

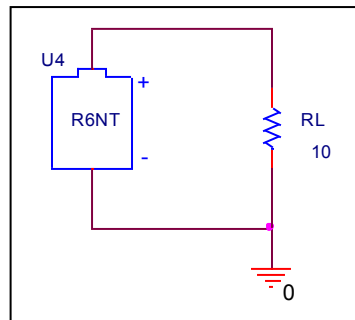
# Device Modeling Report

COMPONENTS: Manganese Cell  
PART NUMBER: R6NT  
MANUFACTURER: PANASONIC  
CONDITION:  $RL=10(\Omega)$

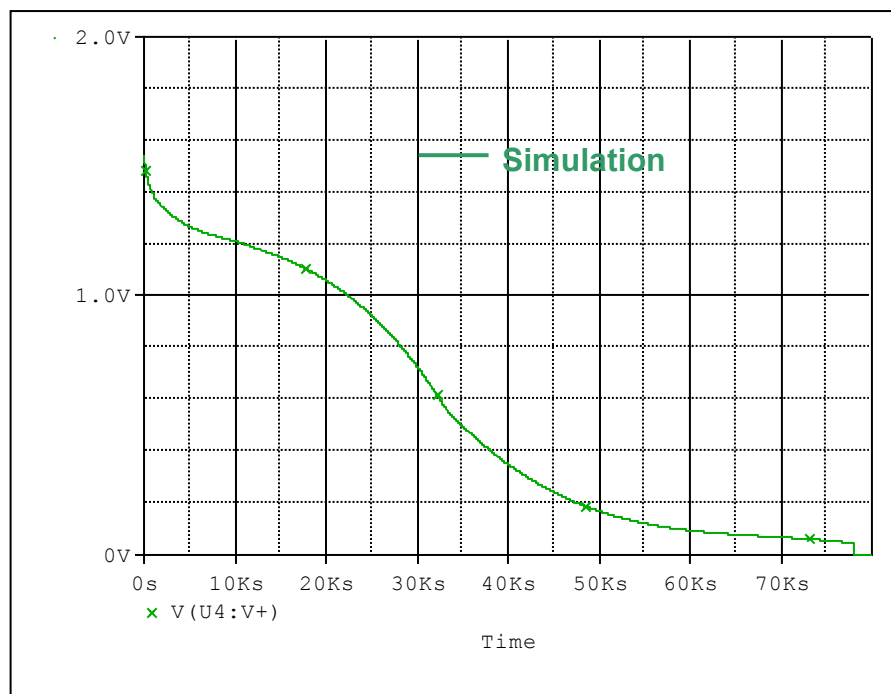


**Bee Technologies Inc.**

## Evaluation Circuit



## Simulation result



## Comparison Table

| Time (Sec) | Vdc(V)<br>Measurement | Vdc(V)<br>Simulation | %Error   |
|------------|-----------------------|----------------------|----------|
| 10.136     | 1.54363               | 1.5221               | -1.39457 |
| 100.002    | 1.50660               | 1.5089               | 0.15240  |
| 200.002    | 1.48131               | 1.4823               | 0.06663  |
| 300.002    | 1.46244               | 1.4602               | -0.15283 |
| 400.002    | 1.44721               | 1.4425               | -0.32559 |
| 500.002    | 1.43462               | 1.4292               | -0.37752 |
| 600.002    | 1.42395               | 1.4204               | -0.24896 |
| 700.002    | 1.41476               | 1.4132               | -0.11055 |
| 800.002    | 1.40638               | 1.4071               | 0.05112  |
| 900.002    | 1.39859               | 1.3982               | -0.02781 |
| 1200.002   | 1.37749               | 1.3761               | -0.10084 |
| 1400.002   | 1.36688               | 1.3641               | -0.20367 |
| 1600.002   | 1.35708               | 1.3573               | 0.01628  |
| 1800.002   | 1.34784               | 1.3496               | 0.13043  |
| 2000.002   | 1.33995               | 1.3407               | 0.05590  |
| 2400.002   | 1.32736               | 1.3291               | 0.13146  |
| 2800.002   | 1.31724               | 1.3158               | -0.10955 |
| 3000.002   | 1.31214               | 1.3098               | -0.17856 |
| 3500.002   | 1.29960               | 1.3007               | 0.08449  |
| 4000.002   | 1.28842               | 1.2871               | -0.10222 |
| 4500.002   | 1.27804               | 1.2757               | -0.18325 |
| 5000.002   | 1.26919               | 1.2681               | -0.08580 |
| 6000.002   | 1.25393               | 1.2522               | -0.13821 |
| 7000.002   | 1.24127               | 1.24                 | -0.10240 |
| 8000.002   | 1.23021               | 1.2301               | -0.00870 |
| 9000.002   | 1.22015               | 1.2208               | 0.05335  |
| 10000.002  | 1.21013               | 1.2113               | 0.09710  |
| 11000.002  | 1.19962               | 1.1991               | -0.04326 |
| 12000.002  | 1.18827               | 1.1868               | -0.12371 |
| 13000.002  | 1.17571               | 1.1756               | -0.00902 |
| 14000.002  | 1.16314               | 1.1634               | 0.02210  |
| 15000.002  | 1.14995               | 1.15                 | 0.00478  |
| 16000.002  | 1.13529               | 1.1327               | -0.22822 |
| 17000.002  | 1.11877               | 1.118                | -0.06847 |
| 18000.002  | 1.10049               | 1.1004               | -0.00809 |
| 19000.002  | 1.08099               | 1.0808               | -0.01739 |
| 20000.002  | 1.06009               | 1.0605               | 0.03915  |
| 21000.002  | 1.03730               | 1.0358               | -0.14461 |

