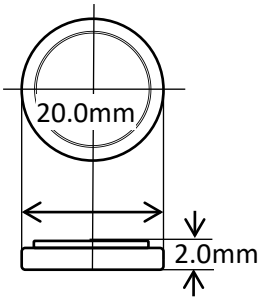
Panasonic ENERGY

VL2020

Coin-type Vanadium Rechargeable Lithium Batteries

Features & Benefits

- Retains high-discharge voltage performance.



Applications

Memory backup, RTC backup(printers, composite machines, medical equipment, FA equipment), remote keyless entry, fire alarms.

Charging Voltage		3.25V to 3.55V
Nominal Voltage		3.0V
Nominal Capacity[*1]		20.0mAh
Continuous drain		0.07mA
Dimensions[*2]	**Diameter (Max.)**	20.0mm
	Height (Max.)	2.0mm
Weight[*2]		Approx. 2.10g
Operating Temperature		-20°C to +60°C

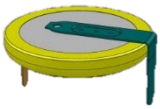
[*1] Based on standard drain and cut-off voltage down to 2.0V at 20°C.
[*2] Without tabs.

Terminal types

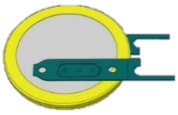
Please see the terminal and lead wire settings for each product number.

＊Reference
- Line up of tab terminal types(by shape)
- Line up of tab terminal types(by product number)

H type



V type



Charging circuits

Please ask Panasonic about constant- current charging system.
The charging circuit is crucial in terms of ensuring that full justice will be done to the battery characteristics.
Please study it carefully as the wrong charging circuit can cause trouble.

Charging/discharging cycle	Approx. 1,000times at 10% discharge depth to nominal capacity.
Charging system	Constant-voltage system
Operating temperature	-20°C to +60°C

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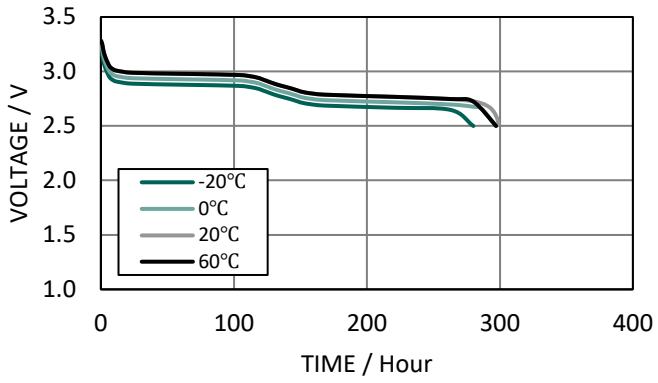
For more information on how Panasonic can assist you with your battery power solution needs call 877-726-2228, visit www.na.industrial.panasonic.com/products/batteries or e-mail oembatteries@us.panasonic.com.

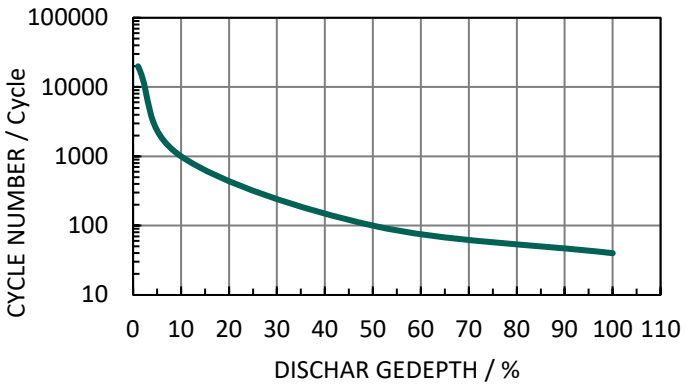
Characteristics

Discharging Characteristics

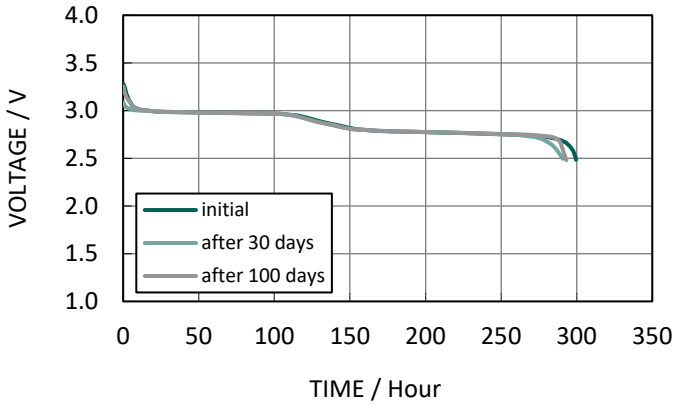


Charging Condition : CV(3.4V, 200Ω, 48H)
Discharging Condition : CR(30kΩ, 2.5V Cut-off)

Cycle Life Characteristics



Continuous Charging Characteristics (60°C)

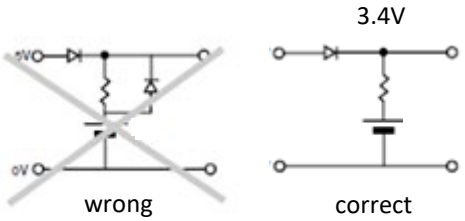


Charging Condition : CV(3.4V, 200Ω, 48H, 60°C)
Discharging Condition : CR(30kΩ, 60°C)

Handling Guidelines

1. **If a fixed-charging method is applied, please adhere to the specified charging voltage.**
   Guaranteed voltage is 3.4V±0.15V at the temperature of -20°C to 60°C.
   If the charging voltage exceeds the specifications, the internal resistance of the battery will rise and may cause battery deterioration.
   Also with a charge voltage around 4V, corrosion of the positive(+) terminal (case) may occur causing leakage.
   It is not possible for the battery to recover completely when the charging voltage is below the specification.

2. **Under no circumstances trickle charging should be used.**
   Ignoring this precaution will cause the battery voltage to rise to about 5V, resulting in a deterioration of performance.



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