



AHEAD OF WHAT'S POSSIBLE™

HIGH DOSE RADIATION TEST REPORT OP42S

November 1996

Generic

Radiation Test Report	
Product:	OP42S
Gamma:	0,20k, 50k,100k, 24Hr
Gamma Source:	Co60/TM1019 Condition A
Dose Rate:	100 Rad/s
Facilities:	National Semiconductor
Tested:	November 25th, 1996

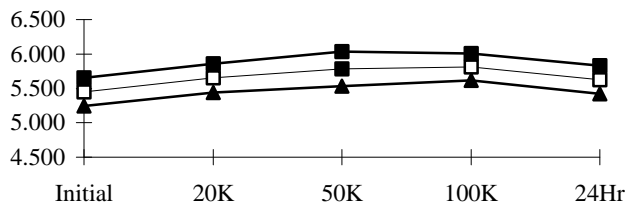
The RADTEST® DATA SERVICE is a compilation of radiation test results on Analog Devices' Space grade products. It is designed to assist customers in selecting the right product for applications where radiation is a consideration. Many products manufactured by Analog Devices, Inc. have been shown to be radiation tolerant to most tactical radiation environments. Analog Devices, Inc. does not make any claim to maintain or guarantee these levels of radiation tolerance without lot qualification test.

It is the responsibility of the Procuring Activity to screen products from Analog Devices, Inc. for compliance to Nuclear Hardness Critical Items (HCI) specifications.

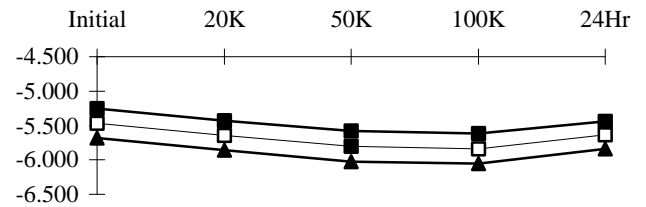
Warning:

Analog Devices, Inc. does not recommend use of this data to qualify other product grades or process levels. Analog Devices, Inc. is not responsible and has no liability for any consequences, and all applicable Warranties are null and void if any Analog Devices product is modified in any way or used outside of normal environmental and operating conditions, including the parameters specified in the corresponding data sheet. Analog Devices, Inc. does not guarantee that wafer manufacturing is the same for all process levels.

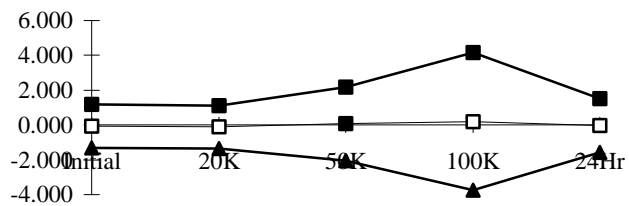
T# 1.0	+ ISY VS=+-15V					mA
SN	Initial	20K	50K	100K	24Hr	
1	5.286	5.280	5.273	5.276	5.278	
2	5.523	5.684	5.829	5.850	5.704	
3	5.363	5.550	5.684	5.736	5.538	
4	5.433	5.653	5.740	5.814	5.599	
5	5.426	5.649	5.759	5.804	5.601	
6	5.355	5.559	5.668	5.720	5.527	
7	5.476	5.680	5.833	5.844	5.660	
8	5.532	5.723	5.907	5.884	5.686	
9	5.518	5.746	5.888	5.897	5.723	
10	5.364	5.565	5.701	5.726	5.565	
11	5.468	5.681	5.805	5.837	5.645	
Min	5.355	5.550	5.668	5.720	5.527	
Max	5.532	5.746	5.907	5.897	5.723	
stdev	0.069	0.069	0.084	0.064	0.069	
Average	5.446	5.649	5.781	5.811	5.625	
+3S	5.652	5.857	6.034	6.004	5.833	
-3S	5.240	5.441	5.529	5.618	5.417	



