



ORYXON
Lithium-ion Battery

EXPLORE THE UNKNOWN, POWER THE FUTURE



Driven by the wave of automotive electrification, start-stop battery technology is undergoing a significant innovation. As a new-generation automotive start-stop/starting power solution, lithium-ion phosphate (LiFePO₄) batteries are gaining increasing favor among car owners who pursue an exceptional driving experience, thanks to their outstanding performance and reliable user experience. Leveraging mature technology accumulated in the new energy power sector and over a decade of continuous iteration and extensive validation, they are poised to gradually replace traditional lead-acid/AGM batteries and become the mainstream choice for 12V automotive start-stop systems in the future.



Superior Discharge Performance for Enhanced Power Response:

With high energy density and a higher discharge rate (C-rate), they can deliver a powerful starting current instantly, ensuring rapid and responsive vehicle ignition. This helps the vehicle's electrical and powertrain systems perform at their best.



Smart BMS Management for Dual Assurance of Safety and Emergency Readiness:

Equipped with a built-in Battery Management System (BMS), these batteries can monitor voltage, temperature, and status in real time, enabling intelligent charge-discharge control and balanced management. This effectively prevents overcharging and over-discharging. Even at low charge levels, the BMS optimizes energy distribution to ensure reliable emergency starts.



Exceptional Cycle Life for Greater Cost Efficiency:

The stable material structure and excellent cycle resistance allow for a cycle life exceeding 3,000 cycles at 50% Depth of Discharge (DoD), far surpassing conventional start-stop batteries. This significantly reduces replacement costs over the battery's entire lifecycle.



Lightweight and High Efficiency for Energy Savings:

At equivalent capacity, weight can be reduced by up to approximately 70% compared to lead-acid batteries. The lightweight design helps lower overall vehicle fuel consumption, while the high energy conversion efficiency minimizes energy loss during charge and discharge processes, indirectly improving fuel economy.



Environmentally Friendly, Aligning with Green Trends:

Free from heavy metals such as lead and cadmium, these batteries generate less pollution during production and disposal. The recyclable materials promote green resource circulation, aligning with the automotive industry's sustainable development goals.

Technological Iteration: A Qualitative Leap from "Frequent Replacement" to "Full-Life Service"

Lithium-ion phosphate (LiFePO_4) batteries represent a dual breakthrough in materials science and power control technology for start-stop applications. Unlike the century-old, largely unchanged technological path of lead-acid batteries, LiFePO_4 batteries achieve comprehensive performance superiority through cathode material optimization and intelligent management system upgrades.

Core Technological Advantages Comparison

technical Specifications	LiFePO_4 Start-Stop Battery	Lead-Acid Start-Stop Battery	Technological Comparison
Cycle Life	3000+cycles	300-500cycles	3-5X improvement
Energy Conversion Efficiency	$\geq 95\%$	60%-70%	40% reduction in power loss
Cranking Amps (CCA)	1200-1800	400-600	More powerful starting capability
Thermal Decomposition Temperature	$\geq 500^\circ\text{C}$	120-150 $^\circ\text{C}$	3 X higher safety

Note: The cycle life data in the above table is based on measurements under standard operating conditions. Actual performance may vary due to environmental factors and specific vehicle usage patterns.

Two Core Technological Breakthroughs:

1. LiFePO_4 batteries are integrated with an intelligent Battery Management System (BMS) that monitors voltage, current, and temperature in real-time, providing multiple protections against over-charging, over-discharging, overheating, and short circuits. This ensures reliable starting performance and significantly reduces safety risks.

The lithium-ion phosphate material features a stable olivine structure, which undergoes minimal structural changes during charging and discharging cycles. This results in exceptional cycle durability, with a lifespan exceeding 3,000 cycles at 50% Depth of Discharge (DoD). In contrast, conventional lead-acid batteries typically achieve 300–500 cycles (AGM batteries can reach up to 800 cycles).

Technological iteration

The qualitative change from "frequent replacement" to "full-service life"



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ORYXON Lithium-ion (LiFePO₄) Starting/Stop-Start Batteries, with their advantages of high performance, long lifespan, lightweight design, and environmental friendliness, not only fully leverage vehicle starting performance and energy efficiency but also provide users with enhanced reliability and cost-effectiveness through their intelligent Battery Management System (BMS) and extended service life. It is an ideal choice for 12V automotive starting/stop-start batteries.



