

# THIN CELL®

NON-RECHARGEABLE LITHIUM MANGANESE DIOXIDE CELLS  
FROM ULTRALIFE



**ULTRALIFE®**

Ultralife Corporation serves its markets with products and services ranging from power solutions to communications and electronics systems. Through its engineering and collaborative approach to problem solving, Ultralife serves government, defense and commercial customers across the globe.

Headquartered in Newark, New York, the Company's business segments include: Battery & Energy Products and Communications Systems. Ultralife has operations in North America, Europe and Asia.

**ULTRALIFE®**



# THIN CELL® FOR SLIMMER & LIGHTER DEVICES

## THIN CELL®... THE POWER SOURCE FOR WIRELESS CONNECTED DEVICES

ULTRALIFE's leading edge primary (non-rechargeable) Thin Cell® battery chemistry has emerged as an enabling technology, allowing IoT and other wearable device designers to realise the next generation of connected devices.

ULTRALIFE Thin Cell® utilizes high energy Lithium Manganese Dioxide (Li-MnO<sub>2</sub>) chemistry, efficiently packaged in a pouch cell format, allowing cells to be manufactured as thin as 1.1mm (0.043 inches). This innovative technology allows devices to be made thinner & lighter, opening up new possibilities for embedded & wearable devices.



GOVERNMENT  
& DEFENSE



MEDICAL



SAFETY &  
SECURITY



ENERGY



INDUSTRIAL

“

Opening up new possibilities  
for embedded & wearable  
devices ”

”

# LEADING EDGE THIN CELL<sup>®</sup> CHEMISTRY

ULTRALIFE Thin Cell<sup>®</sup> meets the stringent requirements of UL 1642 for safety in addition to UN testing for transportation, meaning they can be quickly & confidently designed into products with minimal effort.

ULTRALIFE Thin Cell<sup>®</sup> is terminated with Nickel & stainless steel tabs (with Nickel & Nickel available as an option) which means they can easily be soldered to device PCBs, making assembly quick & efficient for contract manufacturers to integrate them into electronic devices. Alternatively, Thin Cell<sup>®</sup> can be supplied with compact connectors & leads for wire to board connection.



ULTRALIFE Thin Cell<sup>®</sup> batteries are manufactured in the Ultralife Shenzhen China factory, the same facility where the famous U9VL-J-P battery is produced. The U9VL-J-P is the world's highest capacity 9V battery with over 100,000,000 batteries sold. ULTRALIFE Thin Cell<sup>®</sup> shares the same chemistry platform as the U9VL-J-P so customers can be assured of product quality & reliability.

ULTRALIFE's Shenzhen facility is accredited to ISO 9001, ISO 13485 & ISO 14001, meeting the demands of OEMs from around the world.



## FEATURES & BENEFITS

ULTRALIFE Thin Cell<sup>®</sup> has many advantages over traditional primary lithium coin cells:

### ENERGY DENSITY

The energy density of ULTRALIFE Thin Cell<sup>®</sup> is around 500Wh/l and 400Wh/kg compared to just 300Wh/l and 260Wh/kg for the best lithium coin cells. This high volumetric & gravimetric energy density means that devices can be made smaller & lighter – the requisite for wearable technology.

### STORAGE

ULTRALIFE Thin Cell<sup>®</sup> retains >99% of its capacity after one year storage at room temperature & does not suffer from the passivation associated with other Lithium chemistries. This means they are always ready to use regardless of how customers choose to store their devices.

### STABLE VOLTAGE

The Lithium Manganese Dioxide platform on which ULTRALIFE Thin Cell<sup>®</sup> is built provides a stable voltage to power electronic devices. With an operating voltage between 3.3V and 1.5V, the ULTRALIFE Thin Cell<sup>®</sup> is perfect for modern, low voltage electronic devices.

