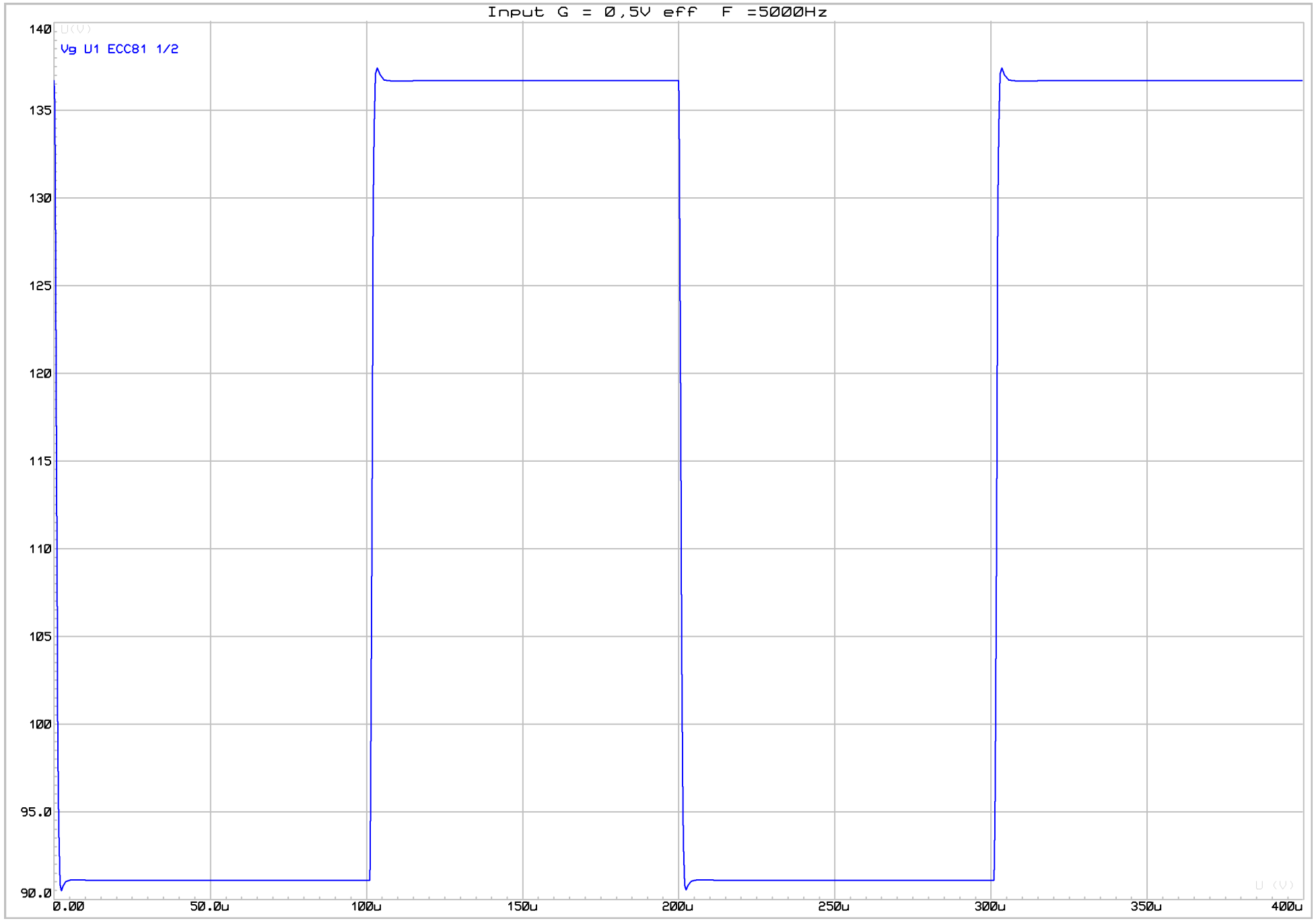

Input G = 0,5V eff F =1Hz
U(V)
Vg U1 ECC81 1/2
140
135
130
125
120
115
110
105
100
95.0
90.0
85.0
0.00
200m
400m
600m
800m
1.00
1.20
1.40
1.60
1.80
2.00
U (V)