Longer Life
@50% DOD



Upto 3X
the Cranking Amps



Full Battery
Management System



Start-Stop Battery
For Passenger Car



Re-Start Tech
Emergency Jump-starting



Quick Start
Superior starting capabilities



Long Lasting
3-5X longer than lead acid batteries



Light Weight
up to 70% weight savings



ECO Friendly
Does not contain lead or acid



Low Self-discharge
Less than 1% per month



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App Store

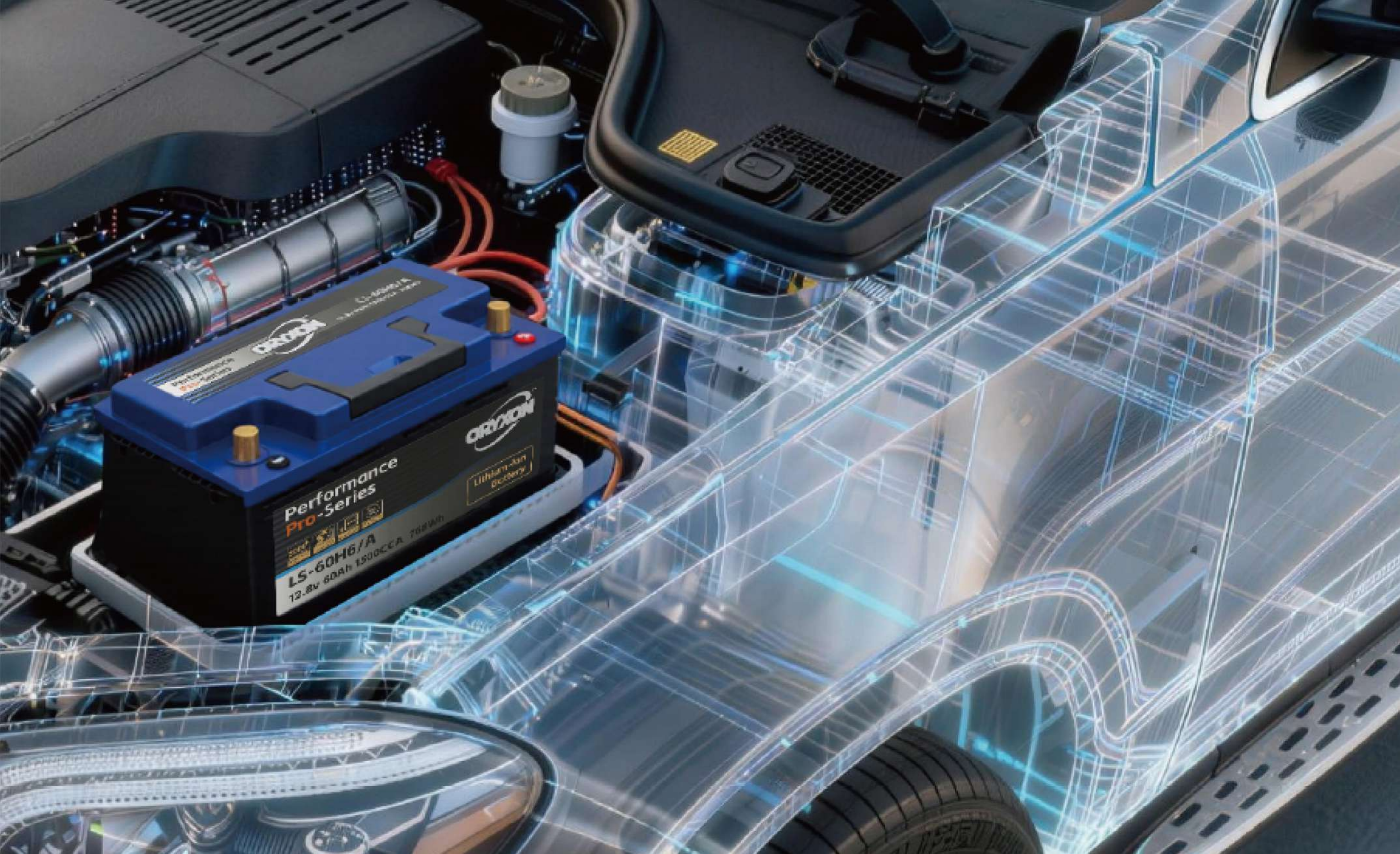


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ORYXON BMS APP



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Product Models and Related Parameters

