

ELFO RC

TRIODE – 6N30PI

CLASS A

TRUE SINGLE ENDED

HIGH LEVEL PREAMPLIFIER

MINIMALIST DESIGN

PRECISION DUAL MONO

VERNIER DIAL LEVEL

AGUSTIN SEIJAS LAB.

54 11 6073 5147

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ELFO RC

TECHNICAL DATA:

FREQUENCY RESPONSE: 10HZ TO 150 KHZ - 3dB

T.H.D.: 0.1 % MAX. (0 dBu REF.)

I.M.D.: 0.25 % MAX. (0 dBu REF.)

MAX. OUTPUT: 35 VOLTS (R.M.S. - THD: 0.5%)

GAIN: 10 dB (+/- 0.5 dB)

RISE TIME: 2 MICROSECONDS (10 KHZ REF.)

INPUT IMPEDANCE: 5,600 OHMS +/- 10% (1 KHZ REF.)

OUTPUT IMPEDANCE: 600 OHMS +/- 10% (1 KHZ REF.)

OUTPUT NOISE: 100 MICROVOLTS MAX. (R.M.S.)

ELECTRON TUBE: 2 X 6H30П-ДР (SELECTED)

OPERATIONAL LIFE: 10,000 HOURS

AGUSTIN SEIJAS LAB.

54 11 6073 5147 -

0 dBr=1.514 V

10.00dBr

Ap:

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AMPL A
0 dBr

A

-10.00dBr

20.000 Hz

LOG FREQUENCY

100.00kHz

SETTINGS(UN-WTD

<10 Hz - >300 kHz

GEN:SINE

500.0 mV)

GEN	FREQ	AMPL	A	GEN	FREQ	AMPL	A	GEN	FREQ	AMPL	A	Ap
20.00	Hz	-0.04	dBr	382.9	Hz	0.00	dBr	7.330	kHz	-0.02	dBr	
22.40	Hz	-0.03	dBr	428.9	Hz	0.00	dBr	8.212	kHz	-0.03	dBr	
25.09	Hz	-0.02	dBr	480.5	Hz	0.00	dBr	9.199	kHz	-0.04	dBr	
28.11	Hz	-0.02	dBr	538.2	Hz	0.00	dBr	10.305	kHz	-0.04	dBr	
31.49	Hz	-0.02	dBr	603.0	Hz	0.00	dBr	11.544	kHz	-0.05	dBr	
35.28	Hz	-0.01	dBr	675.5	Hz	0.00	dBr	12.933	kHz	-0.06	dBr	
39.52	Hz	-0.01	dBr	756.7	Hz	0.00	dBr	14.488	kHz	-0.07	dBr	
44.27	Hz	-0.01	dBr	847.7	Hz	0.00	dBr	16.230	kHz	-0.09	dBr	
49.60	Hz	-0.01	dBr	949.6	Hz	0.00	dBr	18.181	kHz	-0.11	dBr	
55.56	Hz	-0.01	dBr	1.063	kHz	0.00	dBr	20.367	kHz	-0.14	dBr	
62.24	Hz	0.00	dBr	1.191	kHz	0.00	dBr	22.816	kHz	-0.17	dBr	
69.73	Hz	0.00	dBr	1.335	kHz	0.00	dBr	25.559	kHz	-0.22	dBr	
78.11	Hz	0.00	dBr	1.495	kHz	0.00	dBr	28.633	kHz	-0.27	dBr	
87.51	Hz	0.00	dBr	1.675	kHz	0.00	dBr	32.076	kHz	-0.33	dBr	
98.03	Hz	0.00	dBr	1.876	kHz	0.00	dBr	35.932	kHz	-0.41	dBr	
109.8	Hz	0.00	dBr	2.102	kHz	0.00	dBr	40.253	kHz	-0.51	dBr	
123.0	Hz	0.00	dBr	2.355	kHz	0.00	dBr	45.093	kHz	-0.63	dBr	
137.8	Hz	0.00	dBr	2.638	kHz	0.00	dBr	50.515	kHz	-0.77	dBr	
154.3	Hz	0.00	dBr	2.955	kHz	0.00	dBr	56.588	kHz	-0.94	dBr	
172.9	Hz	0.00	dBr	3.311	kHz	0.00	dBr	63.392	kHz	-1.15	dBr	
193.7	Hz	0.00	dBr	3.709	kHz	0.00	dBr	71.015	kHz	-1.39	dBr	
217.0	Hz	0.00	dBr	4.155	kHz	0.00	dBr	79.553	kHz	-1.66	dBr	
243.1	Hz	0.00	dBr	4.654	kHz	-0.01	dBr	89.118	kHz	-1.99	dBr	
272.3	Hz	0.00	dBr	5.214	kHz	-0.01	dBr	100.00	kHz	-2.35	dBr	
305.1	Hz	0.00	dBr	5.841	kHz	-0.01	dBr					
341.8	Hz	0.00	dBr	6.543	kHz	-0.02	dBr					