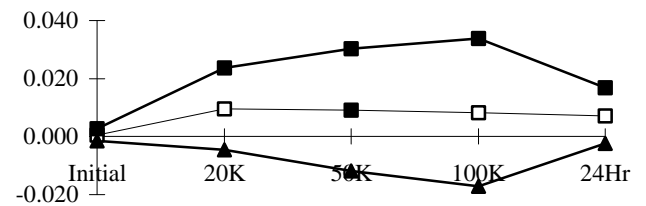
T# 2.0	- ISY VS=+-15V					mA
SN	Initial	20K	50K	100K	24Hr	
1	-5.290	-5.286	-5.313	-5.284	-5.283	
2	-5.543	-5.684	-5.864	-5.886	-5.738	
3	-5.379	-5.560	-5.733	-5.773	-5.566	
4	-5.472	-5.615	-5.809	-5.821	-5.626	
5	-5.431	-5.629	-5.819	-5.814	-5.608	
6	-5.358	-5.569	-5.675	-5.746	-5.548	
7	-5.488	-5.658	-5.820	-5.883	-5.671	
8	-5.547	-5.739	-5.879	-5.939	-5.719	
9	-5.541	-5.754	-5.899	-5.931	-5.692	
10	-5.406	-5.551	-5.706	-5.725	-5.565	
11	-5.509	-5.690	-5.815	-5.838	-5.655	
Min	-5.547	-5.754	-5.899	-5.939	-5.738	
Max	-5.358	-5.551	-5.675	-5.725	-5.548	
stdev	0.070	0.073	0.075	0.074	0.067	
Average	-5.467	-5.645	-5.802	-5.836	-5.639	
+3S	-5.256	-5.427	-5.578	-5.613	-5.438	
-3S	-5.678	-5.863	-6.026	-6.058	-5.840	



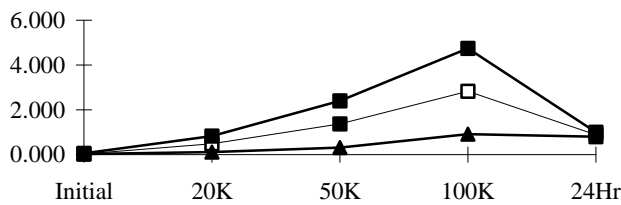
T# 3.0	VOS 50 OHM VS=+-15V					mV
SN	Initial	20K	50K	100K	24Hr	
1	-0.219	-0.197	-0.203	-0.201	-0.245	
2	-0.095	-0.141	-0.154	-1.834	-0.171	
3	-0.567	-0.449	-0.244	-0.130	-0.324	
4	0.040	0.019	-0.011	1.044	-0.026	
5	-0.175	-0.194	0.998	1.640	-0.255	
6	-0.183	-0.282	-0.459	-0.524	-0.364	
7	-0.584	-0.699	-0.571	-0.787	-0.010	
8	0.554	0.457	0.327	0.809	0.396	
9	0.576	0.489	1.436	2.516	1.143	
10	0.189	0.206	0.187	0.187	0.074	
11	-0.453	-0.597	-0.828	-0.942	-0.750	
Min	-0.584	-0.699	-0.828	-1.834	-0.750	
Max	0.576	0.489	1.436	2.516	1.143	
stdev	0.417	0.413	0.704	1.315	0.512	
Average	-0.070	-0.119	0.068	0.198	-0.029	
+3S	1.182	1.119	2.180	4.144	1.506	
-3S	-1.322	-1.357	-2.044	-3.748	-1.563	



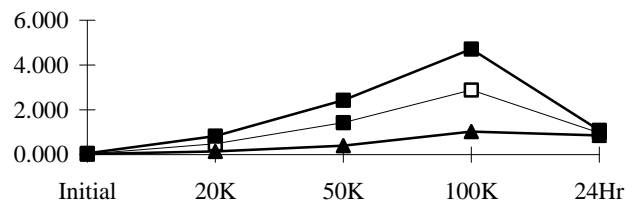
T# 4.1	IOS VCM=0V VS=+-15V					nA
SN	Initial	20K	50K	100K	24Hr	
1	0.000	0.000	0.000	0.000	0.000	
2	0.000	0.021	0.024	0.028	0.002	
3	0.000	0.012	0.009	0.014	0.010	
4	0.001	0.006	0.001	0.013	0.012	
5	0.000	0.012	0.015	0.006	0.006	
6	0.001	0.008	0.007	0.000	0.008	
7	0.000	0.007	0.005	0.001	0.008	
8	0.001	0.006	0.004	0.008	0.009	
9	0.001	0.011	0.016	0.009	0.002	
10	0.000	0.006	0.005	0.002	0.008	
11	0.002	0.007	0.006	0.002	0.007	
Min	0.000	0.006	0.001	0.000	0.002	
Max	0.002	0.021	0.024	0.028	0.012	
stdev	0.001	0.005	0.007	0.008	0.003	
Average	0.001	0.010	0.009	0.008	0.007	
+3S	0.003	0.024	0.030	0.034	0.017	
-3S	-0.001	-0.004	-0.012	-0.017	-0.002	



