

RADIATION TEST REPORT

PRODUCT: OP470R000C

MASK:

FILE:

DATE CODE:

GAMMA: 0,100K

GAMMA SOURCE: Co60

DOSE RATE: 38.86 rad/sec

FACILITIES: National Semiconductor
Santa Clara, Ca.

TESTED: 31-Jan-05

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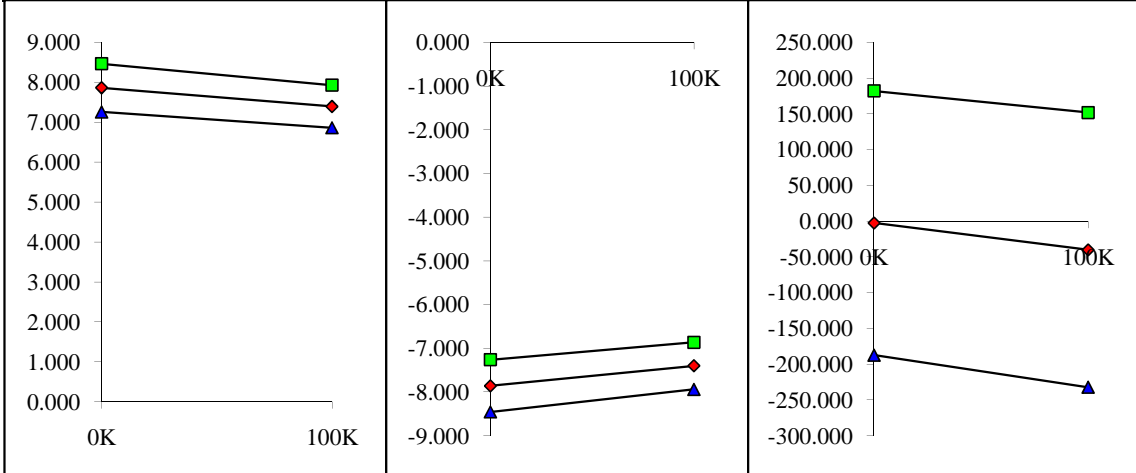
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WARNING:

