

Cycling Information for the Valence Technology Lithium-Ion Polymer Cell

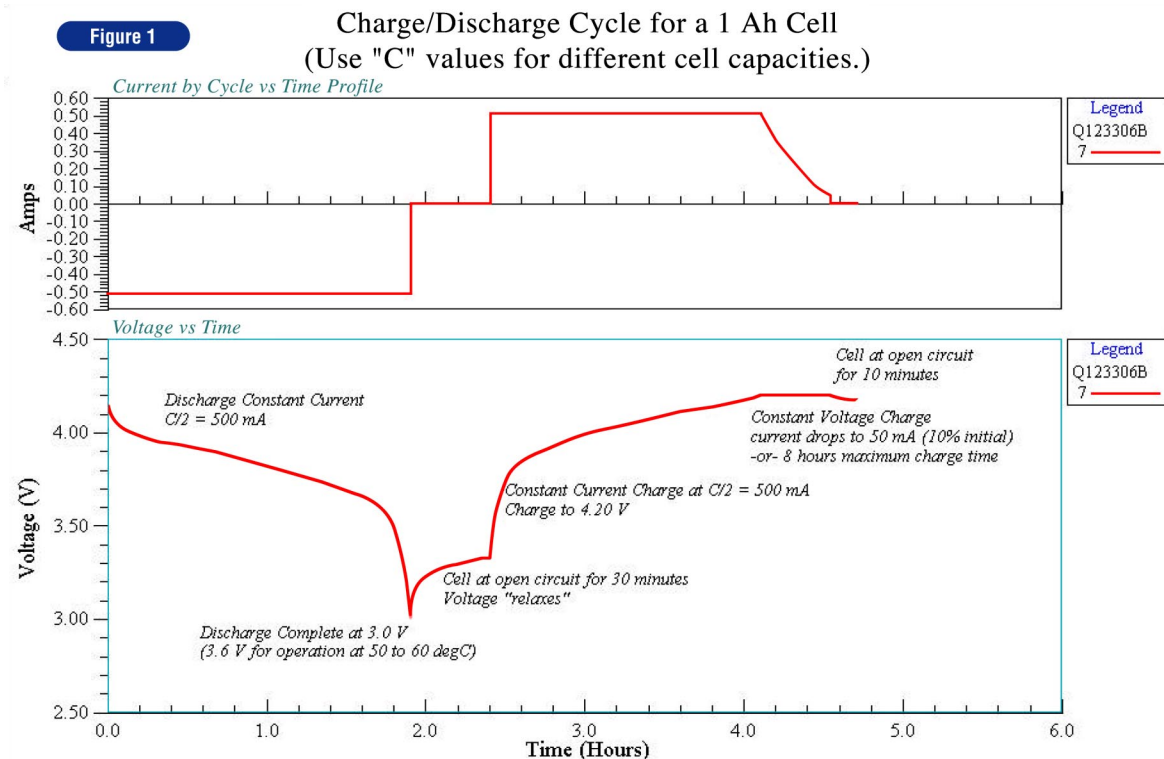
Scope: This application note describes the typical charge/discharge profile used for performance evaluation of the Valence Technology Lithium-ion Polymer battery cell.

Valence Technology's Lithium Ion Polymer cells are designed to meet the performance requirements of numerous portable electronic devices including notebook computers, wireless communications, personal digital assistants (PDA's) as well as many others. Although the cell is designed for operation over a temperature range of -20° to $+60^{\circ}\text{C}$, the recommended temperature for performance evaluation is 23°C at a charge and discharge rate of C/2. In this case, C is equal to the nominal rated

capacity of the cell. A detailed cycling evaluation test profile for cells tested at Valence is presented in Figure 1.

For extended cycling at high temperature (e.g.: $+50^{\circ}\text{C}$ to $+60^{\circ}\text{C}$) in Valence cell models without the "C" prefix, a discharge cutoff voltage of 3.6 volts is recommended. As an alternative, linear temperature compensation of the discharge cut-off voltage from 3.0 volts at ambient room temperature to 3.6 volts at 60°C can be used to extend cycle life at the elevated temperatures.

Additional performance parameters can be found on the appropriate and Cell Specification sheets available from Valence Technology.



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- Step 1: Discharge a fully charged cell at C/2 to 3.0V cutoff
- Step 2: Open circuit rest step for 30 minutes, monitoring the voltage relaxation
- Step 3: Constant current charge at C/2 to 4.20V
- Step 4: Constant voltage charge at 4.2V until current tapers to C/20
- Step 5: Open circuit rest step for 10 minutes

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