| <b>Time (Sec)</b> | <b>Vdc(V)<br/>Measurement</b> | <b>Vdc(V)<br/>Simulation</b> | <b>%Error</b> |
|-------------------|-------------------------------|------------------------------|---------------|
| 22000.002         | 1.01253                       | 1.01112                      | -0.13965      |
| 23000.002         | 0.98557                       | 0.984475                     | -0.11105      |
| 24000.002         | 0.95620                       | 0.955752                     | -0.04640      |
| 25000.002         | 0.92496                       | 0.924601                     | -0.03926      |
| 26000.002         | 0.89207                       | 0.889381                     | -0.30118      |
| 27000.002         | 0.85641                       | 0.852879                     | -0.41236      |
| 28000.002         | 0.81719                       | 0.81259                      | -0.56293      |
| 29000.002         | 0.77324                       | 0.771142                     | -0.27170      |
| 30000.002         | 0.72433                       | 0.726886                     | 0.35234       |
| 31000.002         | 0.67405                       | 0.678891                     | 0.71761       |
| 32000.002         | 0.62562                       | 0.625194                     | -0.06872      |
| 33000.002         | 0.58040                       | 0.559162                     | -3.65988      |
| 34000.002         | 0.53794                       | 0.532196                     | -1.06792      |
| 35000.002         | 0.49824                       | 0.498081                     | -0.03221      |
| 36000.002         | 0.46168                       | 0.463966                     | 0.49489       |
| 37000.002         | 0.42836                       | 0.432481                     | 0.96136       |
| 38000.002         | 0.39874                       | 0.402048                     | 0.83037       |
| 39000.002         | 0.37195                       | 0.374763                     | 0.75520       |
| 40000.002         | 0.34714                       | 0.35044                      | 0.95074       |
| 42000.002         | 0.30258                       | 0.301445                     | -0.37389      |
| 44000.002         | 0.26344                       | 0.261233                     | -0.83626      |
| 46000.002         | 0.22892                       | 0.224627                     | -1.87477      |
| 47000.002         | 0.21329                       | 0.209069                     | -1.97688      |
| 48000.002         | 0.19846                       | 0.194698                     | -1.89604      |
| 49000.002         | 0.18443                       | 0.18146                      | -1.61095      |
| 50000.002         | 0.17104                       | 0.1693                       | -1.01679      |
| 52000.002         | 0.14644                       | 0.147122                     | 0.46387       |
| 54000.002         | 0.12805                       | 0.129642                     | 1.24524       |
| 56000.002         | 0.11512                       | 0.114792                     | -0.28890      |
| 58000.002         | 0.10511                       | 0.103415                     | -1.61409      |
| 60000.002         | 0.09666                       | 0.09436                      | -2.38204      |
| 62000.002         | 0.08903                       | 0.086759                     | -2.55543      |
| 64000.002         | 0.08210                       | 0.081252                     | -1.03609      |
| 66000.002         | 0.07591                       | 0.076405                     | 0.64738       |
| 68000.002         | 0.07066                       | 0.072335                     | 2.36486       |
| 70000.002         | 0.06623                       | 0.06838                      | 3.24470       |
| 72000.002         | 0.06107                       | 0.063897                     | 4.63694       |
| 74000.002         | 0.05666                       | 0.058824                     | 3.82616       |
| 76000.002         | 0.05290                       | 0.052224                     | -1.28307      |
| 78000.002         | 0.04980                       | 0.044625                     | -10.39095     |

## Comparison Graph