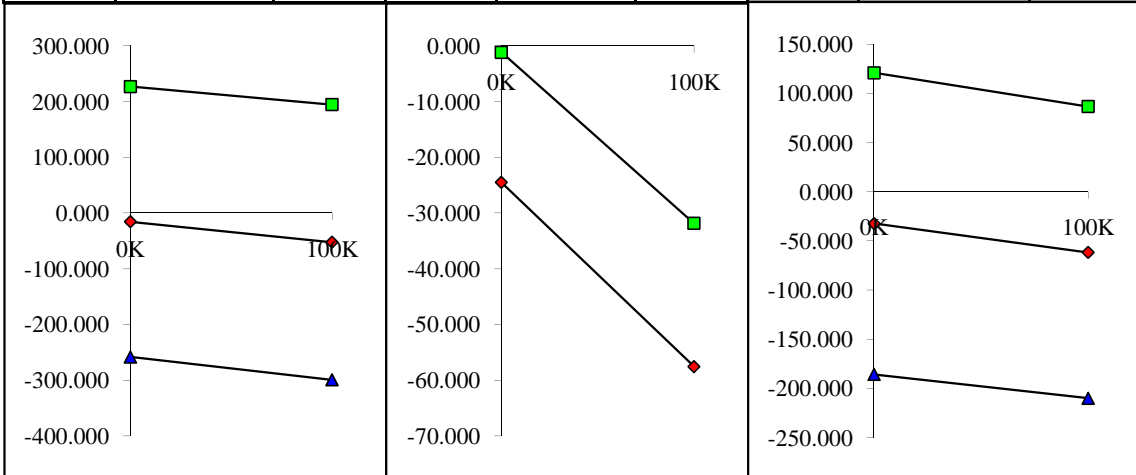
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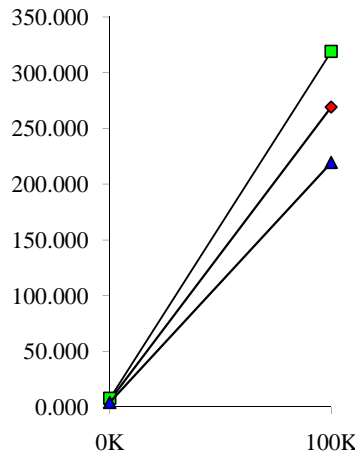
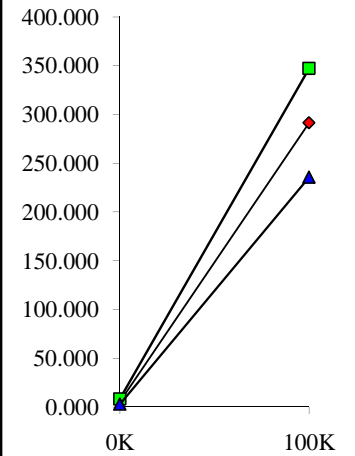
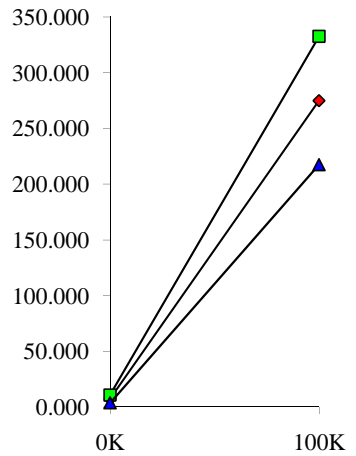
T# 1	ISY+ @ 15V	mA	T# 2	ISY- @ 15V	mA	T# 3	VOS A	uV
SN	0K	100K	SN	0K	100K	SN	0K	100K
1	7.719	7.743	1	-7.720	-7.719	1	-114.214	-113.598
2	7.842	7.368	2	-7.851	-7.386	2	6.058	-36.437
3	8.118	7.622	3	-8.107	-7.623	3	71.216	40.240
4	7.626	7.188	4	-7.621	-7.185	4	-9.062	-48.663
5	7.854	7.397	5	-7.853	-7.405	5	-78.745	-115.893
min	7.626	7.188	min	-8.107	-7.623	min	-78.745	-115.893
max	8.118	7.622	max	-7.621	-7.185	max	71.216	40.240
stdev	0.201	0.178	stdev	0.199	0.179	stdev	61.546	63.994
average	7.860	7.394	average	-7.858	-7.400	average	-2.633	-40.188
+3S	8.464	7.928	+3S	-7.262	-6.863	+3S	182.004	151.795
-3S	7.256	6.860	-3S	-8.454	-7.937	-3S	-187.270	-232.171



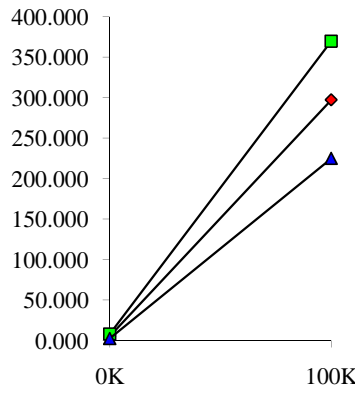
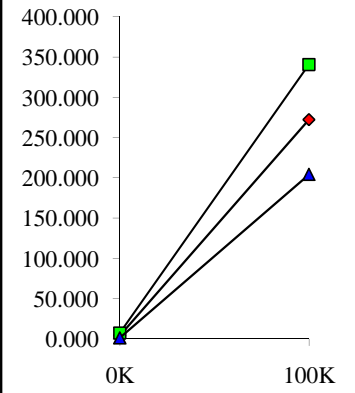
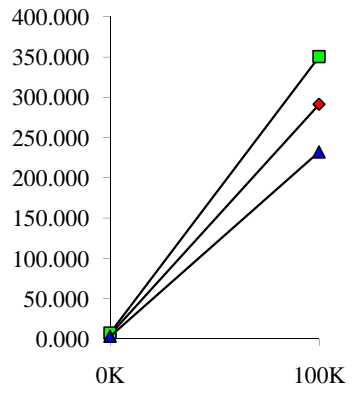
T# 4	VOS B	uV	T# 5	VOS C	uV	T# 6	VOS D	uV
SN	0K	100K	SN	0K	100K	SN	0K	100K
1	43.330	43.681	1	-41.871	-41.375	1	-60.916	-60.996
2	-94.607	-135.577	2	-17.045	-50.299	2	12.350	-21.310
3	-75.886	-110.350	3	-35.430	-68.831	3	-99.310	-126.500
4	47.840	11.579	4	-22.124	-59.585	4	-44.966	-74.078
5	59.971	24.744	5	-23.458	-51.516	5	2.216	-24.991
min	-94.607	-135.577	min	-35.430	-68.831	min	-99.310	-126.500
max	59.971	24.744	max	-17.045	-50.299	max	12.350	-21.310
stdev	80.854	82.303	stdev	7.784	8.571	stdev	51.107	49.434
average	-15.671	-52.401	average	-24.514	-57.558	average	-32.428	-61.720
+3S	226.891	194.507	+3S	-1.162	-31.845	+3S	120.893	86.582
-3S	-258.232	-299.309	-3S	-47.866	-83.271	-3S	-185.748	-210.022



