

# Energy device solution

## Micro battery

Murata offers a wide range of primary micro batteries with high performance and reliability, taking

advantage of 40+ years technology development and manufacturing expertise.



### Coin manganese dioxide lithium batteries (CR batteries)

- Wide range of CR batteries including heat-resistant type and high drain type
- High voltage, high energy density and excellent self-discharge performance
- Acquisition of ISO/TS16949 certification

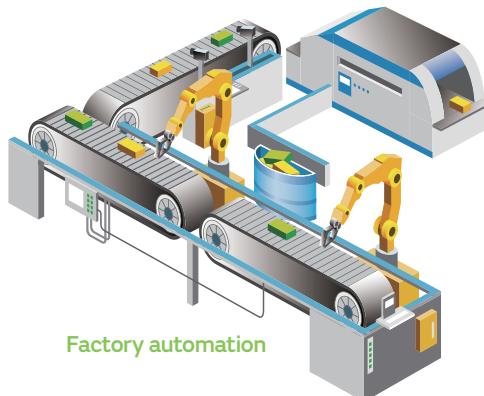
Battery types	CR (Standard)	CR (Extended temperature)	CR (Heat-resistance)	CR (High drain)
<b>Nominal voltage</b>	3.0 (V)	3.0 (V)	3.0 (V)	3.0 (V)
<b>Operating temp.</b>	-30 to +70 (°C)	-40 to +85 (°C)	-40 to +125 (°C)	-30 to +70 (°C)
<b>Nominal capacity</b>	30-610 (mAh)	220-2000 (mAh)	210-1000 (mAh)	200-500 (mAh)
<b>Diameter</b>	12.5-24.5 (mm)	20.0-36.5 (mm)	20.0-24.5 (mm)	20.0-24.5 (mm)
<b>Thickness</b>	1.6-5.0 (mm)	3.2-7.7 (mm)	3.2-7.7 (mm)	3.2-5.0 (mm)
<b>Weight</b>	0.67-7.0 (g)	3.0-20 (g)	3.1-11 (g)	3.0-6.4 (g)
<b>Max plus discharge*1</b>	30mA	30mA*2	30mA	50mA

\*1 50% depth of discharge battery's maximum pulse discharge current over 2V for 3s (23°C)

\*2 CR3677X max plus discharge is 80mA

### Applications

- Tire pressure monitoring system
- Factory automation
- Smart meters
- Tracking devices
- Sensors



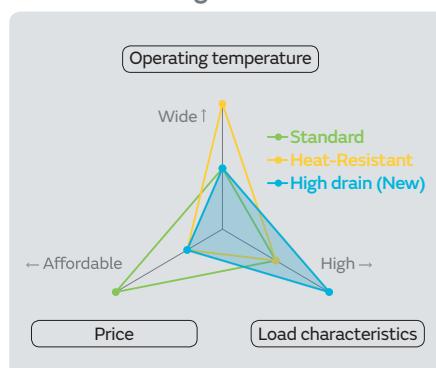
### New products

In response to the expansion of IoT applications and increasing demand for small, reliable power sources, Murata developed two types of coin manganese dioxide lithium batteries; High drain type and Extended temperature type.

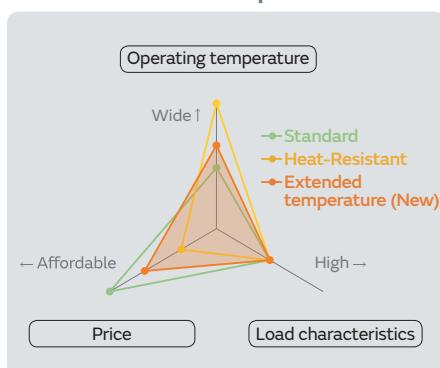


### Coin manganese dioxide lithium batteries selection guide

#### High drain



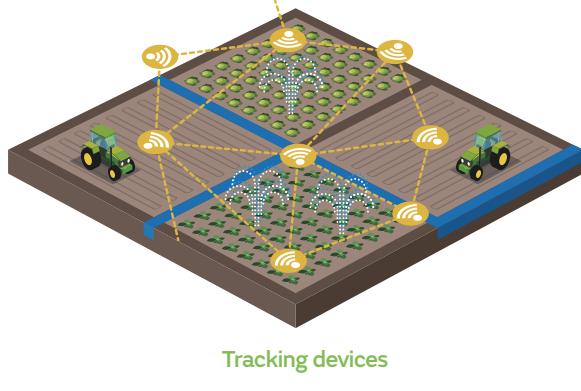
#### Extended temperature



# Energy device solution

## High drain

Excellent high-current discharge performance to support LPWA data transmission



### Max. pulse discharge current



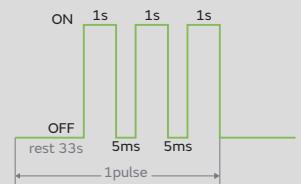
\*50% depth of discharge battery's maximum pulse discharge current over 2V for 3s (23°C)

### Discharge time (45mA pulse discharge)



\*Pulse discharge condition:  
45mA x 3s, 33s off, 2V cut off (23°C)

### Pulse discharge condition: LPWA

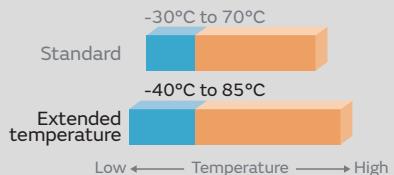


## Extended temperature

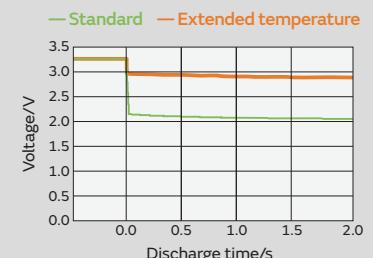
Recommend for automotive and outdoor devices



### Operating temperature



### Voltage comparison after 85°C storage



## Silver oxide batteries (SR batteries)

Murata is the world's number one supplier of SR batteries, and was the first to manufacture mercury-free silver oxide batteries, providing excellent stable discharge characteristics.

Battery types	SR (Standard, High drain)	LR (Standard, High drain)
Nominal voltage	1.55 (V)	1.5 (V)
Nominal capacity	20-150 (mAh)	45-150 (mAh)
Diameter	6.8-11.6 (mm)	7.9-11.6 (mm)
Thickness	2.1-5.4 (mm)	3.0-5.4 (mm)
Weight	0.32-2.2 (g)	0.6-2.0 (g)
Operating temp.	-10 to +60 (°C)	-10 to +60 (°C)

## Alkaline manganese batteries (LR batteries)

- High safety with unique technologies to prevent leakage and swelling
- Excellent high-drain pulse discharge characteristics

## Applications

- Insulin pumps
- CGM (Continuous glucose monitoring)
- Capsule endoscopy

