

## 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

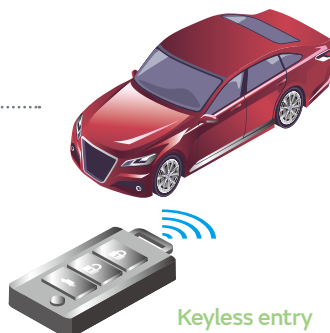
| Battery types        | CR (Standard)   | New CR (Extended temperature) | CR (Heat-resistant) | New CR (High drain) |
|----------------------|-----------------|-------------------------------|---------------------|---------------------|
| Nominal voltage      | 3.0 (V)         | 3.0 (V)                       | 3.0 (V)             | 3.0 (V)             |
| Operating temp.      | -30 to +70 (°C) | -40 to +85 (°C)               | -40 to +125 (°C)    | -30 to +70 (°C)     |
| Nominal capacity     | 30-1000 (mAh)   | 220-2000 (mAh)                | 210-1000 (mAh)      | 200-500 (mAh)       |
| Diameter             | 12.5-24.5 (mm)  | 20.0-36.5 (mm)                | 20.0-24.5 (mm)      | 20.0-24.5 (mm)      |
| Thickness            | 1.6-7.7 (mm)    | 3.2-7.7 (mm)                  | 3.2-7.7 (mm)        | 3.2-5.0 (mm)        |
| Weight               | 0.67-11 (g)     | 3.0-20 (g)                    | 3.1-11 (g)          | 3.0-6.2 (g)         |
| Max plus discharge*1 | 30mA            | 30mA*2                        | 30mA                | 50mA                |

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

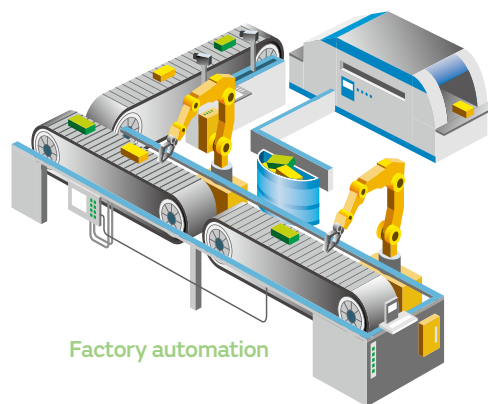
\*2 CR3677X max plus discharge is 80mA

### Applications

- Tire pressure monitoring system
- Keyless entry/Smart key
- Factory automation
- Smart meters
- Tracking devices
- Sensors



Keyless entry



Factory automation

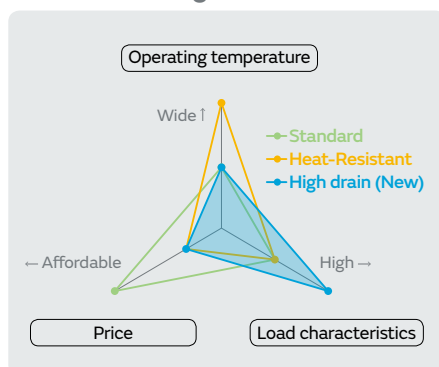
### New products

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.

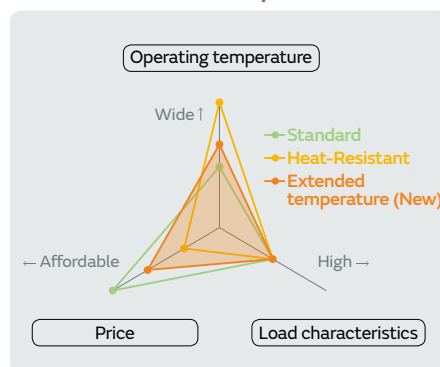


### Coin manganese dioxide lithium batteries selection guide

#### High drain

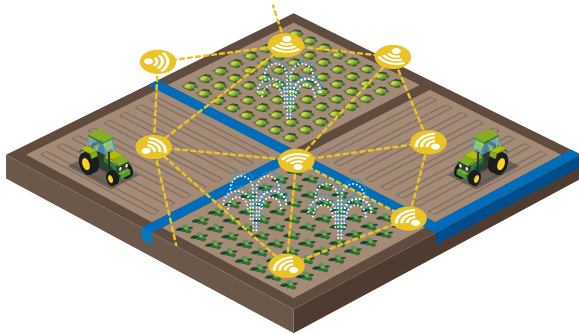


#### Extended temperature



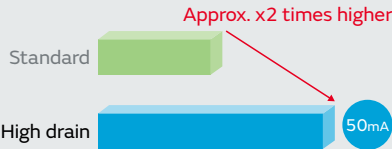
## High drain

Excellent high-current discharge performance to support LPWA data transmission



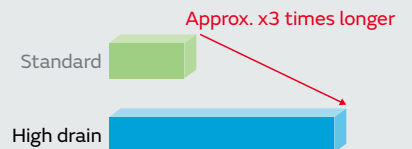
Tracking devices

### Max. pulse discharge current



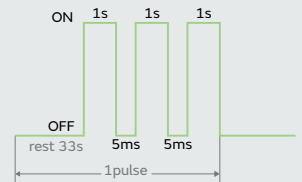
\*50% depth of discharge battery's maximum pulse discharge current over 2V for 3s (23°C)

### Discharge time (45mA pulse discharge)



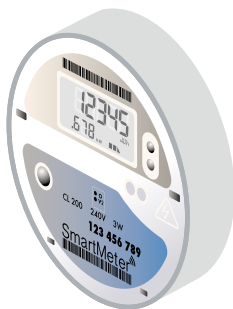
\*Pulse discharge condition: 45mA x 3s, 33s off, 2V cut off (23°C)

### Pulse discharge condition: LPWA



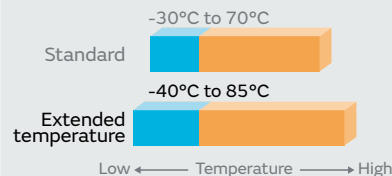
## Extended temperature

Recommend for automotive and outdoor devices

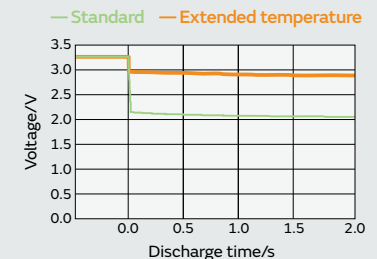


Smart meters

### 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 Silver oxide batteries | LR Alkaline manganese batteries |
|------------------|---------------------------|---------------------------------|
| Nominal voltage  | 1.55 (V)                  | 1.5 (V)                         |
| Nominal capacity | 20-160 (mAh)              | 45-120 (mAh)                    |
| Diameter         | 6.8-11.6 (mm)             | 7.9-11.6 (mm)                   |
| Thickness        | 2.1-5.4 (mm)              | 3.05-5.4 (mm)                   |
| Weight           | 0.31-2.17 (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