T# 7	IB+ A	nA	T# 8	IB- A	nA	T# 9	IB+ B	nA
SN	0K	100K	SN	0K	100K	SN	0K	100K
1	6.267	6.300	1	6.299	6.328	1	6.589	6.658
2	6.543	283.592	2	5.157	299.897	2	5.314	272.996
3	8.546	298.058	3	5.836	313.582	3	6.691	291.259
4	6.212	257.803	4	5.009	273.485	4	6.261	256.735
5	8.180	260.890	5	6.968	278.973	5	5.966	256.123
min	6.212	257.803	min	5.009	273.485	min	5.314	256.123
max	8.546	298.058	max	6.968	313.582	max	6.691	291.259
stdev	1.164	19.151	stdev	0.893	18.615	stdev	0.578	16.607
average	7.370	275.086	average	5.743	291.484	average	6.058	269.278
+3S	10.862	332.539	+3S	8.421	347.330	+3S	7.793	319.099
-3S	3.879	217.632	-3S	3.064	235.638	-3S	4.323	219.458

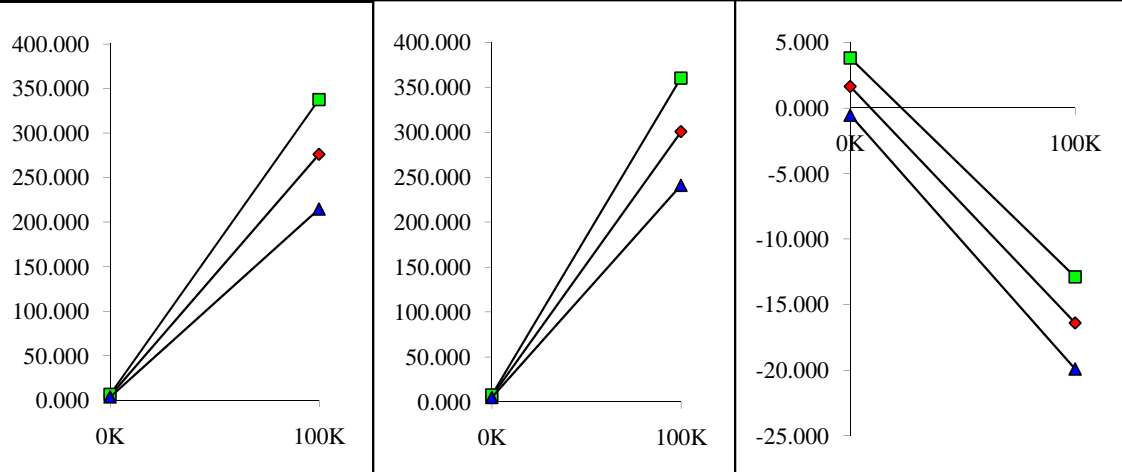


T# 10	IB- B	nA	T# 11	IB+ C	nA	T# 12	IB- C	nA
SN	0K	100K	SN	0K	100K	SN	0K	100K
1	5.726	5.746	1	4.505	4.541	1	5.105	5.158
2	4.639	298.495	2	4.307	281.934	2	4.842	305.436
3	6.204	315.988	3	6.023	300.205	3	6.940	327.835
4	5.065	274.228	4	4.055	252.113	4	5.138	274.332
5	5.629	276.725	5	3.895	255.850	5	5.726	282.398
min	4.639	274.228	min	3.895	252.113	min	4.842	274.332
max	6.204	315.988	max	6.023	300.205	max	6.940	327.835
stdev	0.680	19.707	stdev	0.983	22.726	stdev	0.928	24.139
average	5.384	291.359	average	4.570	272.526	average	5.662	297.500
+3S	7.426	350.481	+3S	7.520	340.704	+3S	8.446	369.916
-3S	3.343	232.237	-3S	1.620	204.347	-3S	2.877	225.084

