Li–ion building block Li20PGA

Features

- Small size: 433 Wh per liter
- Low weight: 228 Wh per kg
- Individually fuse-protected cells
- Ultra low and equal self-discharge
- Rapid prototyping of battery pack
- Convenient thermal control
- Built from SANYO NCR18650-GA cells
- UL94-V0 rated, fire-retardant plastics

Applications

- Performance electric vehicles
- Special purpose machines
- Backup energy storage

Introduction

A Li-Ion building block was developed with simplicity and safety in mind. Using 18650 lithium-ion technology, such building blocks offer the most modern and energy-dense solution in easy to use package. 18650 is a very well established and time-tested battery cell standard, especially common in consumer devices. These cells are designed to withstand consumer's abuse, while offering the best in class energy density.

Safety

In addition to internal protection techniques, the module includes two fuses for each cell, 16 for entire 8-cell module. These act as a second level protection devices in case of cell failure.

In case of cell venting, released gas is travelled through dedicated channels to avoid pressure buildup.

Flexibility

Due to simple nature of these building blocks, desired battery pack configuration can be built in minutes, connecting them in series and parallel using bolt connections. Even MWh-scale batteries can be assembled with ease.

Table 1. Product characteristics (all parameters rated at 25°C if not specified otherwise)

Parameter	Comment	Min.	Typ.	Max.	Unit
Battery voltage	Allowed range	2.50	3.60	4.20	V
Battery capacity	65A discharge to 2.5 V	64.0	66.0	-	Ah
	65A discharge to 2.5 V	225	240	-	Wh
	200A discharge to 2.5 V	60.0	62.0	-	Ah
Charge current	Forced air cooling	-	-	130	A
	No cooling, in a pack	-	-	65	A
	10 sec. pulse, 50% SOC	-	-	260	A
Discharge current	Forced air cooling	-	-	160	A
	No cooling, in a pack	-	-	100	A
	10 sec. pulse, fuse limited	-	-	325	A
Initial internal impedance	DC, after rated charge	-	2.7	3.0	mΩ
Internal fuse rating	Holding current	-	-	360	A
Working temperature	Discharge	-20	25	60	°C
	Charge	0	25	45	°C
Dimensions	±0.2 mm	-	39×69.5×196	-	mm
Weight	Without fasteners	-	1.05	1.08	kg

DISCHARGE SLOPE

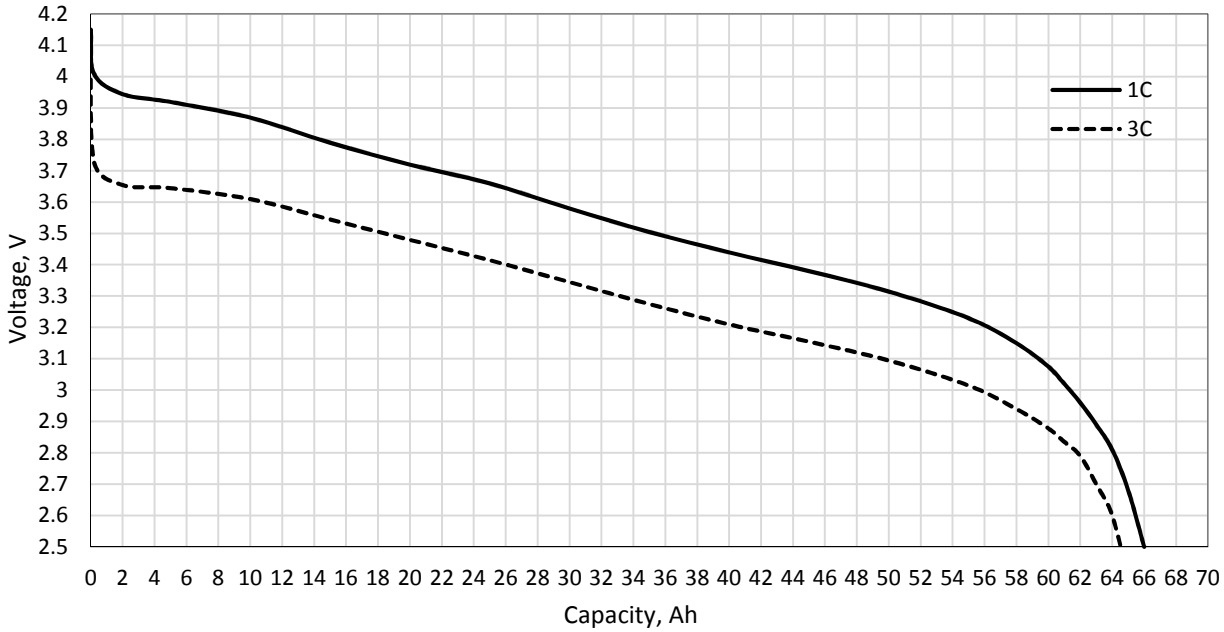

Figure 1. Discharge slopes at 1C (65A) and 3C (200A) discharge

MECHANICAL DATA

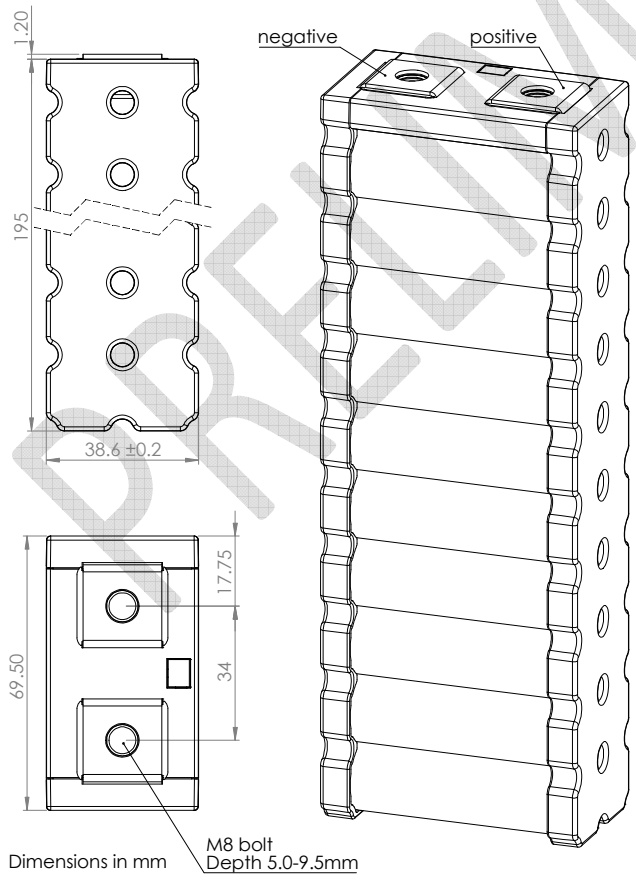

Figure 2. Mechanical dimensions

A simplified 3D STP model is available upon request.

Notes:

1. Inner M8 nut is stainless steel
2. Tightening torque: 10 Nm
3. Self-locking washers recommended
4. Modules should be mounted in a firm enclosure to avoid mechanical damage.
5. Modules should be protected from direct water ingress.

Table 2. Revision history

Revision	Date	Description
A	2016-12-02	Initial Release.