

Tadiran Lithium Ion Rechargeable Battery Model TLI-1020A

1. Scope

This specification applies to the AAA size Lithium Ion Rechargeable battery supplied by Tadiran Batteries Ltd.

Notice: Charging circuit and application load profile have to be approved by Tadiran prior to the use of this cell.

2. Characteristics

- 2.1. Physical
 - 2.1.1. Length: 21 mm Max.
 - 2.1.2. Diameter: 10.5 mm Max
 - 2.1.3. Weight: 4.2 gr. Max.
- 2.2. Electrical / Charge
 - 2.2.1. Charge Voltage: 4.1 V
 - 2.2.2. Charge Current: 8 mA Max.
 - 2.2.3. Charge Method: CCCV (Constant Current/Constant Voltage)
 - 2.2.4. End of Charge: 1.6 mA Max. per cell
 - 2.2.5. Charge Temp. Range:

-20 to +50 °C Charge temperature can be extended to $-40 \div +85$ °C provided that the max. charge current is limited to 1.6 mA.

2.3. Electrical / Discharge

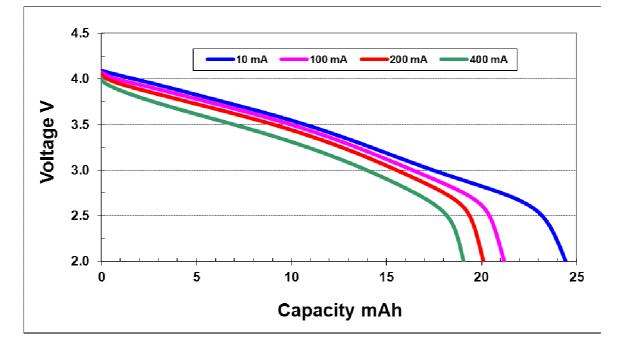
- 2.3.1. Nominal Current: 20 mA
- 2.3.2. End of Discharge: 2.5 V @ Room Temperature
- 2.3.3. Discharge Temp. Range: -40 to +85 °C
- 2.3.4. Performance Characteristics:

Item	Performance	Conditions
Battery Capacity	27 [mAh]	Discharge at 8 mA
	26 [mAh]	Discharge at 80 mA
Charge Discharge Cycles	24 [mAh]	After 100 cycles Discharge at 20 mA
Temperature	24 [mAh]	Discharge at -20 °C at 20 mA
	27 [mAh]	Discharge at 60 °C at 20 mA
Charge Retention	24 [mAh]	After 5 years at RT,
(reversible)		Discharge at20 mA
Impedance	Less than 600 mohm	Impedance at 1 KHz

RevB, Dec, 2013 (ECN 6102162)

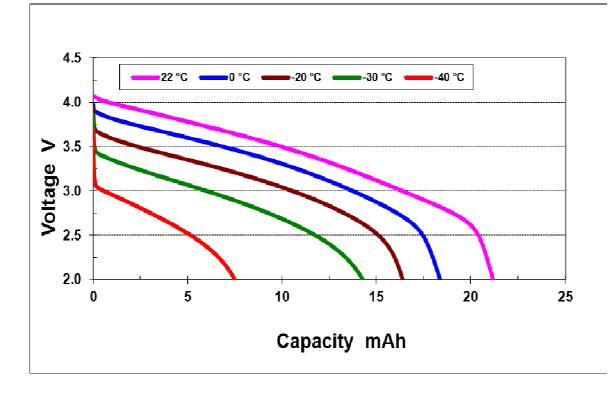
THE INFORMATION PROVIDED HERE IS NECESSARILY OF A GENERAL NATURE. SINCE SPECIFIC PERFORMANCE DEPENDS ON ACTUAL OPERATING AND STORAGE CONDITIONS, OUR ENGINEERS WILL PROVIDE PARTICULAR APPLICATION INSTRUCTIONS UPON REQUEST. DATA SUBJECT TO REVISION WITHOUT NOTICE. ANY REPRESENTATION IN THIS BROCHURE CONCERNING PERFORMANCE ARE FOR INFORMATION PURPOSES ONLY AND NOT WARRANTIES, EITHER EXPRESSED OR IMPLIED, OF FUTURE PERFORMANCE. TADIRAN'S STANDARD LIMITED WARRANTY, STATED IN ITS SALES CONTRACT OR ORDER CONFIRMATION FORM IS THE ONLY WARRANTY OFFERED BY TADIRAN.