CE

UN38.3

RoHS

ORYXON Lithium-ion	Dimensions(mm) L*W*H(TH)	Parameters			Lead-Acid Battery Equivalent Parameters	
		Voltage(V)	Capacity (Ah)	CCA(A)	Capacity (Ah)	CCA(A)
LS-40D23L/A(Q85)	238* 172*200(221)	12.8	40	1200	65	750
LS-4023R/A(Q85)	238* 172*200(221)	12.8	40	1200	65	750
LS-40D26L/A(S95)	260* 172*203(224)	12.8	40	1200	65	750
LS-40D26R/A(S95)	260* 172*203(224)	12.8	40	1200	65	750
LS-60D26L/A(S95)	260* 172*203(224)	12.8	60	1500	96	1125
LS-60D26R/A((S95)	260* 172*203(224)	12.8	60	1500	96	1125
LS-40H5/A	240* 174* 190*(190)	12.8	40	1200	65	750
LS-40H6/A	278* 174* 190*(190)	12.8	40	1200	65	750
LS-60H6/A	278* 174* 190*(190)	12.8	60	1500	96	1125
LS-60H7/A	315* 174* 190(190)	12.8	60	1500	96	1125
LS-80H7/A	315* 174* 190(190)	12.8	80	1800	128	1500
LS-60H8/A	352* 174* 190(190)	12.8	60	1500	96	1125
LS-80H8/A	352* 174* 190(190)	12.8	80	1800	128	1500