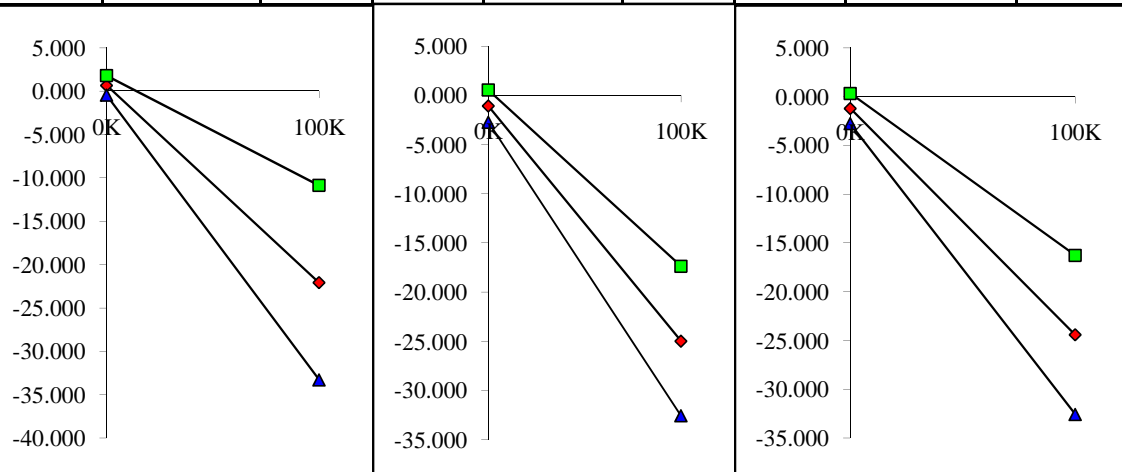


T# 13	IB+ D	nA	T# 14	IB- D	nA	T# 15	IOS A	nA
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SN	OK	100K	SN	OK	100K	SN	OK	100K
1	5.674	5.730	1	7.042	7.075	1	-0.031	-0.028
2	5.076	284.665	2	5.774	305.122	2	1.386	-16.305
3	5.189	301.093	3	6.492	326.622	3	2.710	-15.524
4	4.657	256.639	4	6.551	281.754	4	1.203	-15.682
5	5.810	262.594	5	6.778	289.186	5	1.212	-18.083
min	4.657	256.639	min	5.774	281.754	min	1.203	-18.083
max	5.810	301.093	max	6.778	326.622	max	2.710	-15.524
stdev	0.477	20.486	stdev	0.434	19.858	stdev	0.726	1.173
average	5.183	276.248	average	6.399	300.671	average	1.628	-16.399
+3S	6.613	337.707	+3S	7.702	360.245	+3S	3.807	-12.881
-3S	3.753	214.789	-3S	5.096	241.097	-3S	-0.551	-19.916

