

# 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**<sup>®</sup>



# 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 utilises 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 0.4mm (0.016 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 ”

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# LEADING EDGE THIN CELL CHEMISTRY

ULTRALIFE Thin Cell meets the stringent requirements of UL 1642 & IEC 60086-4:2014 for safety in addition to UN testing for transportation, meaning they can be quickly & confidently designed into products with minimal effort.

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

ULTRALIFE Thin Cell 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 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 ISO9001, ISO13485 & ISO14001, meeting the demands of OEMs from around the world.

## FEATURES & BENEFITS

ULTRALIFE Thin Cell has many advantages over traditional primary lithium coin cells:

### ENERGY DENSITY

The energy density of ULTRALIFE Thin Cell 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 retains >98% 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 is built provides a stable voltage to power electronic devices. With an operating voltage between 3.3V and 1.5V, the ULTRALIFE Thin Cell is perfect for modern, low voltage electronic devices.

### SLIM

ULTRALIFE Thin Cell can be manufactured as thin as 0.4mm (0.016 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 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 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 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: 0.4mm to 6mm

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



“ devices 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>		CP124920	CP502520	CP243238	CP224143	CP502537	CP403838
ELECTRICAL	Voltage Range	1.5V to 3.3V					
	Nominal Voltage	Ultralife 3.0V LiMnO <sub>2</sub> technology					
	Nominal Capacity	165mA @1mA to 1.5V @+23°C	600mA @5mA to 1.5V @+23°C	700mAh @10mA to 1.5V @+23°C	800mAh @10mA to 1.5V @+23°C	1200mAh @10mA to 1.5V @+23°C	1600mAh @10mA to 1.5V @+23°C
	Max. Continuous Discharge Current	15mA	75mA		150mA	125mA	
	Pulse Capability (contact Ultralife)	Up to 30mA	Up to 300mA	Up to 150mA	Up to 300mA	Up to 250mA	
ENVIRONMENTAL	Operating temperature	-20°C to +60°C					
	Storage Temperature	-40°C to +60°C					
MECHANICAL	Exterior Housing	Laminated aluminium foil					
	Typical Weight (g)	1.7g	4.5g	5.7g	7.0g	9.0g	13.0g
	Cell Length (max)	20.0mm	26.0mm	43.0mm	48.5mm	43.0mm	44.5mm
	Cell Width (max)	49.0mm	25.0mm	41.0mm	48.0mm	32.9mm	48.0mm
	Cell Thickness (max)	1.25mm	5.2mm	2.6mm	2.4mm	5.15mm	4.4mm
	Terminal Materials	Nickel-Stainless Steel (Ni-Ni optional)		Nickel-Aluminium (Ni-Ni optional)	Nickel-Stainless Steel (Ni-Ni optional)		Nickel-Aluminium (Ni-Ni optional)
	Terminal Length (max)	5.4mm	8.2mm	10.0mm	20.0mm	18mm	26.4mm
	Positive Terminal width	3.0mm					
	Negative Terminal width	3.0mm	2.0mm		3.0mm	2.0mm	5.0mm



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- 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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