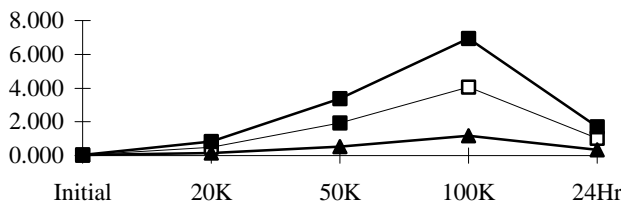
T# 5.1	+ IB VCM=0V VS=+-15V					nA
SN	Initial	20K	50K	100K	24Hr	
1	0.041	0.038	0.039	0.038	0.042	
2	0.035	0.680	2.105	4.124	0.835	
3	0.033	0.649	1.822	3.589	0.912	
4	0.035	0.561	1.481	3.220	0.923	
5	0.038	0.543	1.367	2.628	0.922	
6	0.040	0.439	1.231	2.484	0.911	
7	0.033	0.407	1.189	2.429	0.886	
8	0.037	0.411	1.214	2.379	0.893	
9	0.037	0.384	1.083	2.087	0.857	
10	0.044	0.366	1.053	2.411	0.927	
11	0.038	0.368	1.083	2.914	0.899	
Min	0.033	0.366	1.053	2.087	0.835	
Max	0.044	0.680	2.105	4.124	0.927	
stdev	0.003	0.118	0.349	0.638	0.030	
Average	0.037	0.481	1.363	2.827	0.897	
+3S	0.047	0.835	2.411	4.740	0.987	
-3S	0.027	0.126	0.315	0.913	0.806	



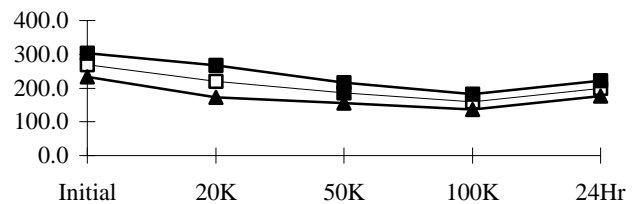
T# 6.1	- IB VCM=0V VS=+-15V					nA
SN	Initial	20K	50K	100K	24Hr	
1	0.041	0.039	0.039	0.039	0.043	
2	0.035	0.673	2.134	4.216	0.900	
3	0.034	0.659	1.876	3.578	0.989	
4	0.034	0.580	1.545	3.155	1.001	
5	0.038	0.558	1.419	2.446	0.996	
6	0.039	0.456	1.298	2.631	0.984	
7	0.033	0.419	1.256	2.577	0.962	
8	0.037	0.433	1.298	2.516	0.972	
9	0.036	0.394	1.140	2.199	0.888	
10	0.043	0.384	1.120	2.559	1.004	
11	0.038	0.386	1.152	2.922	0.982	
Min	0.033	0.384	1.120	2.199	0.888	
Max	0.043	0.673	2.134	4.216	1.004	
stdev	0.003	0.113	0.338	0.614	0.041	
Average	0.037	0.494	1.424	2.880	0.968	
+3S	0.046	0.834	2.439	4.721	1.091	
-3S	0.028	0.155	0.409	1.038	0.845	



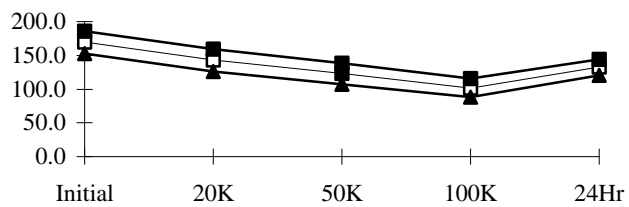
T# 7.1	IBAVG [ABS] VS=+-15V					nA
SN	Initial	20K	50K	100K	24Hr	
1	0.041	0.039	0.039	0.039	0.042	
2	0.035	0.676	3.119	6.170	0.868	
3	0.033	0.654	2.349	5.084	0.951	
4	0.034	0.570	2.013	4.687	1.462	
5	0.038	0.550	1.893	3.537	0.959	
6	0.039	0.447	1.764	3.557	0.948	
7	0.033	0.413	1.722	3.503	0.924	
8	0.037	0.422	1.756	3.447	0.932	
9	0.036	0.389	1.611	3.143	0.872	
10	0.044	0.375	1.586	3.485	1.465	
11	0.038	0.377	1.617	3.918	0.940	
Min	0.033	0.375	1.586	3.143	0.868	
Max	0.044	0.676	3.119	6.170	1.465	
stdev	0.003	0.115	0.473	0.960	0.229	
Average	0.037	0.487	1.943	4.053	1.032	
+3S	0.047	0.834	3.363	6.934	1.721	
-3S	0.027	0.141	0.523	1.173	0.344	



