

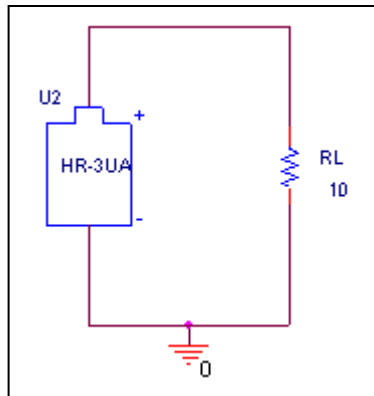
# Device Modeling Report

COMPONENTS: NICKEL METAL HYDRIDE (Ni-MH)  
PART NUMBER: HR-3UA  
MANUFACTURER: SANYO  
CONDITION: RL= 10 ( $\Omega$ )

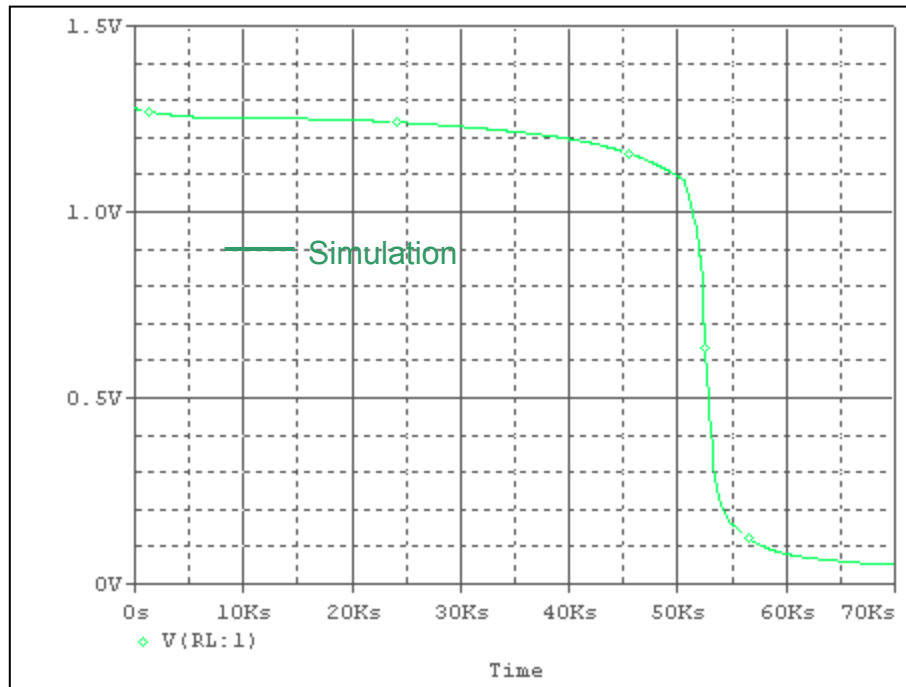


**Bee Technologies Inc.**

## Evaluation circuit



## Simulation result



## Comparison Table

Time (kSec)	Vdc(V) Measurement	Vdc(V) Simulation	%Error
0.0	1.301101	1.2783	1.752
0.5	1.284237	1.2748	0.735
1.0	1.275788	1.2717	0.320
1.5	1.270404	1.2688	0.126
2.0	1.266704	1.2688	-0.165
2.5	1.263947	1.2663	-0.186
3.0	1.261824	1.264	-0.172
3.5	1.260138	1.262	-0.148
4.0	1.258803	1.2603	-0.119
4.5	1.257697	1.2587	-0.080
5.0	1.256767	1.2574	-0.050
5.5	1.256067	1.2563	-0.019
6.0	1.255465	1.2553	0.013
6.5	1.254983	1.2545	0.038
7.0	1.254589	1.2538	0.063
7.5	1.254261	1.2532	0.085
8.0	1.253944	1.2527	0.099
8.5	1.253681	1.2523	0.110
9.0	1.253429	1.252	0.114
9.5	1.253167	1.2518	0.109
10.0	1.252915	1.2516	0.105
10.5	1.252674	1.2514	0.102
11.0	1.252401	1.2513	0.088
11.5	1.252127	1.2512	0.074
12.0	1.251853	1.2511	0.060
12.5	1.251547	1.2511	0.036
13.0	1.251219	1.251	0.018
13.5	1.250923	1.2509	0.002
14.0	1.250606	1.2508	-0.016
14.5	1.250234	1.2507	-0.037
15.0	1.249873	1.2506	-0.058
15.5	1.249522	1.2504	-0.070
16.0	1.249205	1.2502	-0.080
16.5	1.248877	1.25	-0.090
17.0	1.248527	1.2498	-0.102
17.5	1.248165	1.2492	-0.083
18.0	1.24776	1.2488	-0.083
18.5	1.247377	1.2484	-0.082