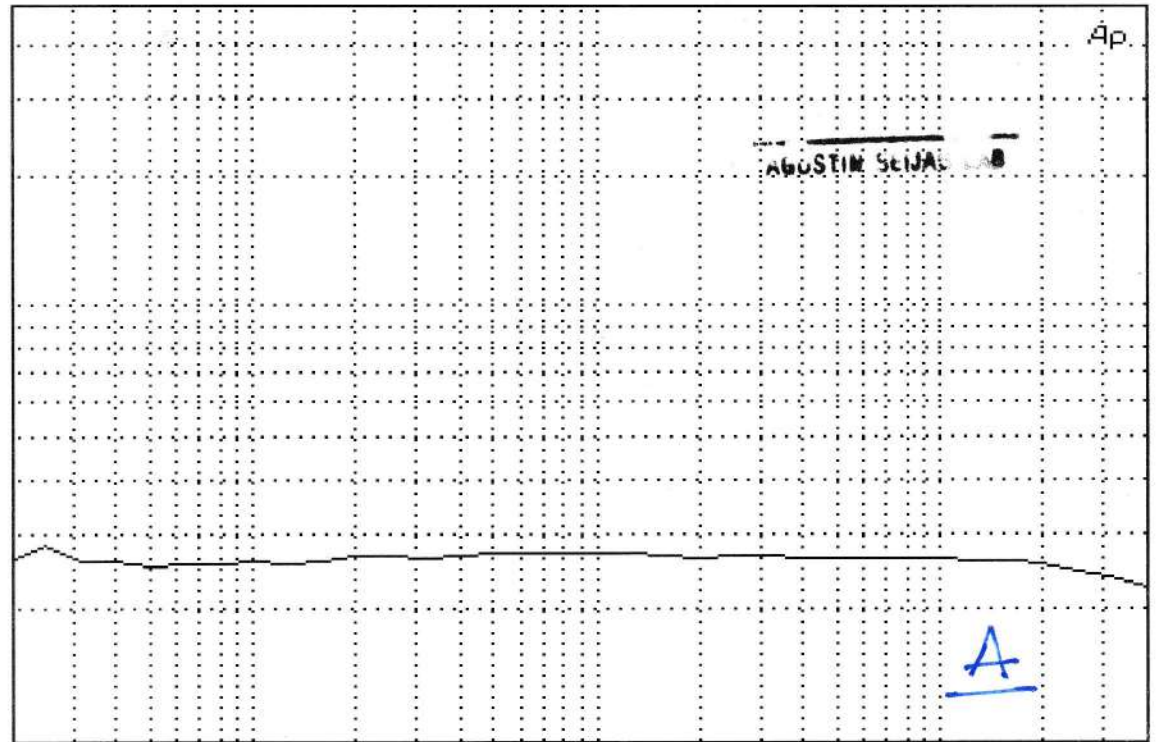
A

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0.500 %

LOG
THD+N A

0.0100%



20.000 Hz LOG FREQUENCY 40.000kHz
SETTINGS(AVERAGE <10 Hz - >300 kHz GEN:SINE 500.0 mV)

GEN	FREQ	THD+N	A	GEN	FREQ	THD+N	A	GEN	FREQ	THD+N	A	Ap
20.00	Hz	0.0262%		315.0	Hz	0.0265%		5.000	kHz	0.0263%		
25.00	Hz	0.0283%		400.0	Hz	0.0268%		6.300	kHz	0.0262%		
31.50	Hz	0.0261%		500.0	Hz	0.0272%		8.000	kHz	0.0262%		
40.00	Hz	0.0259%		630.0	Hz	0.0272%		10.000	kHz	0.0263%		
50.00	Hz	0.0254%		800.0	Hz	0.0269%		12.500	kHz	0.0260%		
63.00	Hz	0.0257%		1.000	kHz	0.0270%		16.000	kHz	0.0258%		
80.00	Hz	0.0255%		1.250	kHz	0.0269%		20.000	kHz	0.0254%		
100.0	Hz	0.0260%		1.600	kHz	0.0265%		25.000	kHz	0.0246%		
125.0	Hz	0.0257%		2.000	kHz	0.0263%		31.500	kHz	0.0238%		
160.0	Hz	0.0260%		2.500	kHz	0.0266%		40.000	kHz	0.0224%		
200.0	Hz	0.0266%		3.150	kHz	0.0265%						
250.0	Hz	0.0268%		4.000	kHz	0.0264%						

