

# GFM

## Series VRLA Battery

### GFM-650



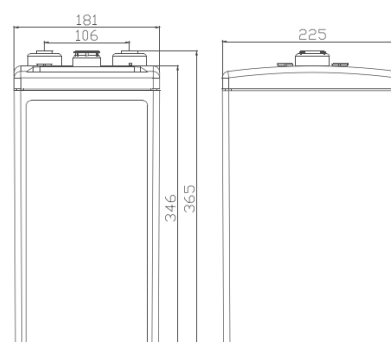
### Main Applications

- Backup power for telecom and signal system
- Backup power for electric system and nuclear plants
- Storage for solar, wind and hydroelectricity energy
- Backup power for military and maritime equipment
- Backup power for UPS, emergency lighting

### Benefits

- Reduce operational cost
- Excellent deep cycling performance
- Reduce CO<sub>2</sub> emission
- Long life

### Dimensions



### Technical Parameters

Nominal Voltage	2 V
Capacity	650 Ah @ 10hr to 1.80 V @ 25°C(77°F)
Weight	34.3 kg (75.62 lbs)
Dimensions	Length: 181 mm (7.13 in) Width: 225 mm (8.86 in) Height: 346 mm (13.62 in) Total height: 365 mm (14.37 in)
Internal Resistance (full charged)	0.39 mΩ
Short-circuit Current	5300 A
Self Discharge @25°C(77°F)	Less than 3% after 30 days storage
Operating Temperature Range	Discharge: -40°C ~ 50°C(-40°F ~ 122°F) Charge: -20°C ~ 45°C(-4°F ~ 113°F) Storage: -20°C ~ 40°C(-4°F ~ 104°F)
Recommended Operating Temperature	15°C ~ 25°C (59°F ~ 77°F)
Recommended Charging Current	97.5 A
Maximum Charging Current	195 A
Charging Voltage @25°C(77°F)	Float: 2.23 V/cell Equalize: 2.35 V/cell
Terminal	M8
Container Materials	ABS/ABS V0 (Optional)
Capacity Affected by Temperature (C <sub>10</sub> )	106% @ 40°C(104°F) 80% @ 0°C(32°F) 50% @ -20°C(-4°F)
Design life @25°C(77°F)	15 years

### Certification

- ISO 9001: 2008
- ISO 14001: 2004
- GB/T 28001- 2011
- UL
- CE

### Technical Features

- Best performance for charge acceptability
- Excellent capacity retention rate
- Excellent capacity recovery performance
- Long life design for cyclic or float application