MODEL : 40D23L



MODEL : 40D26L



MODEL : 40H5



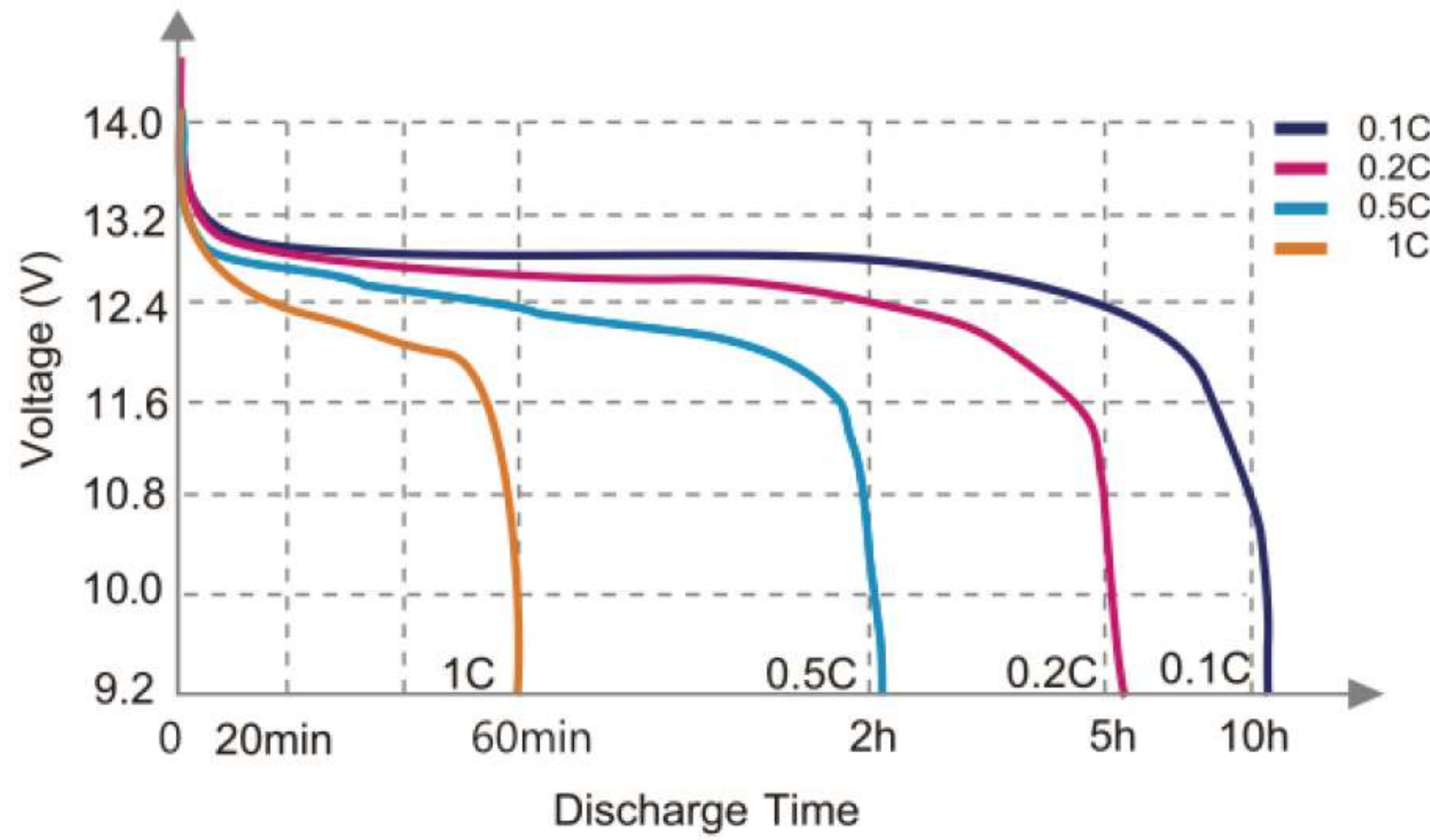
MODEL : 60H6



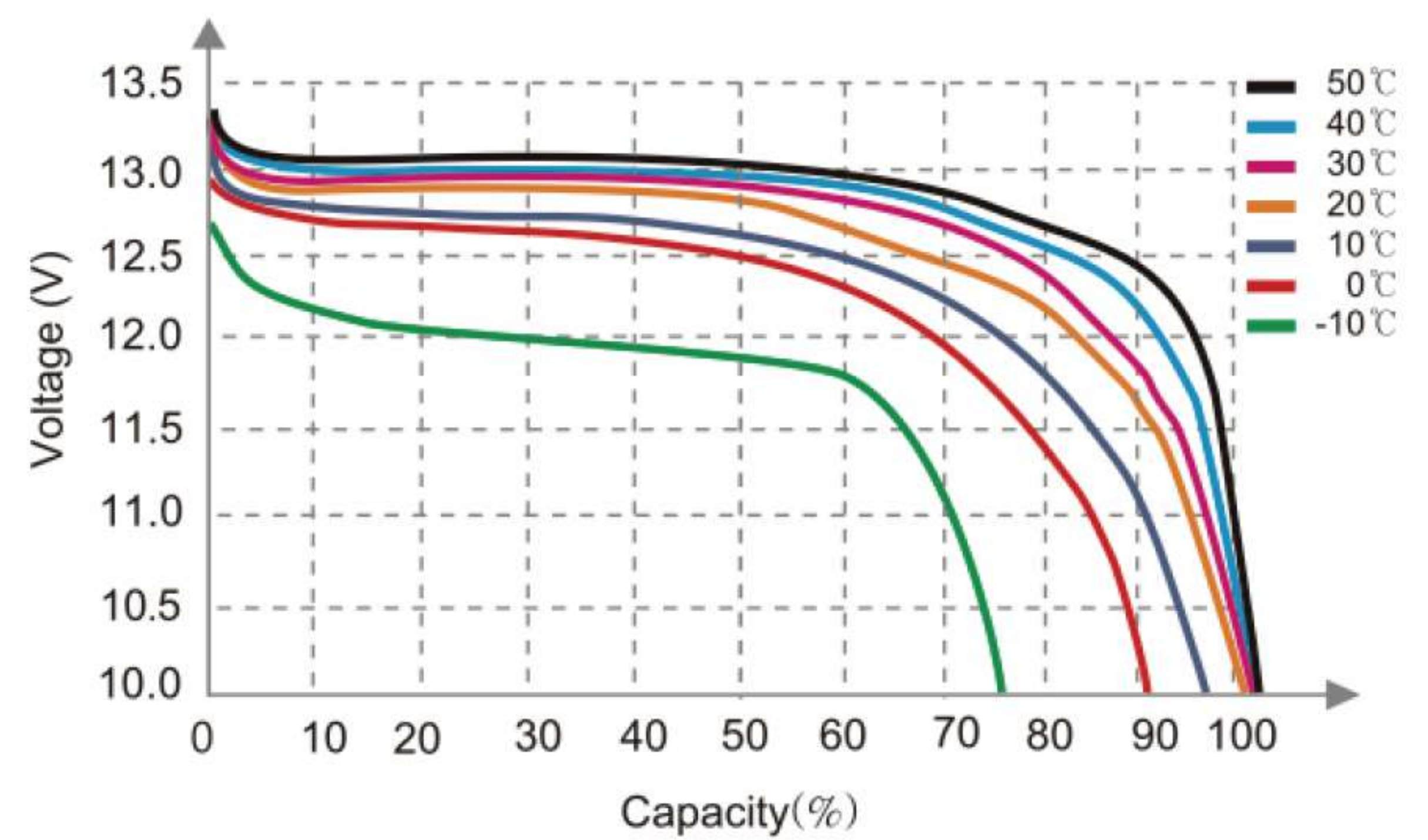