IMD A LEVEL A
0.0708% 1.246 V

GEN:IMD 500.0 mV 70Hz/8kHz

Ap

RATIO A/G
9.63 dB

FREQ GA
996.18 Hz

GEN:SINE 500.0 mV 1.000 kHz

Ap

NOISE A
57.45 uV

UN-WTD 22 Hz - 22 kHz
GEN:SINE 500.0 mV 1.000 kHz

Ap

NOISE A
19.84 uV

UN-WTD 400 Hz - 22 kHz
GEN:SINE 500.0 mV 1.000 kHz

Ap

NOISE A
46.43 uV

UN-WTD 400 Hz - 30 kHz
GEN:SINE 500.0 mV 1.000 kHz

Ap

NOISE A
112.9 uV

UN-WTD 400 Hz - 80 kHz
GEN:SINE 500.0 mV 1.000 kHz

Ap

NOISE A
185.0 uV

UN-WTD 400 Hz - >300 kHz
GEN:SINE 500.0 mV 1.000 kHz

Ap

LOAD A
18200 OHM
192. OHM

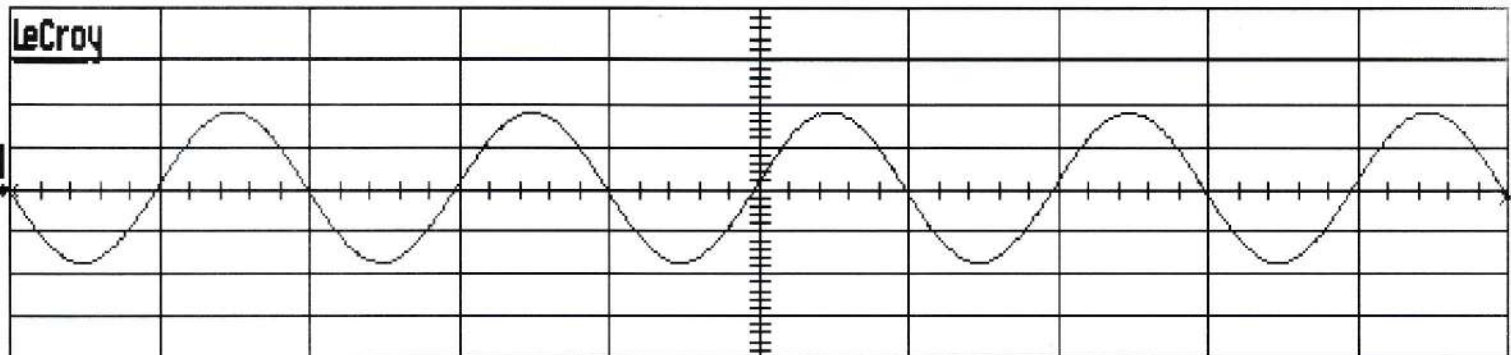
FREQ A
996.18 Hz
996.18 Hz

GEN:SINE 200.0 mV 1.000 kHz
GEN:SINE 200.0 mV 1.000 kHz

Ap

~~ABUSTIN SEJAS LAB~~

A

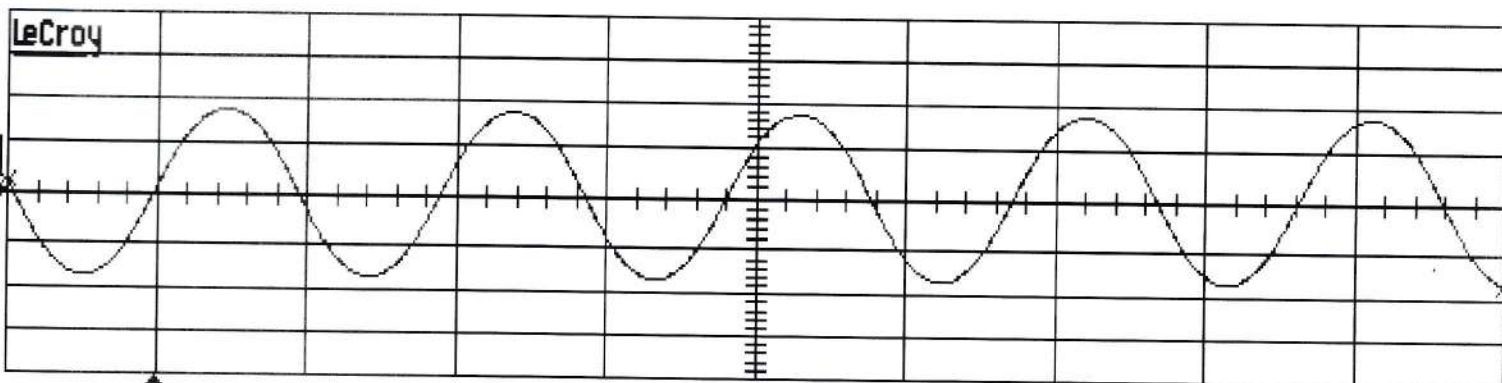


1 1 μ s 1.00 V

pkpk(1)	3.56 V	Freq(1)	501.254 kHz
sdev(1)	1.240 V	period(1)	1.9950 μ s
rms(1)	1.240 V	width(1)	986.9 ns
cmean(1)	6mV	rise(1)	584.6 ns
csdev(1)	1.241 V	Fall(1)	574.4 ns
crms(1)	1.241 V	r20-80%(1)	410.5 ns
top(1)	1.75 V	F80-20%(1)	398.3 ns
base(1)	-1.71 V	over+(1)	1.29 %
ampl(1)	3.46 V	over-(1)	1.67 %
mean(1)	6mV	xamn(1)	-513.01 ns
minimum(1)	-1.77 V	xamx(1)	491.01 ns
maximum(1)	1.79 V	delay(1)	-3.2 ns
area(1)	58.437 nVs	cycles(1)	4

