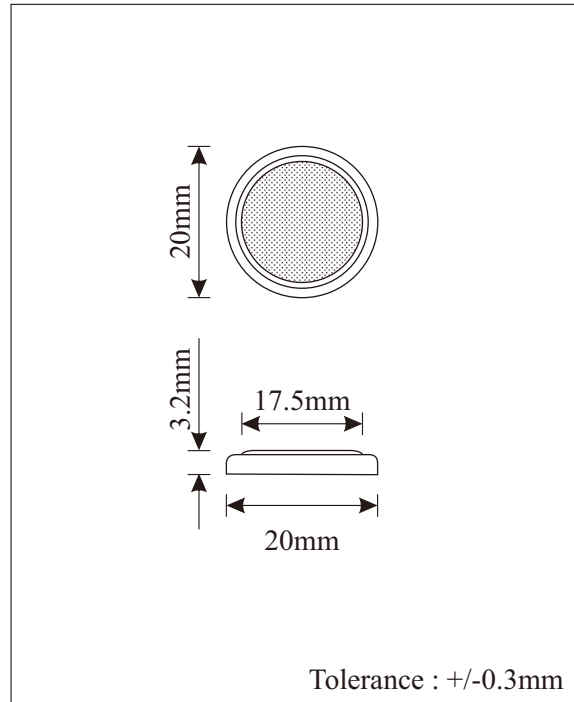
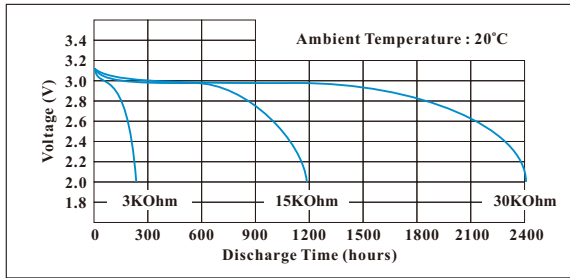


LITHIUM BATTERY

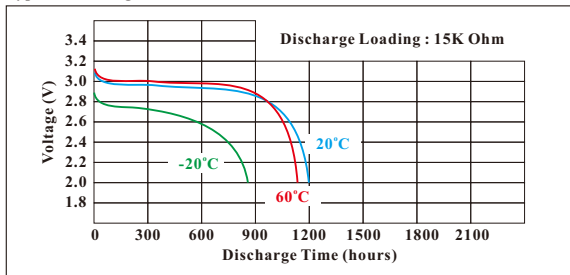
SPECIFICATIONS

Model	:	CR2032
Description	:	Lithium Coin Cell (LiMnO ₂), Mercury Free
Nominal Capacity	:	230mAh at 15K Ohm continuous discharge till 2.0V at 20degC
Nominal Voltage	:	3.0 V
Cut-Off Voltage	:	2.0 V
Weight	:	3.1 g
Expected Shelf Life	:	3 years ex-factory
Recommended Drain	:	Pulse - 15mA Standard - 15K Ohm loading
Self Discharge	:	<=3.5% when stored for 12 months at 20degC and 65%R.H.
Service Life (fresh cell)	:	Typ. 1200 hrs at 15K Ohm discharge till 2.0V at 20degC Typ. 1120 hrs at 15K Ohm discharge till 2.0V at 60degC Typ. 830 hrs at 15K Ohm discharge till 2.0V at -20degC Typ. 1110 hrs at 15K Ohm discharge till 2.5V at 20degC Typ. 2270 hrs at 30K Ohm discharge till 2.5V at 20degC Typ. 210 hrs at 3K Ohm discharge till 2.0V at 20 degC
Application	:	Memory Backup, Electronic Watches, Calculators, Cameras, Electronic Translators, Low Power Cordless Application

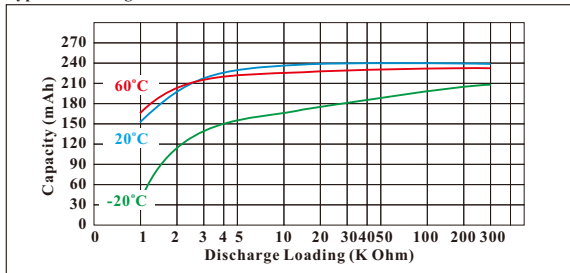
Typical Discharge Characteristics



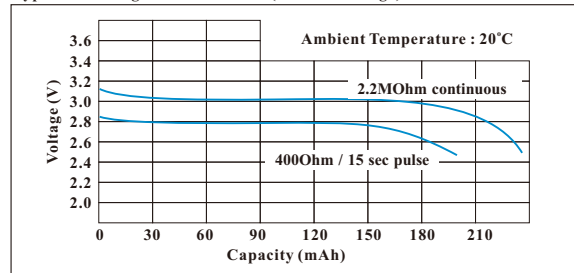
Typical Discharge Characteristics



Typical Discharge Characteristics



Typical Discharge Characteristics (Pulse Discharge)



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Model : CR2032
Version : 2.61

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LITHIUM BATTERY

TEST DATA

Vibration Test

Test Procedures :

Cells and batteries are firmly secured to the platform of the vibration machine without distorting the cells in such a manner as to faithfully transmit the vibration. The vibration shall be a sinusoidal waveform with a logarithmic sweep between 7 Hz and 200 Hz and back to 7 Hz traversed in 15 minutes. This cycle shall be repeated 12 times for a total of 3 hours for each of three mutually perpendicular mounting positions of the cell. One of the directions of vibration must be perpendicular to the terminal face.