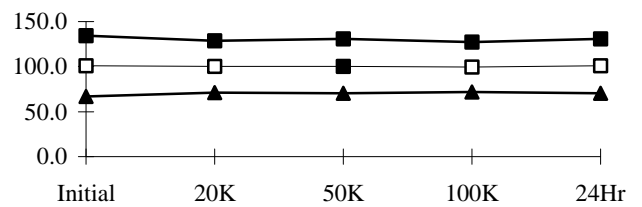
T# 8.1	AVO VO=+-10V RL=2K					V/mV
SN	Initial	20K	50K	100K	24Hr	
1	263.9	274.7	283.1	281.8	274.2	
2	262.1	214.5	171.2	167.7	209.4	
3	258.4	201.7	187.6	144.8	184.7	
4	271.4	217.7	204.0	158.4	200.2	
5	265.5	213.2	172.4	165.6	195.6	
6	276.1	239.4	178.0	150.6	203.4	
7	251.2	201.4	189.4	154.7	198.6	
8	269.7	228.2	185.2	159.0	198.7	
9	259.8	205.4	187.0	165.6	188.9	
10	291.1	232.9	187.2	165.5	204.0	
11	280.8	244.6	197.9	153.5	207.2	
Min	251.2	201.4	171.2	144.8	184.7	
Max	291.1	244.6	204.0	167.7	209.4	
stdev	11.8	15.6	10.3	7.6	7.7	
Average	268.6	219.9	186.0	158.5	199.1	
+3S	304.1	266.7	216.8	181.4	222.3	
-3S	233.2	173.1	155.2	135.6	175.8	



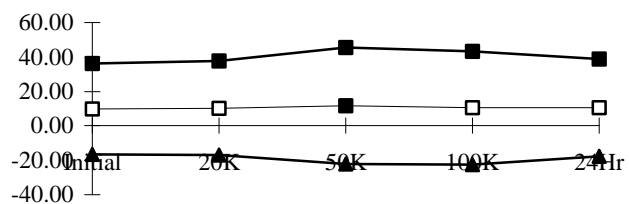
T# 8.2	AVO VO=+-10V RL=1K				V/mV
SN	Initial	20K	50K	100K	24Hr
1	171.1	170.1	171.8	172.3	170.0
2	169.9	137.3	115.8	102.0	140.1
3	166.2	134.8	115.6	92.7	128.7
4	173.9	142.1	128.7	101.2	134.7
5	159.2	138.5	124.5	102.3	126.8
6	165.7	140.0	117.6	99.1	134.1
7	164.8	152.8	122.6	97.7	132.4
8	171.3	142.7	126.6	108.3	128.1
9	175.5	144.2	128.9	105.4	131.4
10	177.0	149.6	126.7	107.7	132.3
11	169.1	145.2	121.4	101.2	135.1
Min	159.2	134.8	115.6	92.7	126.8
Max	177.0	152.8	128.9	108.3	140.1
stdev	5.5	5.5	5.1	4.7	3.9
Average	169.3	142.7	122.8	101.8	132.4
+3S	185.6	159.3	138.2	115.8	144.2
-3S	152.9	126.1	107.5	87.7	120.6