AGUSTIN SEIJAS

□ AUTO

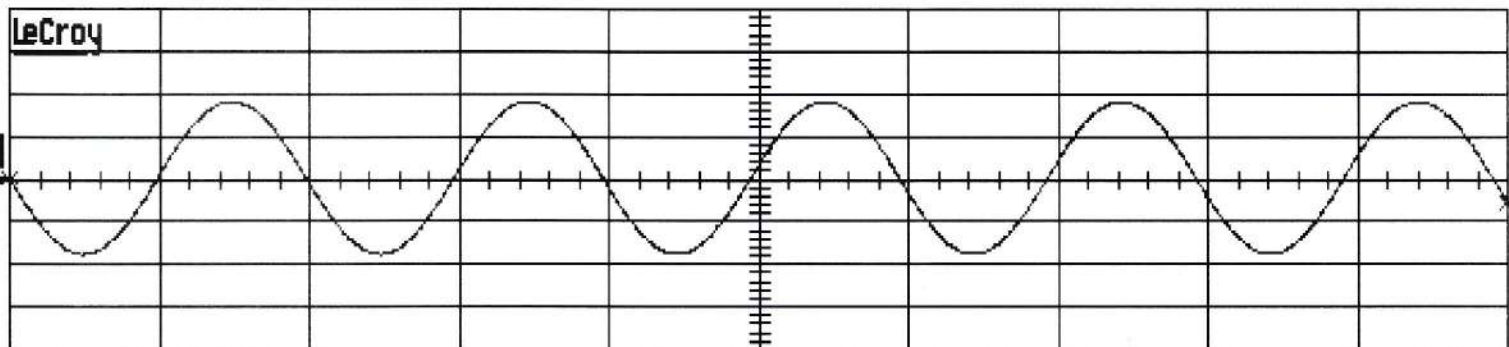


5 μ s 1.00 V

pkpk(1)	3.47 V	Freq(1)	104.646 kHz
sdev(1)	1.196 V	period(1)	9.5560 μ s
rms(1)	1.196 V	width(1)	4.7660 μ s
cmean(1) $\int$	-7mV	rise(1)	2.6863 μ s
csdev(1) $\int$	1.202 V	Fall(1)	2.6775 μ s
crms(1) $\int$	1.202 V	r20-80%(1)	1.9012 μ s
top(1)	1.65 V	F80-20%(1)	1.8839 μ s
base(1)	-1.68 V	over+(1)	2.29 %
ampl(1)	3.33 V	over-(1)	1.73 %
mean(1)	-46mV	xamn(1)	-2.40715 μ s
minimum(1)	-1.74 V	xamx(1)	2.34774 μ s
maximum(1)	1.73 V	delay(1)	-34.2 ns
area(1)	-2.31956 μ Vs	cycles(1)	4

AGUSTIN SEIJAS LAB

☐ AUTO



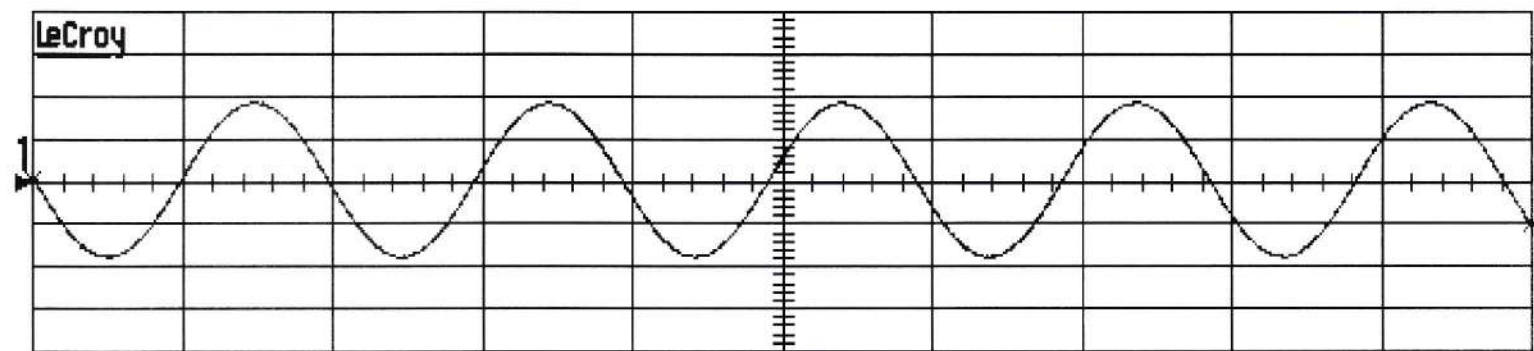
50 μ s 1.00 V

pkpk(1)	3.63 V	Freq(1)	10.0997 kHz
sdev(1)	1.253 V	period(1)	99.0125 μ s
rms(1)	1.254 V	width(1)	49.4016 μ s
cmean(1)	-7mV	rise(1)	28.0899 μ s
csdev(1)	1.259 V	Fall(1)	28.0782 μ s
crms(1)	1.259 V	r20-80%(1)	19.6159 μ s
top(1)	1.75 V	F80-20%(1)	19.6552 μ s
base(1)	-1.76 V	over+(1)	1.30 %
ampl(1)	3.50 V	over-(1)	2.13 %
mean(1)	-9mV	xamn(1)	-24.9132 μ s
minimum(1)	-1.83 V	xamx(1)	24.3972 μ s
maximum(1)	1.79 V	delay(1)	-215.0 ns
area(1)	-4.61266 μ Vs	cycles(1)	4