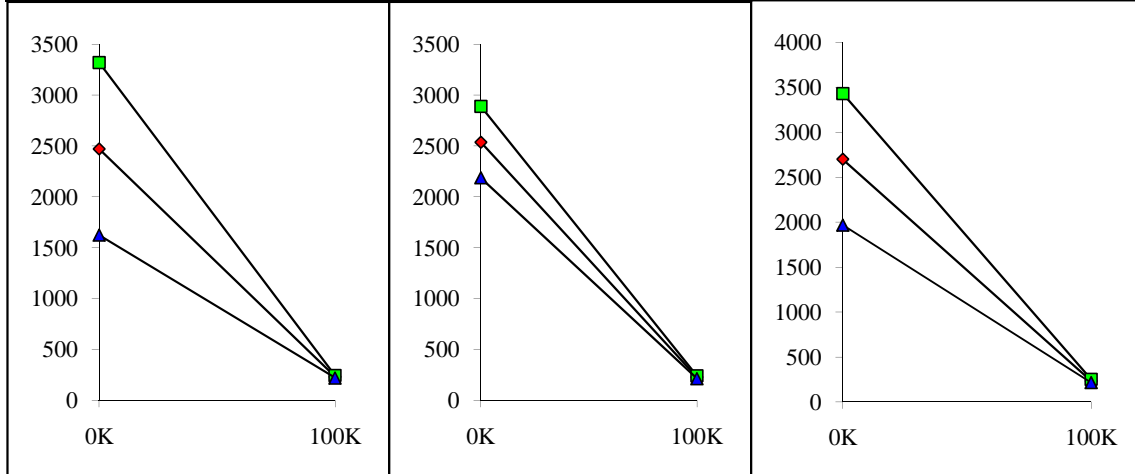


T# 16	IOS B	nA	T# 17	IOS C	nA	T# 18	IOS D	nA
SN	OK	100K	SN	OK	100K	SN	OK	100K
1	0.864	0.912	1	-0.600	-0.617	1	-1.368	-1.345
2	0.675	-25.499	2	-0.536	-23.503	2	-0.698	-20.457
3	0.487	-24.729	3	-0.918	-27.630	3	-1.302	-25.529
4	1.196	-17.493	4	-1.083	-22.219	4	-1.895	-25.114
5	0.337	-20.602	5	-1.832	-26.548	5	-0.967	-26.592
min	0.337	-25.499	min	-1.832	-27.630	min	-1.895	-26.592
max	1.196	-17.493	max	-0.536	-22.219	max	-0.698	-20.457
stdev	0.375	3.739	stdev	0.544	2.535	stdev	0.516	2.716
average	0.674	-22.081	average	-1.092	-24.975	average	-1.216	-24.423
+3S	1.798	-10.865	+3S	0.539	-17.369	+3S	0.332	-16.274
-3S	-0.450	-33.297	-3S	-2.724	-32.581	-3S	-2.763	-32.572

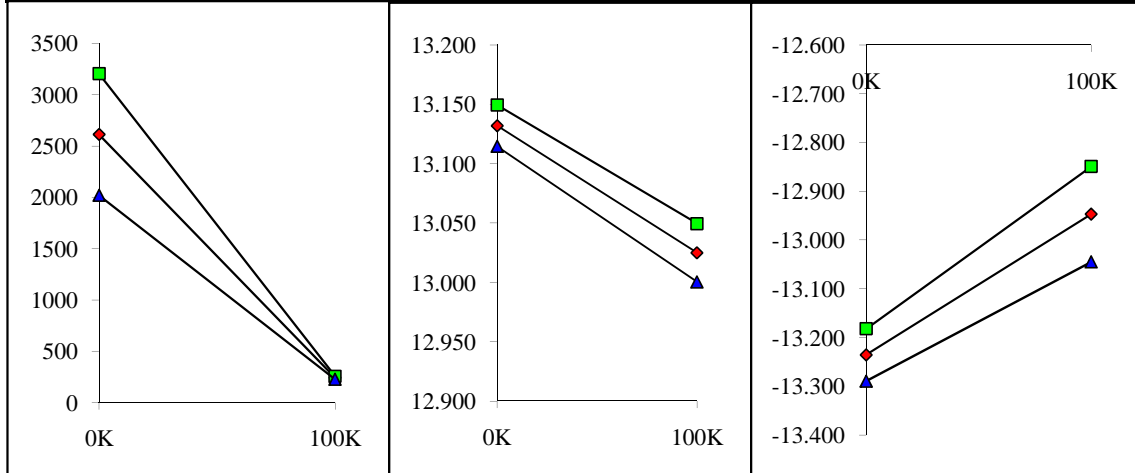


T# 19	AVO A RL=10K	V/mV	T# 20	AVO B RL=10K	V/mV	T# 21	AVO C RL=10K	V/mV
SN	OK	100K	SN	OK	100K	SN	OK	100K

1	2466	2629	1	2652	2588	1	2527	2548
2	2143	232	2	2527	224	2	2581	234
3	2462	231	3	2513	222	3	2426	229
4	2446	237	4	2696	232	4	2821	242
5	2834	227	5	2413	228	5	2973	231
min	2143	227	min	2413	222	min	2426	229
max	2834	237	max	2696	232	max	2973	242
stdev	283	4	stdev	117	4	stdev	244	6
average	2471	232	average	2537	227	average	2700	234
+3S	3320	244	+3S	2889	240	+3S	3432	252
-3S	1623	220	-3S	2186	214	-3S	1969	216