MODEL : 80H7

Performance Characteristics

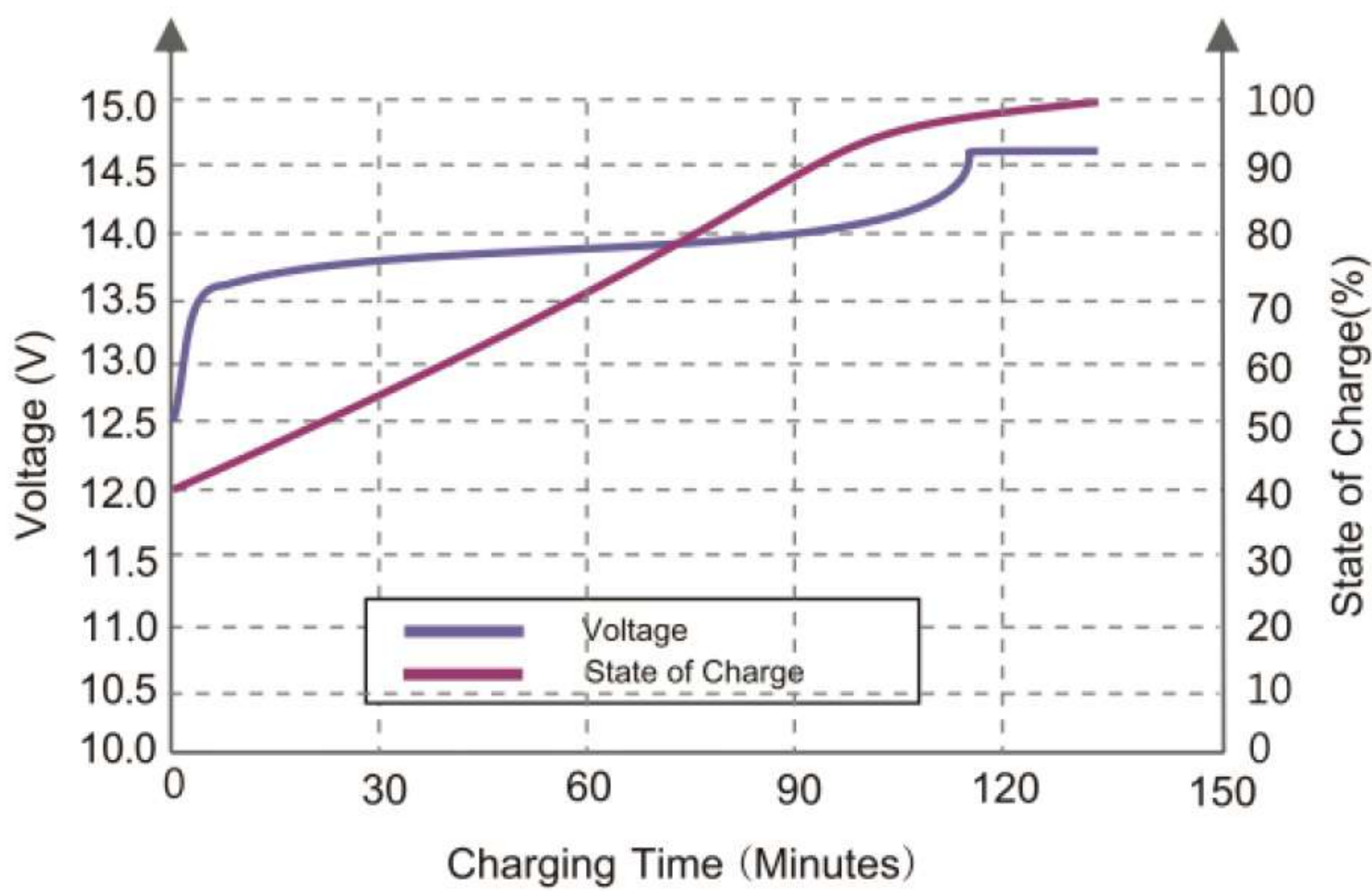
Different Rate Discharge Curve(25℃)