<b>Time (kSec)</b>	<b>Vdc(V) Measurement</b>	<b>Vdc(V) Simulation</b>	<b>%Error</b>
19.0	1.24694	1.248	-0.085
19.5	1.246502	1.2475	-0.080
20.0	1.246042	1.247	-0.077
20.5	1.24555	1.2464	-0.068
21.0	1.245046	1.2458	-0.061
21.5	1.24451	1.2452	-0.055
22.0	1.243952	1.2445	-0.044
22.5	1.243383	1.2438	-0.034
23.0	1.242781	1.243	-0.018
23.5	1.242157	1.2422	-0.003
24.0	1.241468	1.2414	0.005
24.5	1.240767	1.2405	0.022
25.0	1.240034	1.2396	0.035
25.5	1.239268	1.2387	0.046
26.0	1.238458	1.2378	0.053
26.5	1.237616	1.2368	0.066
27.0	1.236718	1.2358	0.074
27.5	1.235777	1.2348	0.079
28.0	1.234803	1.2337	0.089
28.5	1.233763	1.2326	0.094
29.0	1.23268	1.2315	0.096
29.5	1.231575	1.2303	0.104
30.0	1.230393	1.2292	0.097
30.5	1.229156	1.228	0.094
31.0	1.227887	1.2267	0.097
31.5	1.226529	1.2255	0.084
32.0	1.225151	1.2242	0.078
32.5	1.223684	1.2229	0.064
33.0	1.222185	1.2215	0.056
33.5	1.220576	1.2201	0.039
34.0	1.218956	1.2187	0.021
34.5	1.217249	1.2172	0.004
35.0	1.215465	1.2157	-0.019
35.5	1.213638	1.2141	-0.038
36.0	1.211744	1.2125	-0.062
36.5	1.209775	1.2107	-0.076
37.0	1.207761	1.2089	-0.094
37.5	1.20566	1.2071	-0.119
38.0	1.203471	1.2051	-0.135
38.5	1.201249	1.2031	-0.154

<b>Time (kSec)</b>	<b>Vdc(V) Measurement</b>	<b>Vdc(V) Simulation</b>	<b>%Error</b>
39.0	1.198918	1.2009	-0.165
39.5	1.196511	1.1986	-0.175
40.0	1.194059	1.1962	-0.179
40.5	1.191509	1.1937	-0.184
41.0	1.188872	1.1909	-0.171
41.5	1.186158	1.188	-0.155
42.0	1.183356	1.185	-0.139
42.5	1.180456	1.1818	-0.114
43.0	1.177403	1.1783	-0.076
43.5	1.174174	1.1746	-0.036
44.0	1.17076	1.1706	0.014
44.5	1.167126	1.1664	0.062
45.0	1.163154	1.1618	0.116
45.5	1.158897	1.1571	0.155
46.0	1.154246	1.1519	0.203
46.5	1.1492	1.1464	0.244
47.0	1.143739	1.1405	0.283
47.5	1.137786	1.1342	0.315
48.0	1.131242	1.1274	0.340
48.5	1.123909	1.1203	0.321
49.0	1.115515	1.1125	0.270
49.5	1.105513	1.1043	0.110
50.0	1.092873	1.0953	-0.222
50.5	1.075231	1.0865	-1.048
51.0	1.045365	1.0469	-0.147
51.5	0.9791448	0.980965	-0.186
52.0	0.9008094	0.896898	0.434
52.5	0.6523619	0.687202	-5.341
53.0	0.3780675	0.416486	-10.162
53.5	0.2765584	0.275837	0.261
54.0	0.2204203	0.218957	0.664
54.5	0.184328	0.17922	2.771
55.0	0.1590675	0.162383	-2.084
55.5	0.1403599	0.147614	-5.168
56.0	0.1259245	0.134924	-7.147
56.5	0.1144297	0.124512	-8.811
57.0	0.1050414	0.114611	-9.110
57.5	0.0972273	0.106934	-9.984
58.0	0.0905994	0.099378	-9.689
58.5	0.0849044	0.093803	-10.481

<b>Time (kSec)</b>	<b>Vdc(V) Measurement</b>	<b>Vdc(V) Simulation</b>	<b>%Error</b>
59.0	0.0799475	0.088331	-10.486
59.5	0.0755891	0.084315	-11.544
60.0	0.0717207	0.080381	-12.075
60.5	0.0682636	0.077465	-13.479
61.0	0.0651493	0.074682	-14.632
61.5	0.0623257	0.072492	-16.312
62.0	0.0597515	0.070328	-17.701
62.5	0.0573965	0.068575	-19.476
63.0	0.05523	0.066838	-21.018
63.5	0.0532275	0.065319	-22.717
64.0	0.0513778	0.063809	-24.196
64.5	0.0496553	0.062451	-25.769
65.0	0.0480509	0.061051	-27.055
65.5	0.0465737	0.059728	-28.244
66.0	0.0452415	0.058414	-29.116
66.5	0.0440266	0.057223	-29.974
67.0	0.0429163	0.056052	-30.608
67.5	0.0418947	0.05513	-31.592
68.0	0.0409445	0.054247	-32.489
68.5	0.0400506	0.05383	-34.405
69.0	0.0392037	0.053441	-36.316
69.5	0.0383874	0.052806	-37.561
70.0	0.0375952	0.054443	-44.814

## Comparison Graph