AGUSTIN SANCHEZ

AUTO

LeCroy

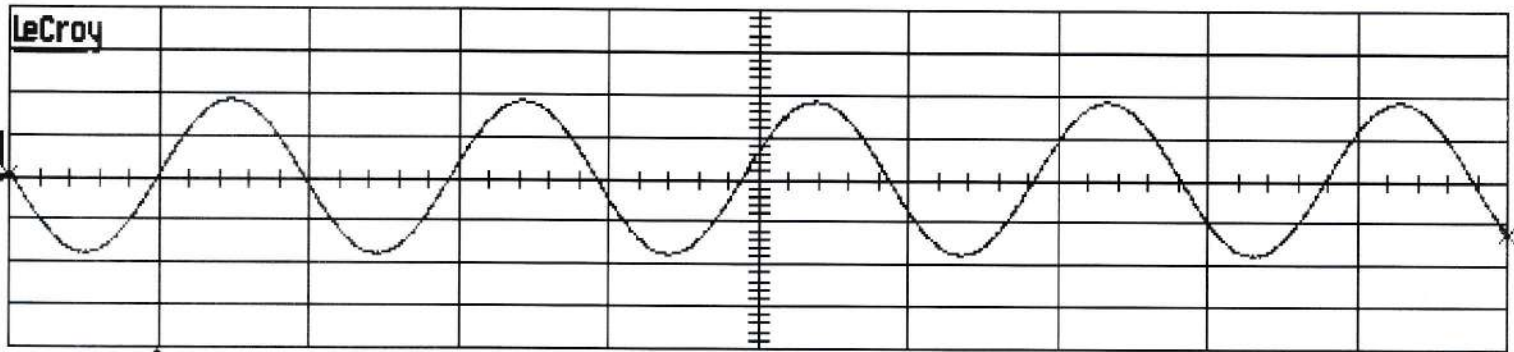


1 .5 ms 1.00 V

pkpk(1)	3.66 V	Freq(1)	1.02032 kHz
sdev(1)	1.258 V	period(1)	980.087 μs
rms(1)	1.258 V	width(1)	489.502 μs
cmean(1)	~ -4mV	rise(1)	275.089 μs
csdev(1)	~ 1.269 V	Fall(1)	275.715 μs
crms(1)	~ 1.269 V	r20-80%(1)	192.018 μs
top(1)	1.76 V	F80-20%(1)	192.712 μs
base(1)	-1.77 V	over+(1)	1.70 %
ampl(1)	3.53 V	over-(1)	1.77 %
mean(1)	-13mV	xamn(1)	-248.111 μs
minimum(1)	-1.83 V	xamx(1)	244.091 μs
maximum(1)	1.82 V	delay(1)	-2.307 μs
area(1)	-63.9266 μVs	cycles(1)	4

AGUSTIN SRIJAY

□ AUTO

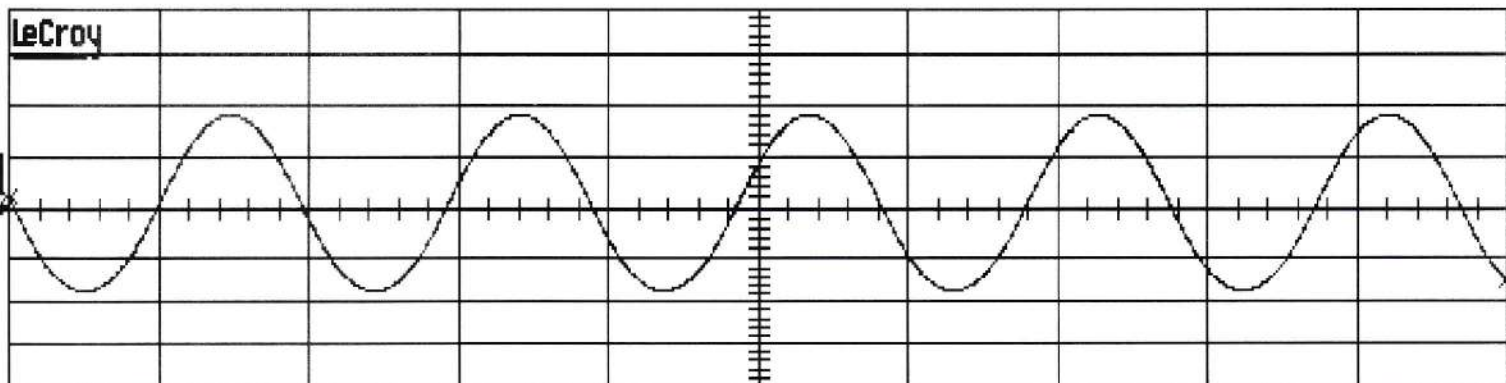


5 ms 1.00 V

pkpk(1)	3.66 V	Freq(1)	102.60 Hz
sdev(1)	1.256 V	period(1)	9.7463 ms
rms(1)	1.256 V	width(1)	4.87277 ms
cmean(1)	-5mV	rise(1)	2.78680 ms
csdev(1)	1.268 V	Fall(1)	2.78251 ms
crms(1)	1.268 V	r20-80%(1)	1.92123 ms
top(1)	1.76 V	F80-20%(1)	1.90885 ms
base(1)	-1.78 V	over+(1)	1.77 %
ampl(1)	3.54 V	over-(1)	1.43 %
mean(1)	-19mV	xamn(1)	-2.43349 ms
minimum(1)	-1.83 V	xamx(1)	2.42614 ms
maximum(1)	1.82 V	delay(1)	-1.42 μ s
area(1)	-967.547 μ Vs	cycles(1)	4