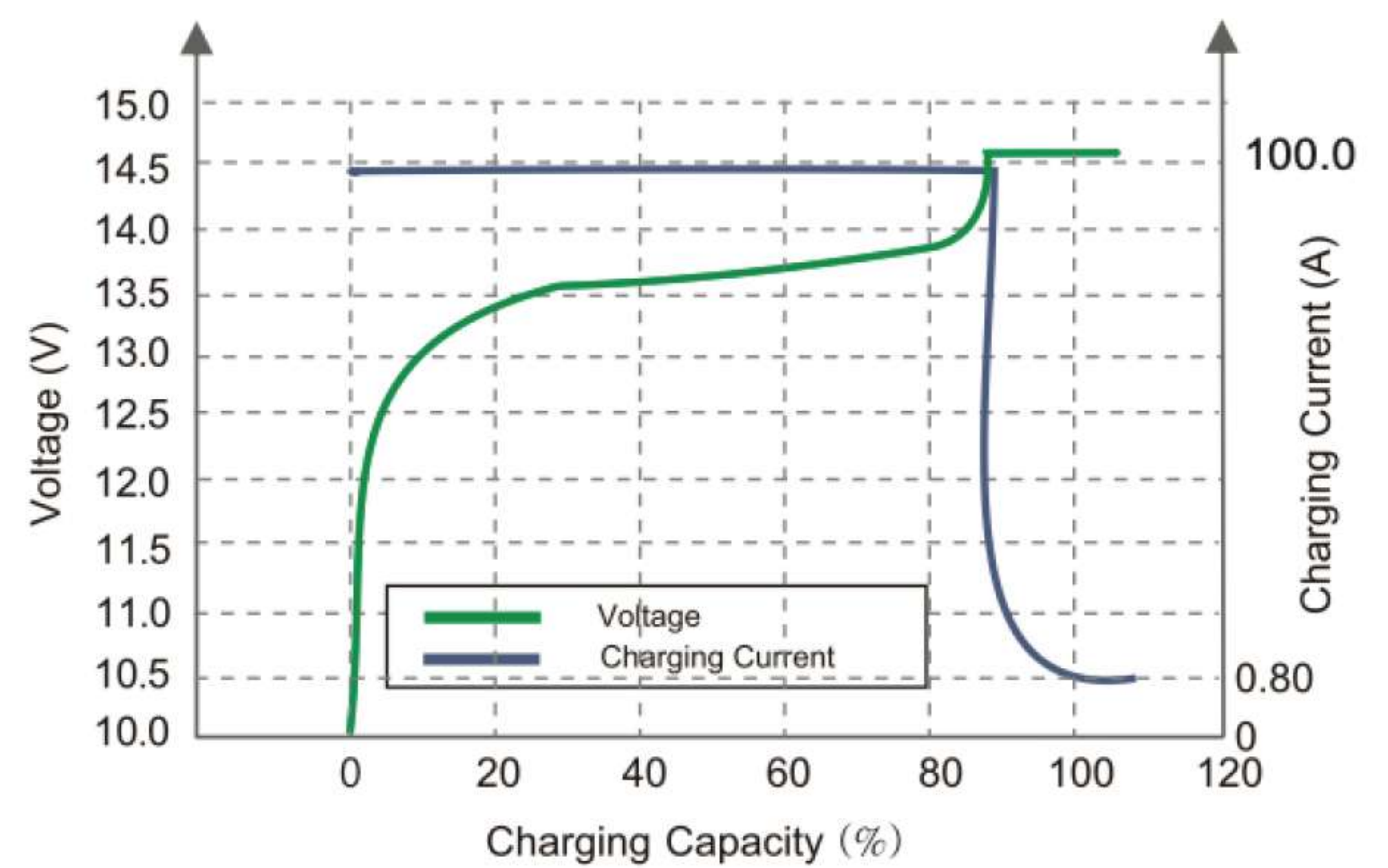
Different Temperature Discharge Curve(0.5C)v