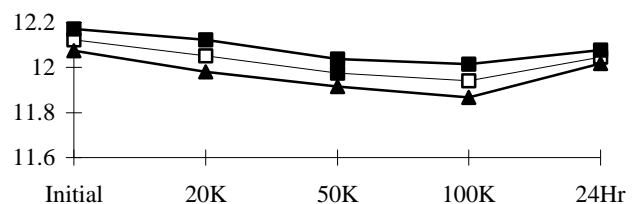
T# 9.1	CMRR VCM=+-11V				dB
SN	Initial	20K	50K	100K	24Hr
1	93.9	93.9	93.9	93.8	94.1
2	112.8	107.6	104.7	98.5	113.1
3	120.7	117.1	117.1	116.6	113.9
4	106.7	103.5	100.9	101.3	103.1
5	89.7	89.1	89.0	89.0	89.9
6	98.4	100.5	103.4	103.9	100.7
7	89.3	89.7	91.5	91.6	90.4
8	89.7	90.5	91.4	91.6	90.7
9	100.4	105.0	113.2	109.9	103.7
10	108.4	106.4	104.9	103.1	112.2
11	90.5	90.1	89.3	89.1	89.9
Min	89.3	89.1	89.0	89.0	89.9
Max	120.7	117.1	117.1	116.6	113.9
stdev	11.2	9.7	10.0	9.3	10.1
Average	100.7	100.0	100.5	99.5	100.8
+3S	134.2	129.0	130.6	127.4	131.0
-3S	67.1	70.9	70.5	71.5	70.5



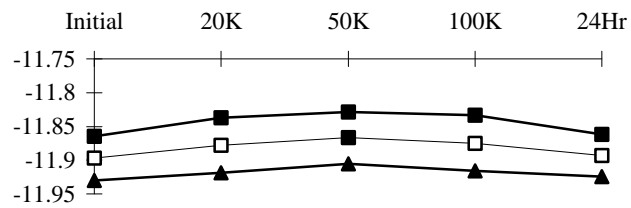
T# 10.1	+- PSRR +-10V TO +-20V				uV/V
SN	Initial	20K	50K	100K	24Hr
1	15.12	15.21	15.25	15.19	15.33
2	22.54	23.52	24.59	25.59	24.41
3	5.01	6.80	7.70	8.82	7.88
4	-2.15	0.42	1.01	9.83	0.55
5	22.10	24.55	34.01	24.47	24.78
6	11.57	8.57	5.40	1.15	9.72
7	7.33	6.17	2.58	1.23	6.41
8	11.13	9.64	7.26	1.01	10.06
9	2.32	1.38	8.53	1.03	0.54
10	1.05	2.14	3.19	4.15	0.78
11	18.53	19.99	22.53	26.52	19.75
Min	-2.15	0.42	1.01	1.01	0.54
Max	22.54	24.55	34.01	26.52	24.78
stdev	8.81	9.12	11.24	10.93	9.43
Average	9.94	10.32	11.68	10.38	10.49
+3S	36.38	37.67	45.39	43.18	38.77
-3S	-16.49	-17.04	-22.04	-22.42	-17.80



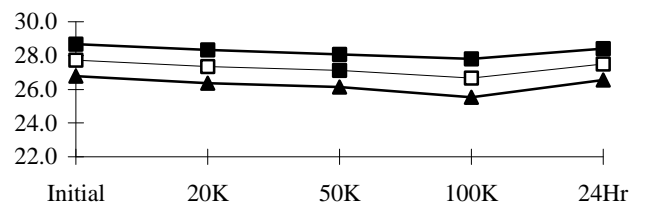
T# 11.1	+ VO RL=1K				V
SN	Initial	20K	50K	100K	24Hr
1	12.139	12.111	12.111	12.111	12.139
2	12.139	12.105	12.019	11.989	12.072
3	12.139	12.074	11.989	11.958	12.047
4	12.108	12.05	11.989	11.958	12.047
5	12.139	12.05	11.977	11.94	12.047
6	12.108	12.05	11.958	11.926	12.047
7	12.108	12.038	11.958	11.922	12.047
8	12.108	12.019	11.958	11.904	12.029
9	12.139	12.05	11.989	11.928	12.047
10	12.133	12.044	11.97	11.934	12.047
11	12.108	12.032	11.958	11.958	12.047
Min	12.108	12.019	11.958	11.904	12.029
Max	12.139	12.105	12.019	11.989	12.072
stdev	0.01581	0.02369	0.02024	0.02436	0.01024
Average	12.1229	12.0512	11.9765	11.9417	12.0477
+3S	12.1703	12.1223	12.0372	12.0148	12.0784
-3S	12.0755	11.9801	11.9158	11.8686	12.017