The logarithmic frequency sweep shall differ for cells and batteries with a gross mass of not more than 12 kg (cells and small batteries), and for batteries with a gross mass of more than 12 kg (large batteries).

For cells and small batteries: from 7 Hz a peak acceleration of 1 g_n is maintained until 18 Hz is reached. The amplitude is then maintained at 0.8 mm (1.6 mm total excursion) and the frequency increased until a peak acceleration of 8 g_n occurs (approximately 50 Hz). A peak acceleration of 8 g_n is then maintained until the frequency is increased to 200 Hz.

Requirements :

Cells and batteries meet this requirement if there is no leakage, no venting, no disassembly, no rupture and no fire during the test and after the test and if the open circuit voltage of each test cell or battery directly after testing in its third perpendicular mounting position is not less than 90% of its voltage immediately prior to this procedure. The requirement relating to voltage is not applicable to test cells and batteries at fully discharged states.

Test Results : PASSED

No.	Pre-test		After test		Mass loss (%)	Voltage loss (%)	Whether leakage, venting, disassembly, rupture, fire (Y/N)
	Mass (g)	Voltage (V)	Mass (g)	Voltage (V)			
N1	2.948	3.328	2.947	3.332	0.034	-0.120	N
N2	2.963	3.183	2.963	3.189	0.000	-0.189	N
N3	2.976	3.318	2.975	3.316	0.034	0.060	N
N4	3.019	3.330	3.019	3.335	0.000	-0.150	N
N5	2.968	3.238	2.968	3.240	0.000	-0.062	N
N6	2.957	3.340	2.957	3.317	0.000	0.689	N
N7	3.001	3.329	3.001	3.333	0.000	-0.120	N
N8	2.998	3.327	2.996	3.335	0.067	-0.240	N
N9	2.979	3.327	2.978	3.332	0.034	-0.150	N
N10	3.011	3.234	3.011	3.237	0.000	-0.093	N
N11	2.979	—	2.979	—	0.000	—	N
N12	2.994	—	2.994	—	0.000	—	N
N13	2.953	—	2.952	—	0.034	—	N
N14	2.980	—	2.980	—	0.000	—	N
N15	3.005	—	3.004	—	0.033	—	N
N16	2.983	—	2.983	—	0.000	—	N
N17	2.956	—	2.956	—	0.000	—	N
N18	2.960	—	2.960	—	0.000	—	N
N19	2.965	—	2.964	—	0.034	—	N
N20	2.975	—	2.975	—	0.000	—	N

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LITHIUM BATTERY

PROPER USE AND HANDLING

This page is not intended to provide all the information that you will need to know to safely use the battery. Customer should employ appropriate cautions in order to obtain optimum performance and safety.

- Handling and Safety** :
- Do not mix new and used batteries
 - Do not mix batteries of different sizes, brands and types.
 - Do not recharge the batteries
 - Do not reverse the polarity
 - Do not over-discharge the battery
 - Do not heat, incinerate or solder on the battery
 - Do not puncture, crush or dismantle the battery
 - Do not expose content to water
 - Keep battery away from children
 - Do not short circuit the battery. Control measures should be implemented throughout the workplace.
 - Batteries should be stored in original packaging or by similar means before installation or after removal.
 - Batteries should be handled by trained workers.
 - Avoid dropping of the battery. Dropped battery should be treated as a potential hot cell and must be segregated from the batch.
 - All inspection tools should be non-conductive.
 - Batteries should be inspected for physical damage. After checked, they should be returned to their storage packaging.
- Storage** :
- Store batteries in a cool, dry and well-ventilated area. Storage temperature should be within the specified range in the specification
 - Keep away from moisture, heat sources and open flames.
 - Keep batteries in original packaging.
 - Do not apply pressure that may deform the battery.
 - Appropriate fire extinguishing means and personal protective equipment should be available.
- Installation** :
- Install only new batteries with the same size, type and date code.
 - Make sure the polarities is correct in installation.
 - Make sure the batteries is in physically good conditions
- Disposal** :
- Dispose the batteries in accordance with local regulations
 - Secure terminals to prevent short-circuiting
 - Cut open the circuit for parallel connections
 - Package each battery in a manner that prevents shorting with the container or with other batteries
 - Package leaking batteries in a manner that contains the leak and use appropriate handling equipments such as gloves, safety glasses, respirator, sealable plastic bags.

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