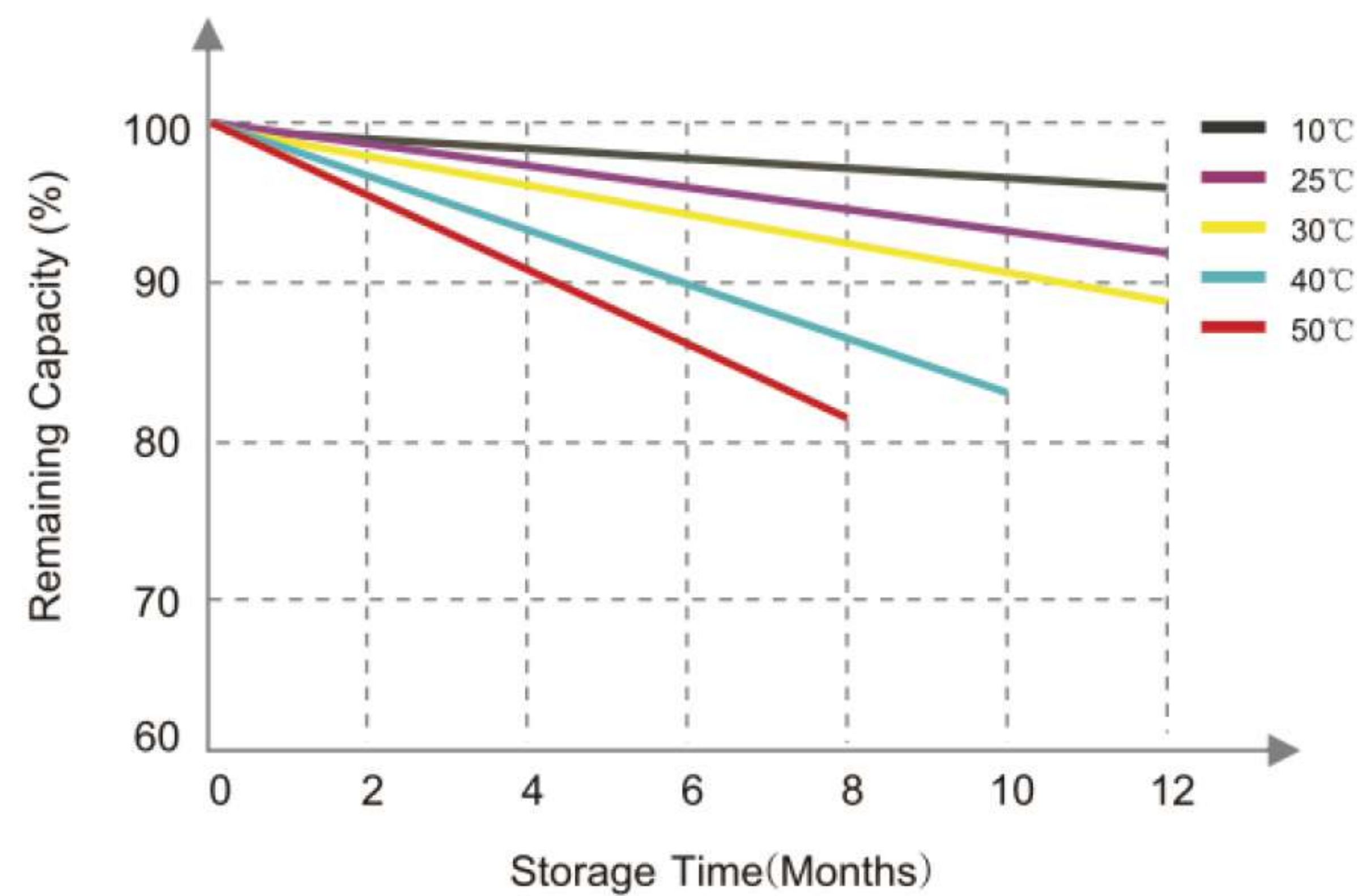
State of Charge Curve(0.5C,25℃)



Charging Characteristics(0.5C,25℃)



Different Temperature Self Discharge Curve



(Note) All above information shall be changed without prior notice, ORYXON reserves the right to explain and update the latest information.