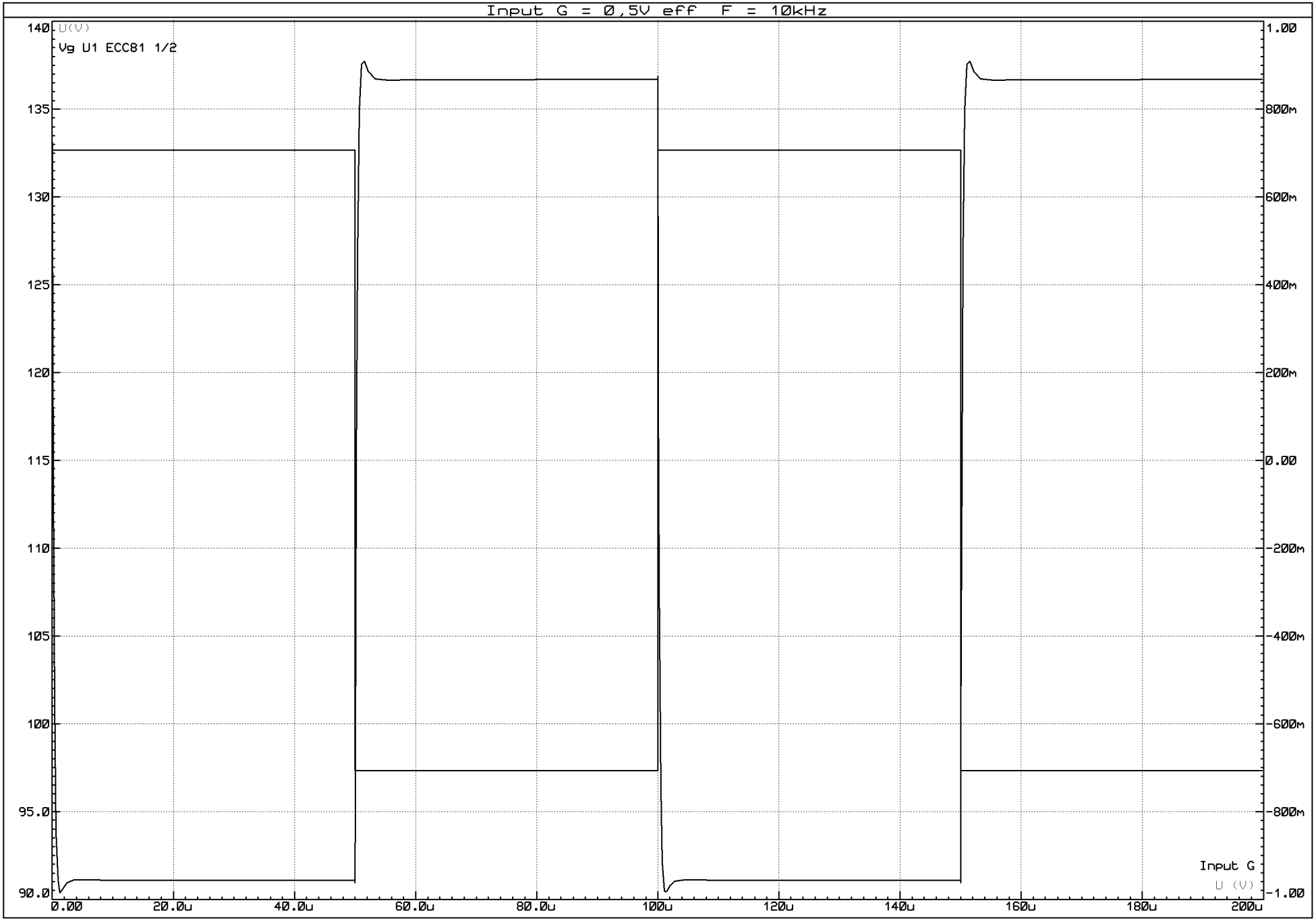

Input G = 0,5V eff F =10Hz
U(V)
Vg U1 ECC81 1/2
140
135
130
125
120
115
110
105
100
95.0
90.0
0.00
20.0m
40.0m
60.0m
80.0m
100m
120m
140m
160m
180m
200m
t (s)