AGUSTIN SEIJAN LAB

☐ AUTO

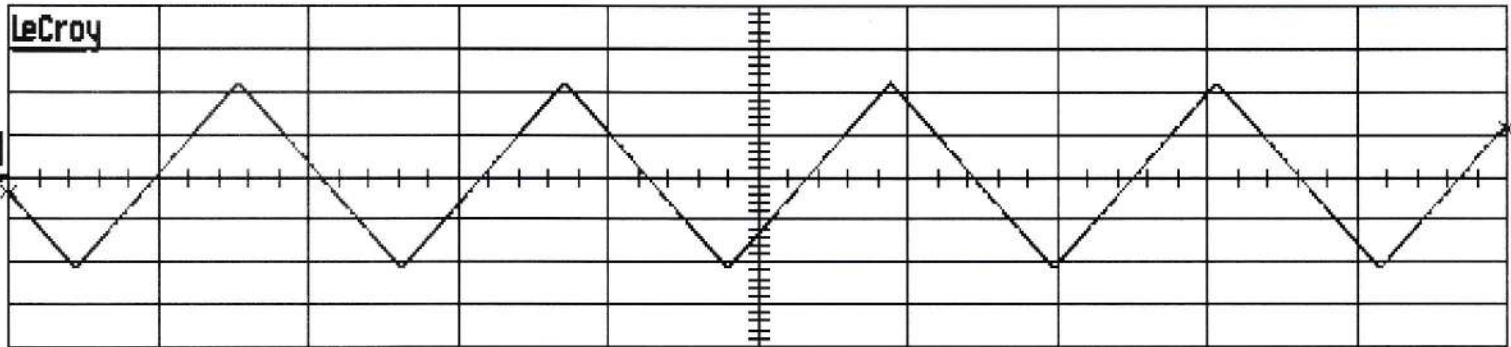


50 ms 1.00 V

pkpk(1)	3.59 V	Freq(1)	10.35 Hz
sdev(1)	1.238 V	period(1)	96.6173 ms
rms(1)	1.238 V	width(1)	48.2534 ms
cmean(1)	-3mV	rise(1)	27.1331 ms
csdev(1)	1.249 V	Fall(1)	27.0925 ms
crms(1)	1.249 V	r20-80%(1)	18.9880 ms
top(1)	1.75 V	F80-20%(1)	19.0727 ms
base(1)	-1.74 V	over+(1)	1.38 %
ampl(1)	3.48 V	over-(1)	1.77 %
mean(1)	-27mV	xamn(1)	-24.2074 ms
minimum(1)	-1.80 V	xamx(1)	24.0084 ms
maximum(1)	1.79 V	delay(1)	-103.1 μ s
area(1)	-13.4977 mVs	cycles(1)	4

AGUSTIN BENJAN 8

AUTO

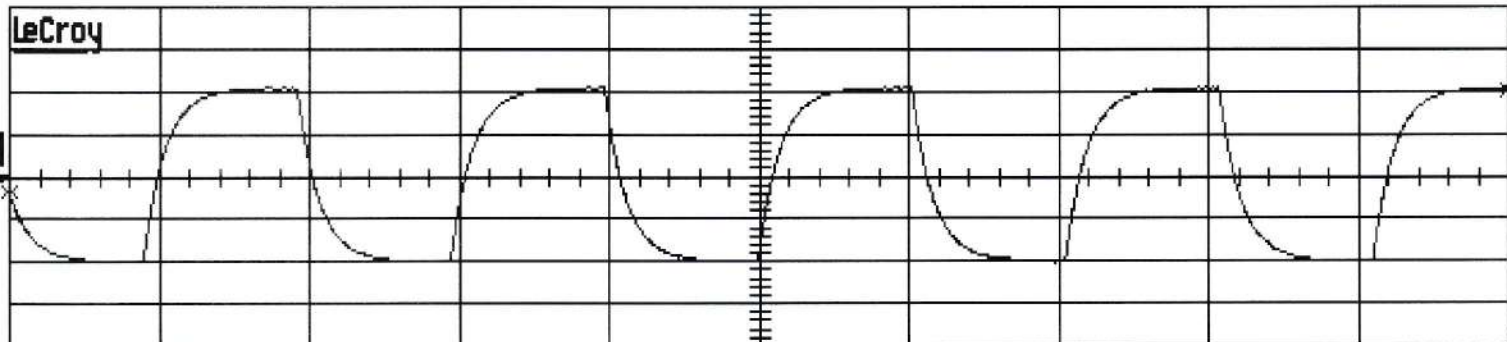


1 .5 ms 1.00 V

pkpk(1)	4.38 V	Freq(1)	918.97 Hz
sdev(1)	1.237 V	period(1)	1.08818 ms
rms(1)	1.242 V	width(1)	542.681 μ s
cmean(1)	-5mV	rise(1)	431.863 μ s
csdev(1)	1.249 V	Fall(1)	430.400 μ s
crms(1)	1.249 V	r20-80%(1)	320.713 μ s
top(1)	2.20 V	F80-20%(1)	320.838 μ s
base(1)	-2.18 V	over+(1)	0.00 %
ampl(1)	4.38 V	over-(1)	0.00 %
mean(1)	-103mV	xamn(1)	-274.156 μ s
minimum(1)	-2.18 V	xamx(1)	270.473 μ s
maximum(1)	2.20 V	delay(1)	-2.301 μ s
area(1)	-516.984 μ Vs	cycles(1)	4