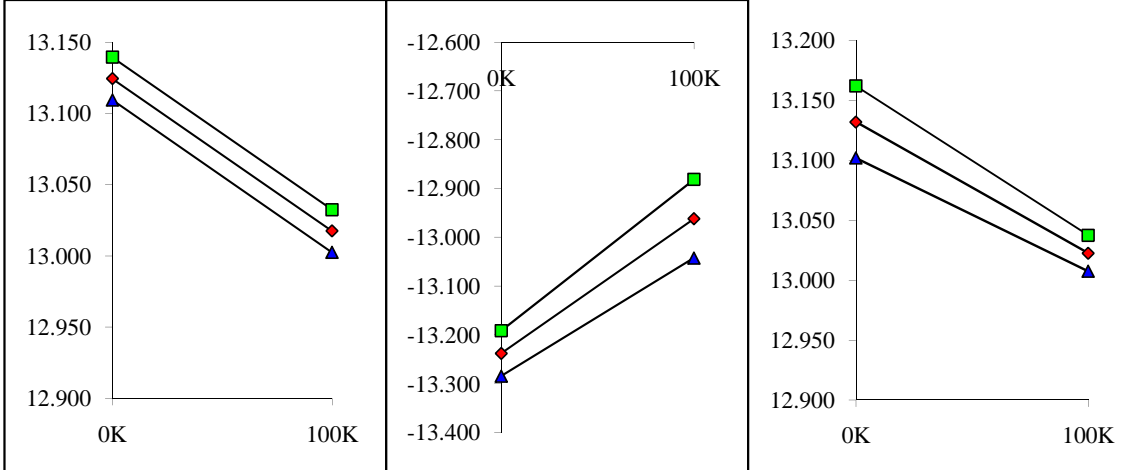


T# 22	AVO D RL=10K	V/mV	T# 23	VO+ A RL=2K	V	T# 24	VO- A RL=2K	V
SN	0K	100K	SN	0K	100K	SN	0K	100K
1	2233	3001	1	13.147	13.137	1	-13.220	-13.219
2	2420	239	2	13.127	13.025	2	-13.220	-12.924
3	2672	244	3	13.127	13.015	3	-13.251	-12.975
4	2493	251	4	13.137	13.035	4	-13.220	-12.914
5	2861	243	5	13.137	13.025	5	-13.251	-12.975
min	2420	239	min	13.127	13.015	min	-13.251	-12.975
max	2861	251	max	13.137	13.035	max	-13.220	-12.914
stdev	197	5	stdev	0.006	0.008	stdev	0.018	0.033
average	2611	244	average	13.132	13.025	average	-13.236	-12.947
+3S	3203	259	+3S	13.149	13.049	+3S	-13.182	-12.849
-3S	2019	230	-3S	13.115	13.001	-3S	-13.289	-13.045

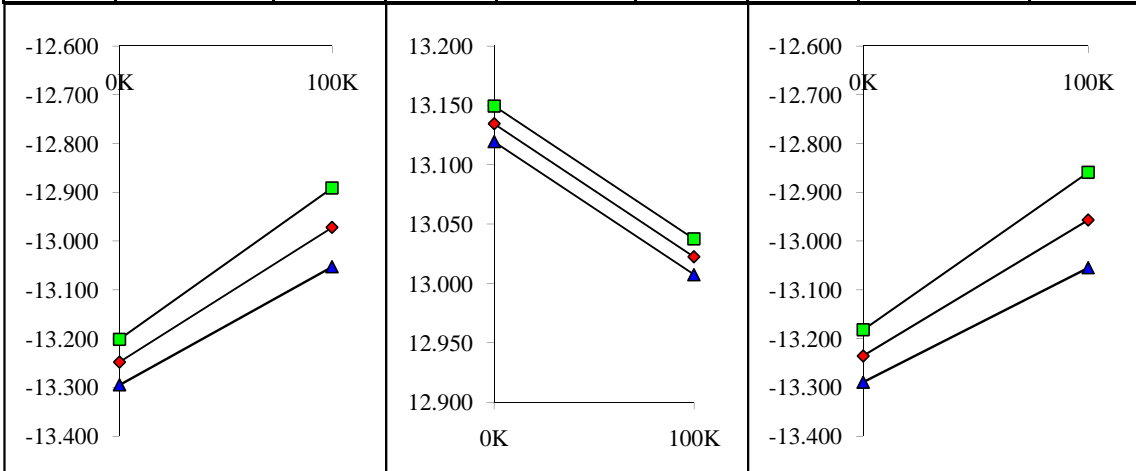


T# 25	VO+ B RL=2K	V	T# 26	VO- B RL=2K	V	T# 27	VO+ C RL=2K	V
SN	0K	100K	SN	0K	100K	SN	0K	100K
1	13.127	13.137	1	-13.230	-13.229	1	13.137	13.137