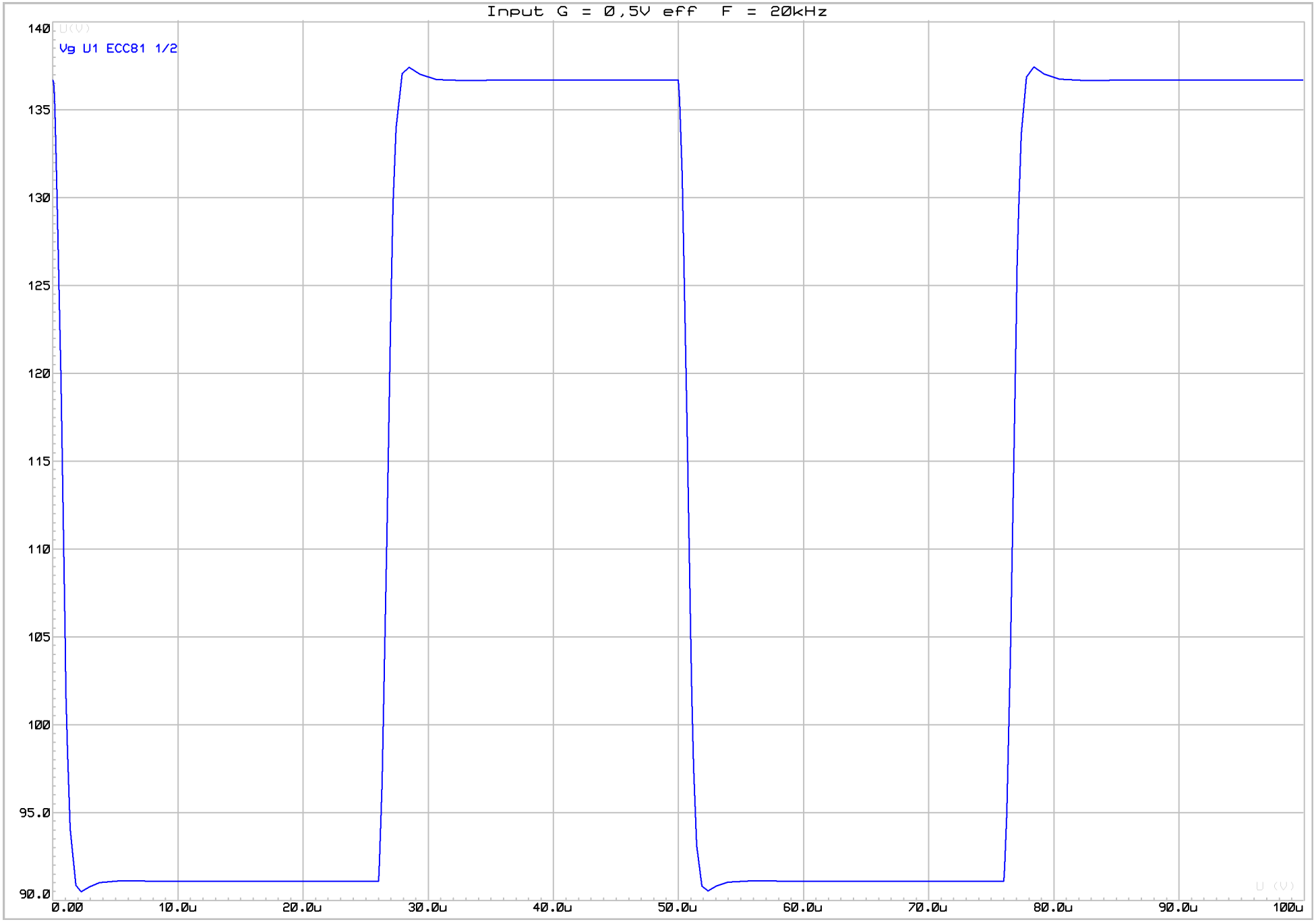

Input G = 0,5V eff F =20Hz
U(V)
Vg U1 ECC81 1/2
140
135
130
125
120
115
110
105
100
95.0
90.0
0.00
10.0m
20.0m
30.0m
40.0m
50.0m
60.0m
70.0m
80.0m
90.0m
100m
t (s)