Discharge curves at Room Temperature

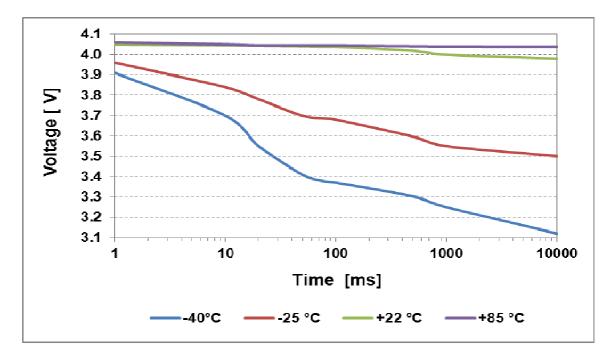
Discharge Curves at Several Temperatures, @ 100 mA



RevB, Dec, 2013 (ECN 6102162)

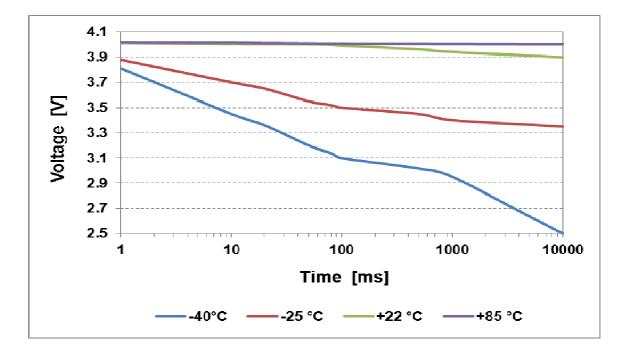
THE INFORMATION PROVIDED HERE IS NECESSARILY OF A GENERAL NATURE. SINCE SPECIFIC PERFORMANCE DEPENDS ON ACTUAL OPERATING AND STORAGE CONDITIONS, OUR ENGINEERS WILL PROVIDE PARTICULAR APPLICATION INSTRUCTIONS UPON REQUEST. DATA SUBJECT TO REVISION WITHOUT NOTICE. ANY REPRESENTATION IN THIS BROCHURE CONCERNING PERFORMANCE ARE FOR INFORMATION PURPOSES ONLY AND NOT WARRANTIES, ETHER EXPRESSED OR IMPLIED, OF FUTURE PERFORMANCE. TADIRAN'S STANDARD LIMITED WARRANTY, STATED IN ITS SALES CONTRACT OR ORDER CONFIRMATION FORM IS THE ONLY WARRANTY OFFERED BY TADIRAN.





Voltage Curves @ 60 mA , 10 sec pulse

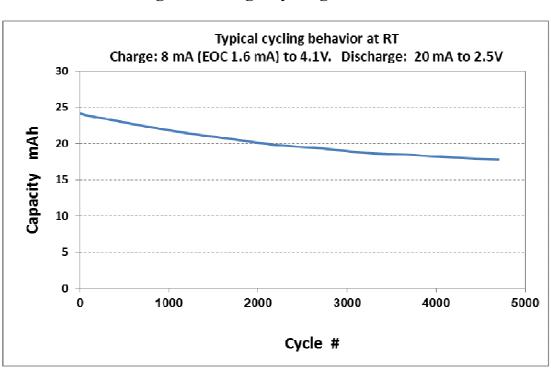
Voltage Curves @ 100 mA , 10 sec pulse



RevB, Dec, 2013 (ECN 6102162)

THE INFORMATION PROVIDED HERE IS NECESSARILY OF A GENERAL NATURE. SINCE SPECIFIC PERFORMANCE DEPENDS ON ACTUAL OPERATING AND STORAGE CONDITIONS, OUR ENGINEERS WILL PROVIDE PARTICULAR APPLICATION INSTRUCTIONS UPON REQUEST. DATA SUBJECT TO REVISION WITHOUT NOTICE. ANY REPRESENTATION IN THIS BROCHURE CONCERNING PERFORMANCE ARE FOR INFORMATION PURPOSES ONLY AND NOT WARRANTIES, ETHER EXPRESSED OR IMPLIED, OF FUTURE PERFORMANCE. TADIRAN'S STANDARD LIMITED WARRANTY, STATED IN ITS SALES CONTRACT OR ORDER CONFIRMATION FORM IS THE ONLY WARRANTY OFFERED BY TADIRAN.





Charge/ Discharge Cycling Performance

2.4. Cell / Battery Protection (to be applied by the user)

Item	Specifications
Over charge protection	Cell voltage should not be higher than 4.2 V
Over discharge protection	Cell voltage should not be lower than 2.4 V

2.5. Safety Characteristics

The cells successfully passed the following safety tests:

- Short circuit at RT, 55 °C and 85 °C.
- Temperature test up to 170 °C.
- Crush.
- Impact.
- Nail penetration.
- Over charge up to 40 mA, 12 V.
- Over discharge (300%) up to 160 mA.
- •
- 2.6. Battery pack assembly and usage considerations
 - For 2 cells or more in series, voltage shall be monitored on each cell.
 - For more than 2 cells in parallel, maximum charge current shall be limited to 20 mA for the whole pack.

RevB, Dec, 2013 (ECN 6102162)