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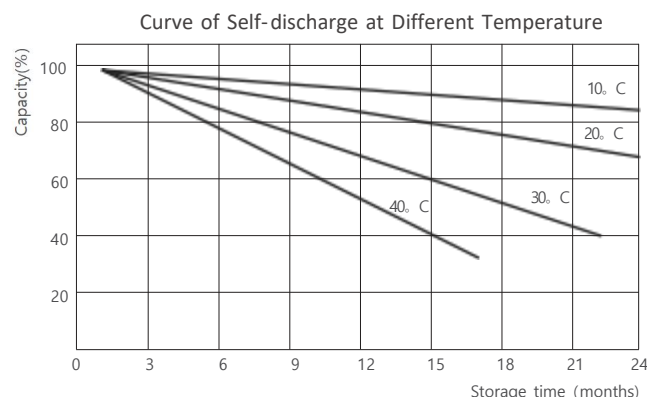
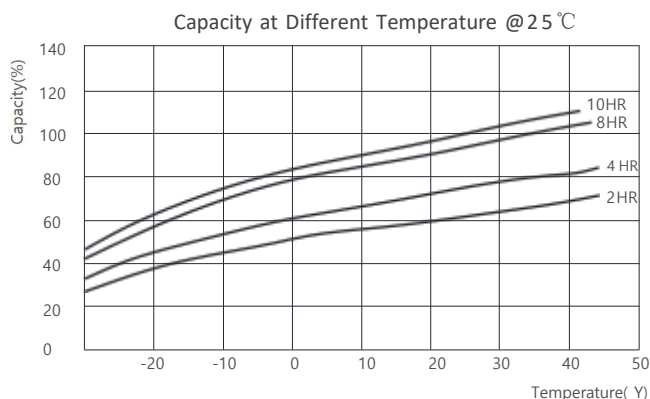
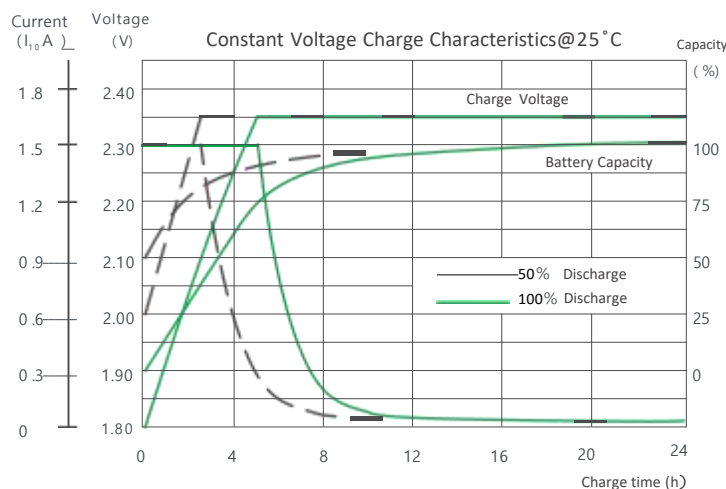
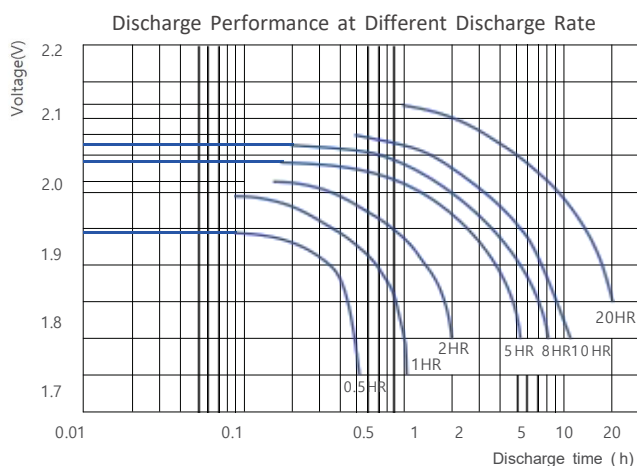
#### Constant Current Discharge Characteristics Unit: A (25°C,77°F)

F.V/Time	1hr	2hr	3hr	4hr	5hr	6hr	8hr	10hr	12hr
1.70V	364	223	165.3	132.6	111.8	97.5	77.4	67.5	57.2
1.75V	358	220	163.8	132.1	111.2	96.9	76.7	66.3	56.8
1.80V	349	214	162.5	130.7	110.5	95.6	75.4	65.2	56.3
1.83V	339	209	159.9	128.4	108.2	94.6	75.1	64.4	54.5
1.85V	329	204	157.3	126.1	106.3	93.6	74.8	63.7	52.7

#### Constant Power Discharge Characteristics Unit: W/cell (25°C,77°F)

F.V/Time	1hr	2hr	3hr	4hr	5hr	6hr	8hr	10hr	12hr
1.70V	676	423	317	258	221	194	154.3	133.8	114.3
1.75V	674	421	316	258	220	193	153.2	132.6	113.7
1.80V	665	413	315	257	220	191	151	130.3	112.9
1.83V	650	406	312	254	216	189	150.7	129.4	109.7
1.85V	635	398	308	250	212	188	150.3	128.1	106.2

#### Performance Curve



#### \*Declaration:

This information is generally descriptive only and is not intended to make or imply any representation, guarantee or warranty with respect to any cells and batteries. Cell and battery designs/specifications are subject to modification without notice. Contact CHINASHOTO for the latest information.

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