### SLIM

ULTRALIFE Thin Cell<sup>®</sup> can be manufactured as thin as 1.1mm (0.043 inches) making them ideal for devices with a low profile such as ID tags & smart cards. Device designers can efficiently package the cells within their product as they do not expand or swell during storage or use.

### RATE CAPABLE

The use of low resistance current collectors allows ULTRALIFE Thin Cell<sup>®</sup> to outperform coin cells at higher discharge rates - the ideal solution for applications which require high bursts of energy such as those with RF transmitters.

### WIDE TEMPERATURE

ULTRALIFE Thin Cell<sup>®</sup> operates safely & effectively between -20°C & +60°C, making them suitable for a wide range of demanding applications. Their low temperature operation means they continue to operate when other batteries have frozen.

### STANDARD & CUSTOM SIZES

In addition to off-the-shelf standard cell models, ULTRALIFE can specially manufacture Thin Cell<sup>®</sup> in unique sizes to suit specific customer requirements. Minimum order quantities start at 50k units with competitive tooling & qualification charges. Custom cell sizes can be accommodated within the following space envelope:

- Length: 20mm to 305mm
- Width: 20mm to 305mm
- Thickness: 1.1mm to 6mm

Contact us with your size restraints & we will quickly provide you with an estimate on deliverable energy.



Device designers can now realise the next generation of connected devices





# WORKING TO MEET YOUR NEEDS



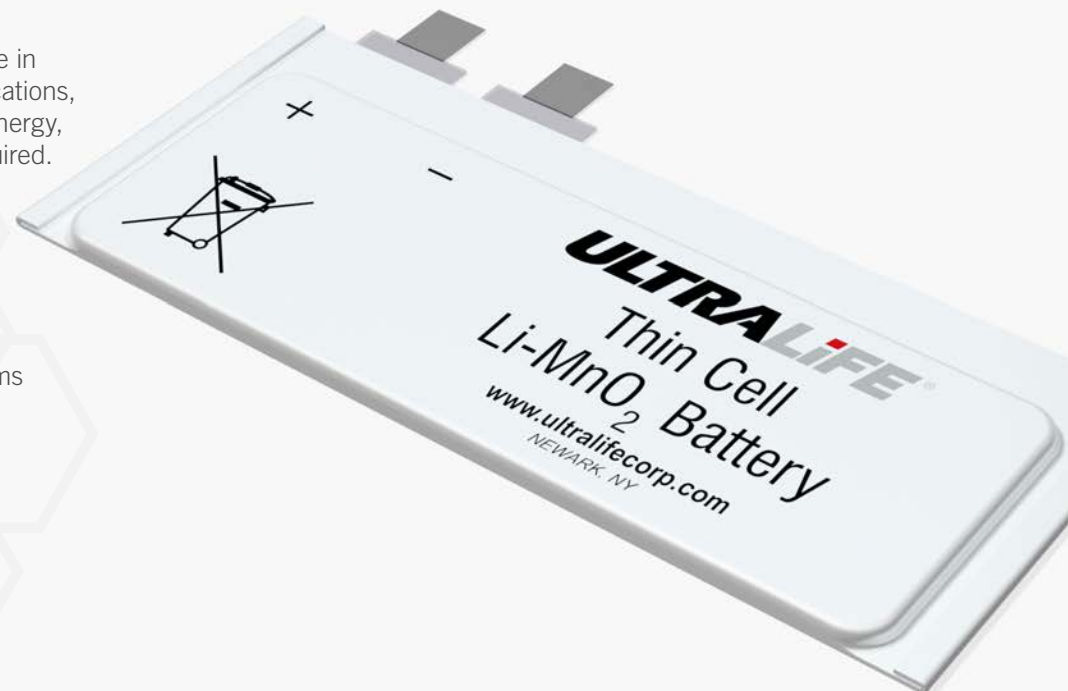
## WORKING WITH CONSULTANTS, OEMS & ODMS

ULTRALIFE has extensive experience working with design consultants & OEMs during the concept & pre-production stages of a project, bringing a high level of technical & commercial support when project leaders need to progress quickly & confidently. Once designed & qualified we are organised globally to deliver production volumes of product to OEMs or authorised sub-contractors, shipping from our facilities in the US, Europe or China.