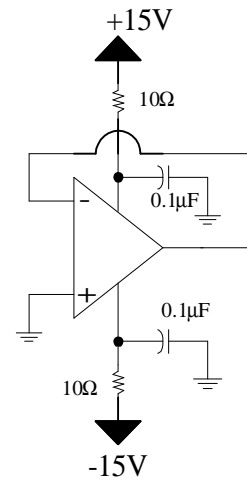
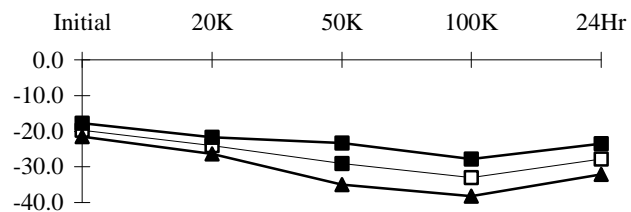
T# 12.1	- VO RL=1K					V
SN	Initial	20K	50K	100K	24Hr	
1	-11.949	-11.926	-11.924	-11.928	-11.949	
2	-11.912	-11.908	-11.894	-11.9	-11.905	
3	-11.893	-11.88	-11.868	-11.882	-11.89	
4	-11.894	-11.879	-11.868	-11.878	-11.891	
5	-11.901	-11.884	-11.869	-11.874	-11.899	
6	-11.89	-11.868	-11.859	-11.862	-11.885	
7	-11.877	-11.86	-11.846	-11.855	-11.874	
8	-11.893	-11.868	-11.86	-11.869	-11.889	
9	-11.893	-11.865	-11.857	-11.86	-11.888	
10	-11.913	-11.884	-11.876	-11.884	-11.907	
11	-11.906	-11.882	-11.871	-11.885	-11.903	
Min	-11.913	-11.908	-11.894	-11.9	-11.907	
Max	-11.877	-11.86	-11.846	-11.855	-11.874	
stdev	0.01097	0.01369	0.01285	0.01372	0.0103	
Average	-11.897	-11.878	-11.867	-11.875	-11.893	
+3S	-11.864	-11.837	-11.828	-11.834	-11.862	
-3S	-11.93	-11.919	-11.905	-11.916	-11.924	



T# 13.1	+ ISC					mA
SN	Initial	20K	50K	100K	24Hr	
1	27.4	27.9	27.9	27.8	27.1	
2	28.4	27.2	26.9	26.6	28.1	
3	27.7	26.9	26.6	26.2	27.4	
4	27.6	27.0	26.9	26.2	27.3	
5	27.9	27.3	27.2	26.9	27.7	
6	27.4	27.1	26.9	26.6	27.2	
7	27.5	27.3	27.0	26.7	27.3	
8	27.5	27.4	27.2	26.8	27.3	
9	28.1	28.0	27.8	27.5	27.9	
10	27.6	27.6	27.3	26.7	27.3	
11	27.5	27.6	27.2	26.4	27.3	
Min	27.4	26.9	26.6	26.2	27.2	
Max	28.4	28.0	27.8	27.5	28.1	
stdev	0.3	0.3	0.3	0.4	0.3	
Average	27.7	27.3	27.1	26.7	27.5	
+3S	28.7	28.3	28.1	27.8	28.4	
-3S	26.8	26.4	26.1	25.5	26.6	



T# 14.1	- ISC					mA
SN	Initial	20K	50K	100K	24Hr	
1	-20.7	-22.0	-21.6	-21.6	-20.0	
2	-19.1	-22.5	-24.9	-28.9	-26.3	
3	-19.8	-23.5	-28.6	-32.7	-28.7	
4	-19.6	-23.4	-28.5	-31.7	-26.8	
5	-20.4	-24.6	-31.0	-35.1	-28.6	
6	-20.5	-25.4	-31.1	-34.4	-30.4	
7	-19.5	-23.8	-29.2	-33.0	-27.0	
8	-19.2	-24.1	-29.2	-33.9	-26.8	
9	-18.5	-23.9	-27.3	-32.9	-26.2	
10	-20.2	-24.2	-31.0	-34.4	-29.3	
11	-19.7	-24.4	-30.5	-32.9	-28.6	
Min	-20.5	-25.4	-31.1	-35.1	-30.4	
Max	-18.5	-22.5	-24.9	-28.9	-26.2	
stdev	0.6	0.8	2.0	1.8	1.4	
Average	-19.7	-24.0	-29.1	-33.0	-27.9	
+3S	-17.8	-21.6	-23.2	-27.7	-23.6	
-3S	-21.5	-26.3	-35.0	-38.3	-32.2	



Bias Circuit