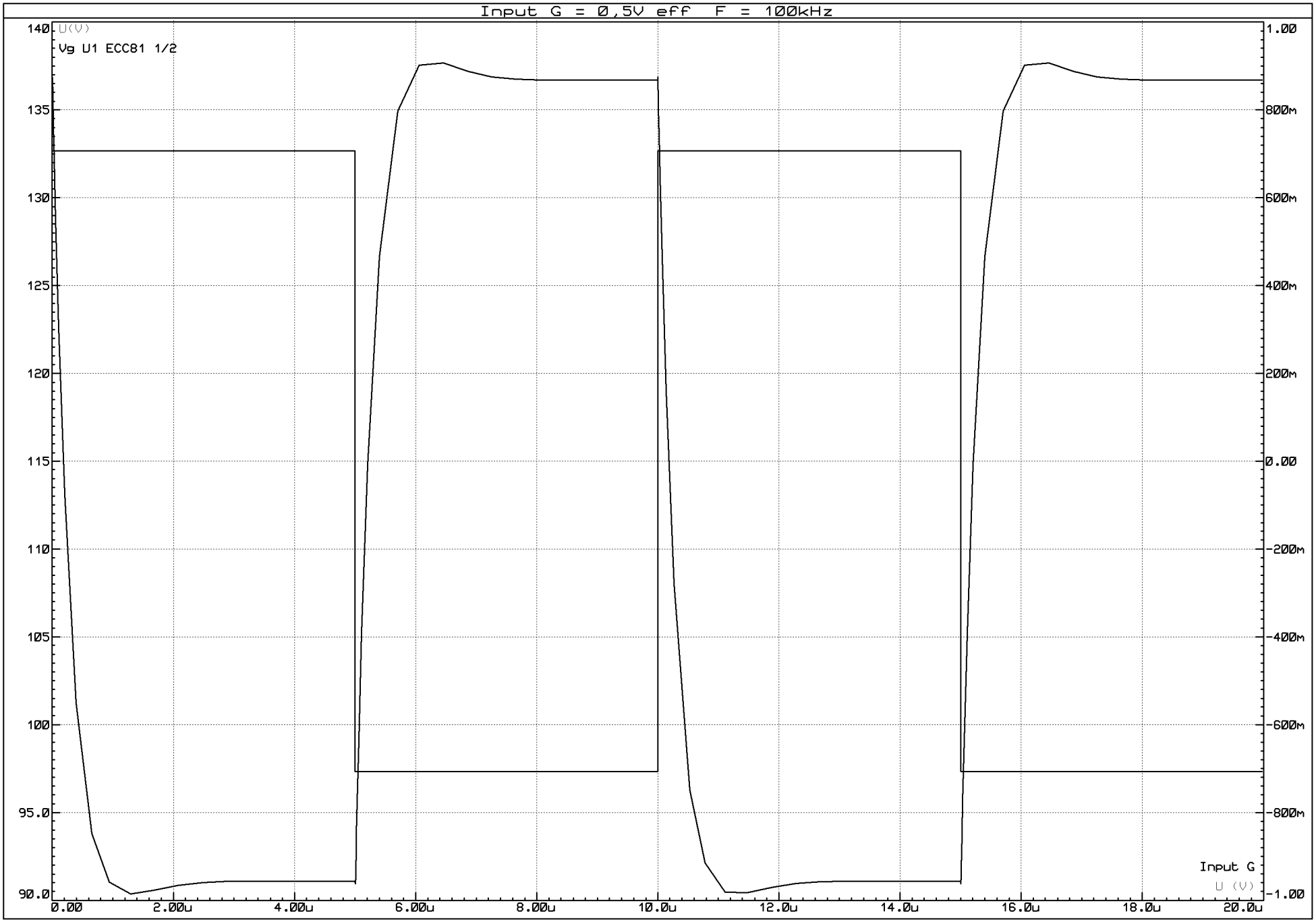

Input G = 0,5V eff F =100Hz
U(V)
Vg U1 ECC81 1/2
140
135
130
125
120
115
110
105
100
95.0
90.0
0.00
2.00m
4.00m
6.00m
8.00m
10.0m
12.0m
14.0m
16.0m
18.0m
20.0m
22.0m
24.0m
t (s)