2	13.127	13.015	2	-13.230	-12.944	2	13.137	13.025
3	13.117	13.015	3	-13.251	-12.985	3	13.117	13.015
4	13.127	13.025	4	-13.220	-12.934	4	13.137	13.025
5	13.127	13.015	5	-13.251	-12.985	5	13.137	13.025
min	13.117	13.015	min	-13.251	-12.985	min	13.117	13.015
max	13.127	13.025	max	-13.220	-12.934	max	13.137	13.025
stdev	0.005	0.005	stdev	0.016	0.027	stdev	0.010	0.005
average	13.125	13.018	average	-13.238	-12.962	average	13.132	13.023
+3S	13.140	13.033	+3S	-13.191	-12.881	+3S	13.162	13.038
-3S	13.110	13.003	-3S	-13.285	-13.043	-3S	13.102	13.008

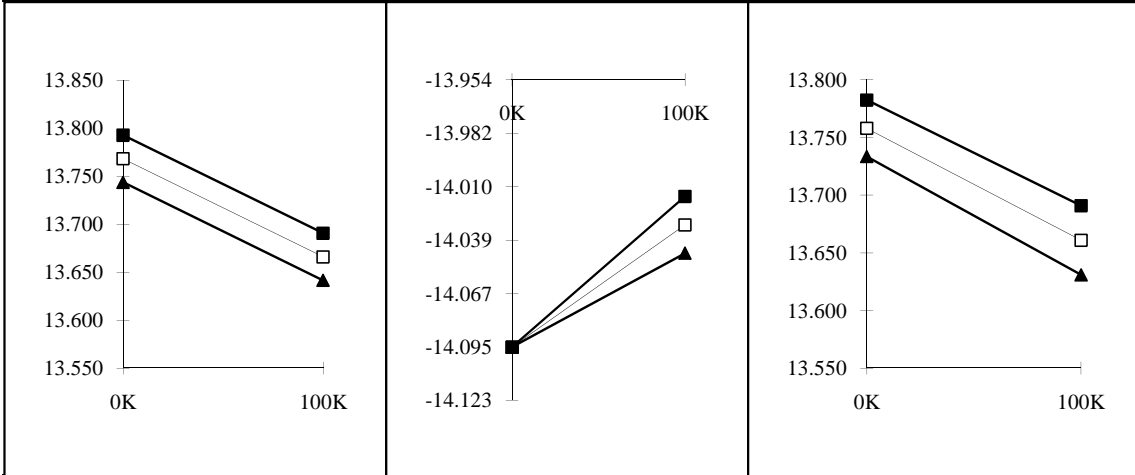


T# 28	VO- C RL=2K	V	T# 29	VO+ D RL=2K	V	T# 30	VO- D RL=2K	V
SN	0K	100K	SN	0K	100K	SN	0K	100K
1	-13.240	-13.239	1	13.147	13.147	1	-13.230	-13.229
2	-13.240	-12.954	2	13.137	13.025	2	-13.220	-12.934
3	-13.261	-12.995	3	13.127	13.015	3	-13.251	-12.985
4	-13.230	-12.944	4	13.137	13.025	4	-13.220	-12.924
5	-13.261	-12.995	5	13.137	13.025	5	-13.251	-12.985
min	-13.261	-12.995	min	13.127	13.015	min	-13.251	-12.985
max	-13.230	-12.944	max	13.137	13.025	max	-13.220	-12.924
stdev	0.016	0.027	stdev	0.005	0.005	stdev	0.018	0.033
average	-13.248	-12.972	average	13.135	13.023	average	-13.236	-12.957
+3S	-13.201	-12.891	+3S	13.150	13.038	+3S	-13.182	-12.859
-3S	-13.295	-13.053	-3S	13.120	13.008	-3S	-13.289	-13.055