## APPLICATIONS

ULTRALIFE Thin Cell® is ideal for use in both professional & consumer applications, wherever a non-rechargeable high energy, slim, reliable and safe battery is required.

- Smart security cards
- Asset tracking tags
- Toll pass tags
- Bank theft tracking systems
- Electronic record tracking systems
- Medical devices
- Drug delivery systems
- RFID



# TECHNICAL SPECIFICATIONS

THIN CELL® PRIMARY LITHIUM MANGANESE DIOXIDE (Li-MnO <sub>2</sub> ) <small>NOTE: IMAGES ARE NOT TO SCALE</small>		CP114951	CP124920	CP243238	CP301322	CP301030	CP403838 <small>(previously U10004)</small>	CP502520	CP502537	CP603145
		<b>ELECTRICAL</b>		1.5V to 3.3V						
<b>Voltage Range</b>		1.5V to 3.3V								
<b>Nominal Voltage</b>		Ultralife 3.0V LiMnO <sub>2</sub> technology								
<b>Typical Capacity @+23°C</b>		380mAh @2mA to 1.8V	165mAh @1mA to 1.8V	700mAh @10mA to 1.5V	115mAh @2mA to 1.5V	150mAh @2mA to 1.5V	1500mAh @10mA to 1.5V	600mAh @10mA to 1.5V	1200mAh @10mA to 1.5V	1900mAh @5mA to 2.0V
<b>Max. Continuous Discharge Current</b>		50mA	15mA	75mA	35mA	30mA	125mA	75mA	150mA	500mA
<b>Pulse Capability (contact Ultralife)</b>		Up to 100mA	Up to 30mA	Up to 150mA	Up to 70mA	Up to 100mA	Up to 250mA	Up to 300mA	Up to 300mA	Up to 1000mA
<b>ENVIRONMENTAL</b>		-20°C to +60°C								
<b>Operating Temperature</b>		-20°C to +60°C								
<b>Storage Temperature</b>		-40°C to +60°C								
<b>MECHANICAL</b>		Laminated aluminium foil								
<b>Exterior Housing</b>		Laminated aluminium foil								
<b>Typical Weight (g)</b>		4.0g	1.7g	5.7g	1.1g	1.4g	13.0g	4.5g	9.0g	15.7g
<b>Cell Length (max)</b>		51.0mm	20.0mm	43.0mm	22.5mm	30.0mm	48.0mm	26.0mm	43.0mm	45.0mm
<b>Cell Width (max)</b>		48.75mm	48.75mm	38.0mm	13.5mm	11.2mm	44.5mm	25.0mm	24.8mm	31.0mm
<b>Cell Thickness (max)</b>		1.1mm	1.3mm	2.6mm	3.2mm	3.2mm	4.4mm	5.2mm	5.2mm	6.2mm
<b>Terminal Materials</b>		Nickel-Stainless Steel (Ni-Ni optional)								
<b>Terminal Length</b>		5.5mm	4.9mm	8.0mm	3.5mm	5.0mm	25.4mm	7.0mm	6.0mm	
<b>Positive Terminal Width</b>			3.0mm		1.5mm	5.0mm		2.0mm	3.0mm	
<b>Negative Terminal Width</b>			3.0mm		1.5mm	5.0mm		3.0mm		

“ Devices can be made smaller & lighter – the requisite for wearable technology ”

- Specification details are correct at the time of printing.
- For the latest data please refer to published specifications which are available on our website at [www.ultralifecorp.com](http://www.ultralifecorp.com)
- Operator & regional variations may apply to the transport of Lithium batteries. Check with your operator.
- Product images in this brochure are computer generated representations. Refer to technical data sheets for actual product dimensions.

**ULTRALiFE<sup>®</sup>**  
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