AGUSTIN SAJAN - 8

☐ AUTO

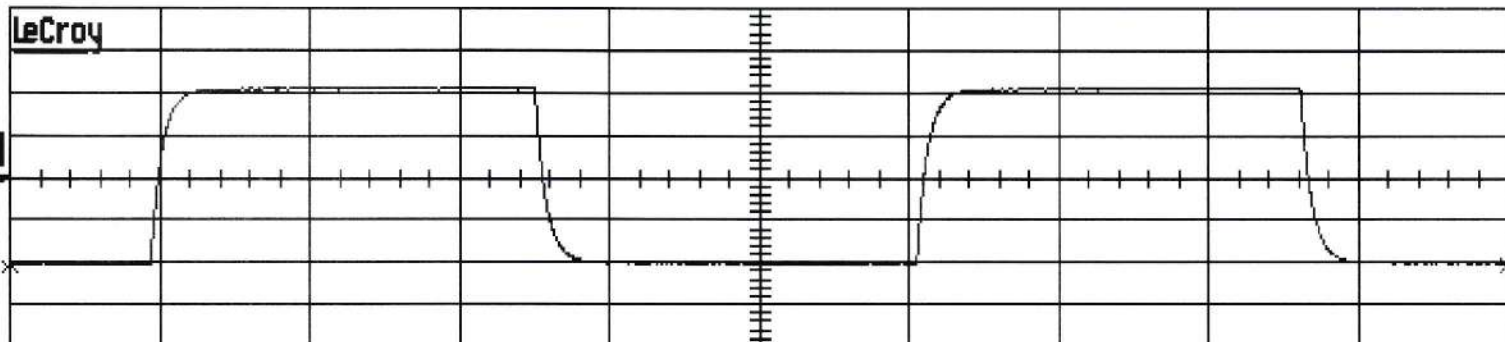


10 μs 1.00 V

pkpk(1)	4.16 V	Freq(1)	48.7681 kHz
sdev(1)	1.732 V	period(1)	20.5052 μs
rms(1)	1.733 V	width(1)	10.2332 μs
cmean(1)	11mV	rise(1)	2.9717 μs
csdev(1)	1.730 V	Fall(1)	2.9583 μs
crms(1)	1.730 V	r20-80%(1)	1.8798 μs
top(1)	2.03 V	F80-20%(1)	1.8857 μs
base(1)	-1.99 V	over+(1)	1.06 %
ampl(1)	4.03 V	over-(1)	2.16 %
mean(1)	-23mV	xamn(1)	-3.64789 μs
minimum(1)	-2.08 V	xamx(1)	6.47993 μs
maximum(1)	2.07 V	delay(1)	-6.3 ns
area(1)	-2.33794 μVs	cycles(1)	4

AGUSTIN SANJAY LAB

AUTO

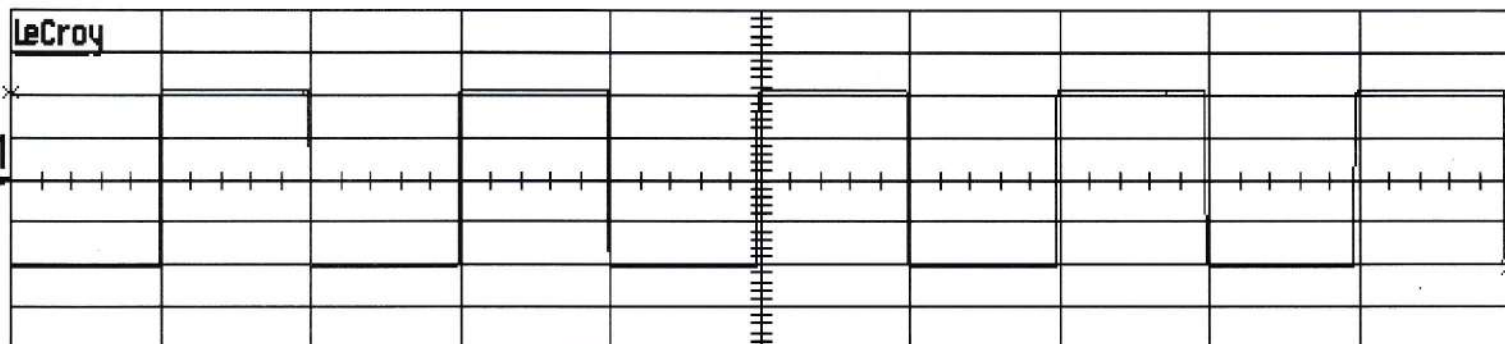


20 μs 1.00 V

pkpk(1)	4.22 V	Freq(1)	9.7828 kHz
sdev(1)	1.978 V	period(1)	102.220 μs
rms(1)	1.979 V	width(1)	51.2690 μs
cmean(1)	11mV	rise(1)	3.0548 μs
csdev(1)	1.980 V	Fall(1)	3.0348 μs
crms(1)	1.980 V	r20-80%(1)	1.9056 μs
top(1)	2.04 V	F80-20%(1)	1.9356 μs
base(1)	-2.03 V	over+(1)	1.53 %
ampl(1)	4.08 V	over-(1)	1.93 %
mean(1)	56mV	xamn(1)	63.4493 μs
minimum(1)	-2.11 V	xamx(1)	42.0035 μs
maximum(1)	2.11 V	delay(1)	-22.8 ns
area(1)	11.2193 μVs	cycles(1)	1

AGUSTIN SUJAN - 8

AUTO

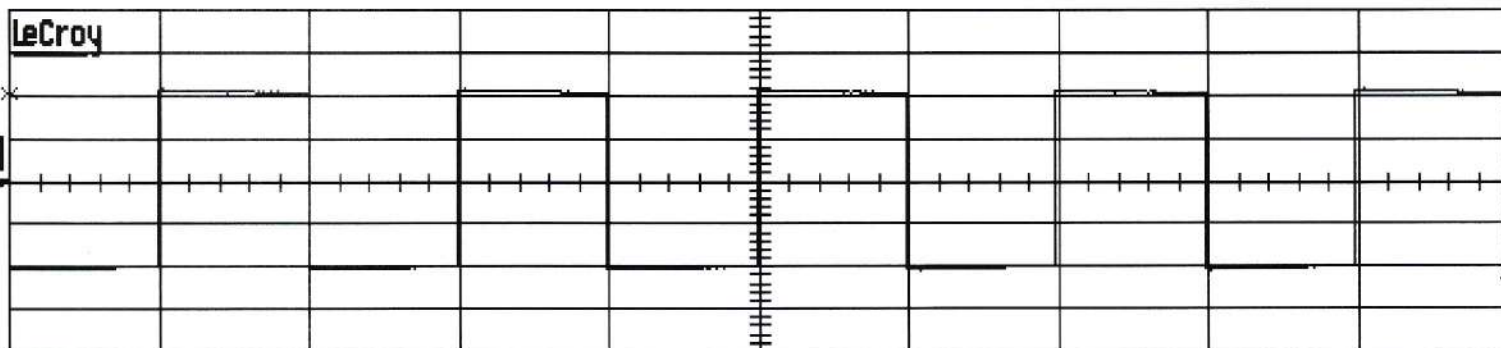


1 .5 ms 1.00 V

pkpk(1)	4.22 V	Freq(1)	1.00307 kHz
sdev(1)	2.043 V	period(1)	996.942 μ s
rms(1)	2.043 V	width(1)	496.567 μ s
cmean(1)	4mV	rise(1)	3.127 μ s
csdev(1)	2.044 V	Fall(1)	3.082 μ s
crms(1)	2.044 V	r20-80%(1)	1.948 μ s
top(1)	2.04 V	F80-20%(1)	1.958 μ s
base(1)	-2.05 V	over+(1)	1.52 %
ampl(1)	4.09 V	over-(1)	1.52 %
mean(1)	1mV	xamn(1)	-441.509 μ s
minimum(1)	-2.11 V	xamx(1)	190.830 μ s
maximum(1)	2.11 V	delay(1)	-496.610 μ s
area(1)	6.50781 μ Vs	cycles(1)	5