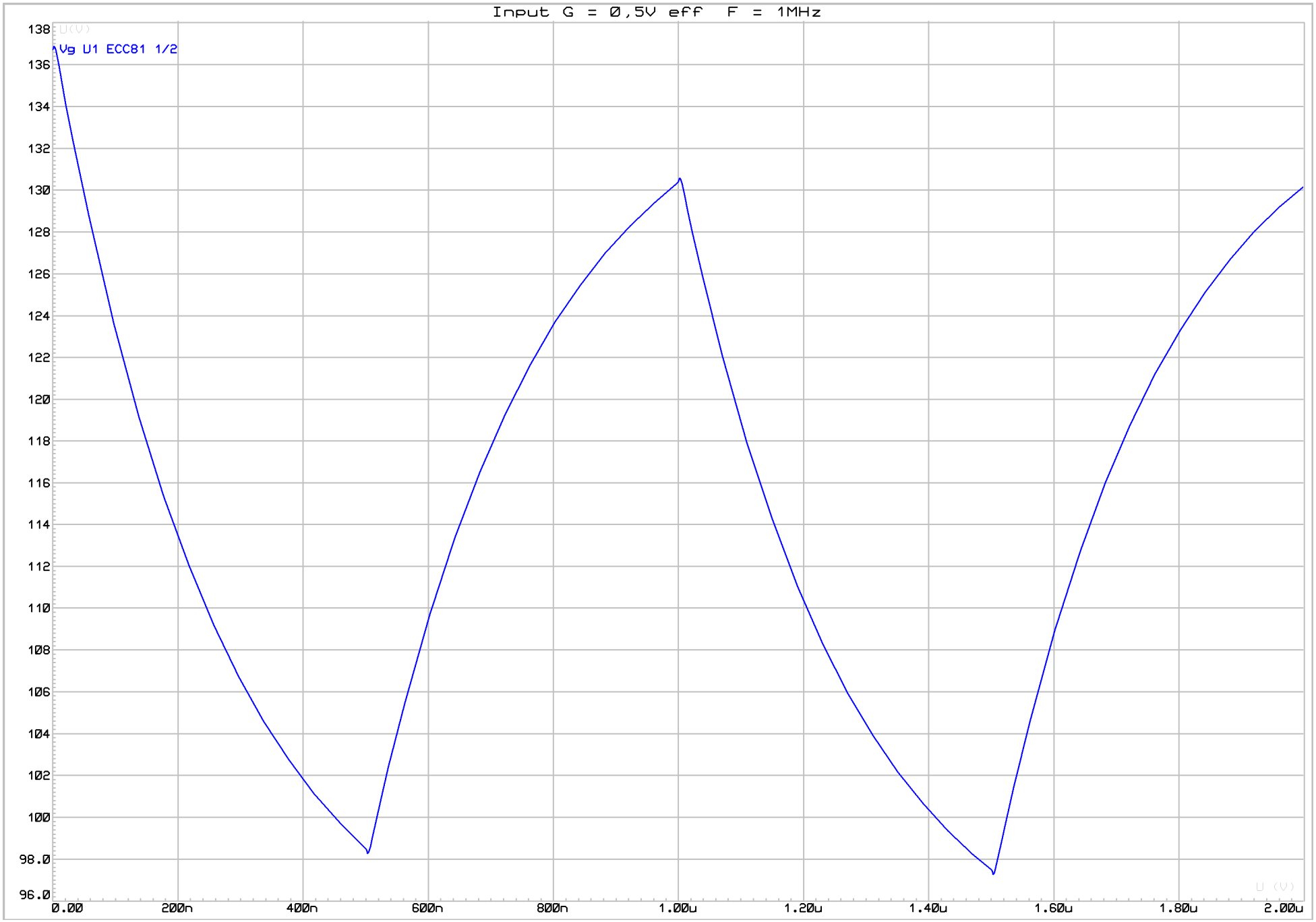

Input G = 0,5V eff F =1000Hz
U(V)
Vg U1 ECC81 1/2
140
135
130
125
120
115
110
105
100
95.0
90.0
0.00
200u
400u
600u
800u
1.00m
1.20m
1.40m
1.60m
1.80m
2.00m
2.20m
2.40m
t (s)


Input G = 0,5V eff F =5000Hz
U(V)
Vg U1 ECC81 1/2
140
135
130
125
120
115
110
105
100
95.0
90.0
0.00
50.0u
100u
150u
200u
250u
300u
350u
400u
U (V)


Input G = 0,5V eff F = 10kHz
U(V)
Vg U1 ECC81 1/2
140
135
130
125
120
115
110
105
100
95.0
90.0
1.00
800m
600m
400m
200m
0.00
-200m
-400m
-600m
-800m
-1.00
0.00
20.0u
40.0u
60.0u
80.0u
100u
120u
140u
160u
180u
200u
Input G
U (V)


Input G = 0,5V eff F = 20kHz
U(V)
Vg U1 ECC81 1/2
140
135
130
125
120
115
110
105
100
95.0
90.0
0.00
10.0u
20.0u
30.0u
40.0u
50.0u
60.0u
70.0u
80.0u
90.0u
100u
U (V)


Input G = 0,5V eff F = 100kHz
U(V)
Vg U1 ECC81 1/2
140
135
130
125
120
115
110
105
100
95.0
90.0
1.00
800m
600m
400m
200m
0.00
-200m
-400m
-600m
-800m
-1.00
0.00
2.00u
4.00u
6.00u
8.00u
10.0u
12.0u
14.0u
16.0u
18.0u
20.0u
Input G
U (V)


Input G = 0,5V eff F = 1MHz
U(V)
Vg U1 ECC81 1/2
138
136
134
132
130
128
126
124
122
120
118
116
114
112
110
108
106
104
102
100
98.0
96.0
0.00
200n
400n
600n
800n
1.00u
1.20u
1.40u
1.60u
1.80u
2.00u
U (V)