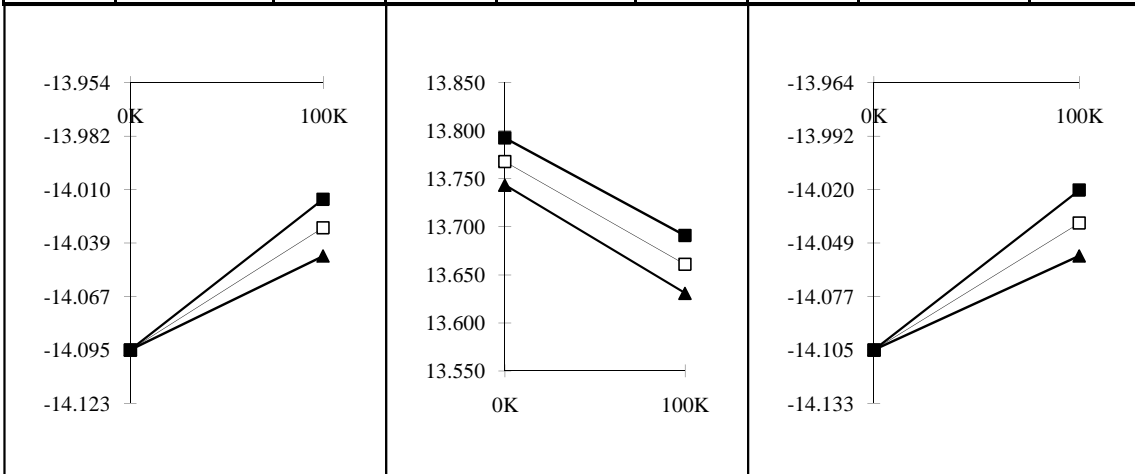


T# 31	VO+ A RL=10K	V	T# 32	VO- A RL=10K	V	T# 33	VO+ B RL=10K	V
SN	0K	100K	SN	0K	100K	SN	0K	100K
1	13.778	13.778	1	-14.095	-14.094	1	13.768	13.768
2	13.768	13.666	2	-14.095	-14.033	2	13.758	13.666

3	13.758	13.656	3	-14.095	-14.033	3	13.748	13.646
4	13.778	13.676	4	-14.095	-14.023	4	13.768	13.666
5	13.768	13.666	5	-14.095	-14.033	5	13.758	13.666
min	13.758	13.656	min	-14.095	-14.033	min	13.748	13.646
max	13.778	13.676	max	-14.095	-14.023	max	13.768	13.666
stdev	0.008	0.008	stdev	0.000	0.005	stdev	0.008	0.010
average	13.768	13.666	average	-14.095	-14.031	average	13.758	13.661
+3S	13.792	13.690	+3S	-14.095	-14.016	+3S	13.782	13.691
-3S	13.744	13.642	-3S	-14.095	-14.046	-3S	13.734	13.631



T# 34	VO- B RL=10K	V	T# 35	VO+ C RL=10K	V	T# 36	VO- C RL=10K	V
SN	0K	100K	SN	0K	100K	SN	0K	100K
1	-14.095	-14.094	1	13.768	13.768	1	-14.105	-14.104
2	-14.095	-14.033	2	13.768	13.666	2	-14.105	-14.033
3	-14.095	-14.033	3	13.758	13.646	3	-14.105	-14.043
4	-14.095	-14.023	4	13.778	13.666	4	-14.105	-14.033
5	-14.095	-14.033	5	13.768	13.666	5	-14.105	-14.043
min	-14.095	-14.033	min	13.758	13.646	min	-14.105	-14.043
max	-14.095	-14.023	max	13.778	13.666	max	-14.105	-14.033
stdev	0.000	0.005	stdev	0.008	0.010	stdev	0.000	0.006
average	-14.095	-14.031	average	13.768	13.661	average	-14.105	-14.038
+3S	-14.095	-14.016	+3S	13.792	13.691	+3S	-14.105	-14.021
-3S	-14.095	-14.046	-3S	13.744	13.631	-3S	-14.105	-14.055



T# 37	VO+ D RL=10K	V	T# 38	VO- D RL=10K	V
SN	0K	100K	SN	0K	100K
1	13.788	13.778	1	-14.105	-14.104
2	13.778	13.666	2	-14.105	-14.033
3	13.768	13.656	3	-14.116	-14.033

4	13.778	13.676	4	-14.105	-14.033
5	13.778	13.666	5	-14.105	-14.033
min	13.768	13.656	min	-14.116	-14.033
max	13.778	13.676	max	-14.105	-14.033
stdev	0.005	0.008	stdev	0.005	0.000
average	13.776	13.666	average	-14.108	-14.033
+3S	13.791	13.690	+3S	-14.091	-14.033
-3S	13.761	13.642	-3S	-14.124	-14.033