AUGUSTIN BENJAMIN

AUTO

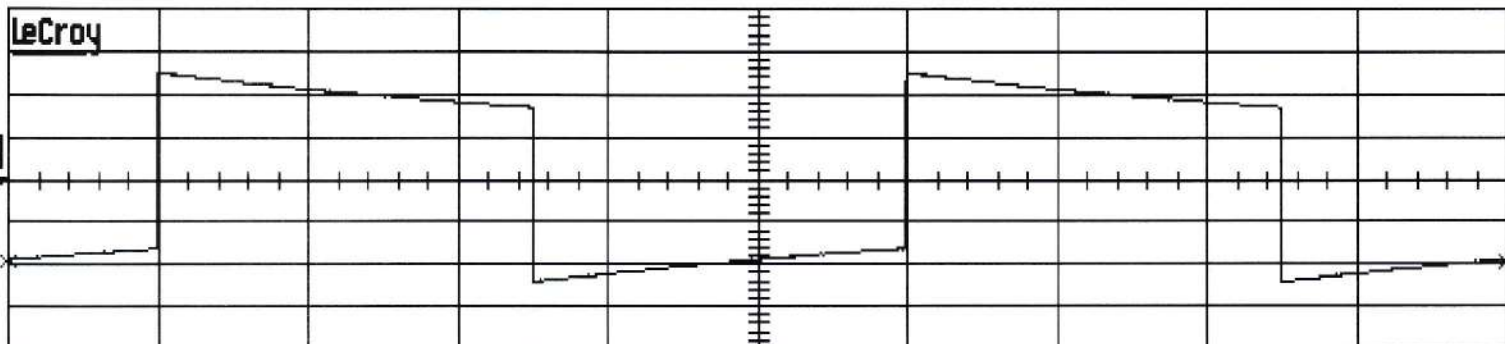


5 ms 1.00 V

pkpk(1)	4.28 V	Freq(1)	100.19 Hz
sdev(1)	2.048 V	period(1)	9.9809 ms
rms(1)	2.048 V	width(1)	4.97005 ms
cmean(1)	8mV	rise(1)	3.13 μ s
csdev(1)	2.048 V	Fall(1)	3.07 μ s
crms(1)	2.048 V	r20-80%(1)	1.94 μ s
top(1)	2.04 V	F80-20%(1)	1.92 μ s
base(1)	-2.05 V	over+(1)	2.29 %
ampl(1)	4.09 V	over-(1)	2.36 %
mean(1)	7mV	xamn(1)	-4.95754 ms
minimum(1)	-2.14 V	xamx(1)	140.252 μ s
maximum(1)	2.14 V	delay(1)	-4.97002 ms
area(1)	326.141 μ Vs	cycles(1)	5

AUGUSTIN SERJAN B

AUTO



20 ms 1.00 V

pkpk(1)	4.97 V	Freq(1)	10.00 Hz
sdev(1)	2.021 V	period(1)	99.992 ms
rms(1)	2.021 V	width(1)	50.2056 ms
cmean(1) 	10mV	rise(1)	3.3 μ s
csdev(1) 	2.021 V	Fall(1)	3.4 μ s
crms(1) 	2.021 V	r20-80%(1)	2.3 μ s
top(1)	2.00 V	F80-20%(1)	1.7 μ s
base(1)	-2.01 V	over+(1)	12.87 %
ampl(1)	4.01 V	over-(1)	11.09 %
mean(1)	10mV	xamn(1)	50.2256 ms
minimum(1)	-2.46 V	xamx(1)	231.54 μ s
maximum(1)	2.51 V	delay(1)	0.0 μ s
area(1)	2.03994 mVs	cycles(1)	1

AGUSTIN SANCIA B

☐ AUTO

ELFO HIGH LEVEL PREAMPLIFIER

NUMBER:8 (Re).....

ELECTRON TUBE DATA (6H30П-ДР) SELECTED & MATCHED

ANODE:133 / 136 V.....

BIAS:18 / 18 mA.....

GAIN:17 / 17.....

MIC:100 / 96.....

NOISE :13 / 19 μ V.....

MEASUREMENT INSTRUMENTS: B & K MODEL 747 ELECTRON TUBE TESTER

FLUKE 123 DIGITAL OSCILLOSCOPE & MULTIMETER

STANFORD RESEARCH SR770 FFT SPECTRUM ANALYZER

AGUSTIN SEIJAS LAB.

seijas.asl@gmail.com

GUARANTEE:

THIS EQUIPMENT IS GUARANTEED AGAINST ANY DEFECT
IN MATERIAL OR WORKMANSHIP FOR A PERIOD OF FIVE
(5) YEARS FROM DATE OF PURCHASE.

ELECTRON TUBES: 90 DAYS OF GUARANTEE.

SPARE PARTS AVAILABILITY: TEN (10) YEARS.

NUMBER: #8 (EGFORC)

DATE: 06/26



AGUSTINSEIJASLAB B

Agustinseijaslab.