



# GFMJ-200 4 OPzV 200



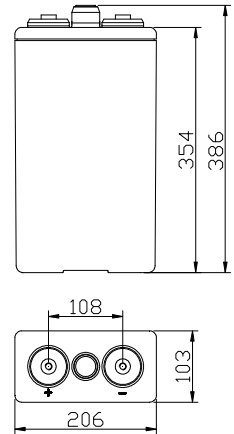
### Application:

- Solar energy, wind energy
- Electric power, nuclear power
- Communication
- Ship, maritime affairs
- UPS, medical facilities and emergency lighting
- Situation with high environmental protection and energy-saving

### Features of performance application

- ✚ Designed service life of 20 years
- ✚ High cycle service life
- ✚ Better temperature resistance performance
- ✚ Excellent deep cycle performance
- ✚ Superior low current discharge performance
- ✚ Stronger constant power discharge capability
- ✚ Better charge acceptability
- ✚ Better safety performance and reliability
- ✚ Modular and personified installation design
- ✚ High Performance price/ratio and low yearly operating cost
- ✚ Eco-friendly, cycle application

Rated voltage	2 V
Capacity@ 25°C(77°F)	200Ah @ 10hr to 1.80V per cell
Weight	About 18.5kg (40.7 lb)
Reference internal resistance (charged)	About 0.60mΩ@ 25°C(77°F)
Short-circuit current	About 3417A (0.1S reference value)
Max discharge current	600A (5sec)
Self-discharge	< 20% 180 days @ 25°C (77°F)
Temperature range	Application: -20°C~50°C(-4°F~122°F) Storage: 0°C~20°C(32°F~68°F) Recommendation: 20°C~25°C(68°F~77°F)
Max charge current	40A
Charge voltage @ 25°C(77°F)	Float charge: 2.23V, average charge: 2.35V Temperature compensation factor: -3 mV/°C
Terminal output	M10 copper terminal (HPb59-1)
Recharge time	See figure 2



### Structure features of Shuangdeng GFMJ series VRLA gel battery:

- Electrolyte: primary material adopts Germany gas silicon dioxide, the material will be the thin collosol state when it's injected initially, and it can fill the whole plate space of battery, and each part of plate can react evenly. The flooded electrolyte design can avoid dry up of battery when it's in high temperature and over charged, the thermal capacity is big and heat-elimination is fine, accordingly, thermal runaway can be avoided. The electrolyte is in the gel state in finished battery without flowing, accordingly, leakage and lamination can be avoided.
- Plate: positive plate adopts tubular type plate which can effectively prevent active substance falling, the positive plate frame is molded with multi-component alloy, the crystal particle of alloy structure is tiny and dense, the corrosion-resisting performance is fine and service life is long. Negative plate adopts pasted plate, the grid adopts radiated structure which enhances utilization ratio of active substance and discharge capability of strong current, and the charge reception capability is strong.
- Battery case: it's made of ABS material, corrosion prevention is fine, strength is high, and appearance is beautiful, it can be sealed with lid reliably which can prevent potential leakage risk.
- Separator: adopt special micro-pore PVC-SiO<sub>2</sub> separator from Europe AMER-SIL Company, the porosity of separator is big and resistance is low. It has bigger electrolyte storage space.
- Terminal sealing: the built-in copper core lead-base terminal post has stronger current carrying capacity and corrosion resistance. The unique double sealing structure of terminal post can effectively avoid leakage, guarantee reliability of terminal post sealing.
- Safety valve: adopt Germany technology, constant opening and closing valve, high reliability, the accumulator case expansion, damage and electrolyte dry up can be avoided.



### Execution standard:

IEC60896-21/22 DIN40742  
BS EN 61427-2002  
YD/T 1360-2005  
Q/321284KCC 03-2006

### Authentication and certificate:

**Certificate of Qualification on Perfecting Measurement & Measuring System**

GB/T19022-2003  
ISO10012:2003、IDT

### Quality Management System

**Authentication**  
GB/T19001-2000  
NO.03006Q10002R0M-2

### Environmental Management System

**Authentication**  
ISO 14001:2004  
NO.010607E2024R1M-2

### Occupational Health Management System

**Authentication**  
GB/T28001-2001  
NO.010607S10147R0M-2

### Product authentication:

YD/T1360-2005  
NO.030074640567R1M

### CE authentication

EN 61000-6-3:2001+A11:2004  
EN 61000-6-1:2001

### National Industrial Product Production

**License**  
XK06-044-00012

### Product Quality Test Free Certificate

(2006)GM(321630488)

### Export product quality license

Discharge current at different final voltages and different discharge rates unit: A (25°C, 77°F)

	5min	10min	15min	30min	45min	1hr	1.5hr	2hr	3hr	4hr	5hr	8 hr	10 hr	20hr	100 hr	120hr
1.90V	182	155	148	118	104	89	68	58	42	35	30	21	18	9.38	2.45	2.07
1.85V	245	199	180	139	111	101	75	60	46	37	32	22	19	10.1	2.57	2.18
1.80V	254	228	212	162	131	112	95	65	51	40	34	24	21	11.0	2.77	2.35
1.75V	271	253	238	173	144	115	97	73	53	42	36	25	22	11.8	2.94	2.49

Discharge power at different final voltages and different discharge rates unit: W (25°C, 77°F)

	5min	10min	15min	30min	45min	1hr	1.5hr	2hr	3hr	4hr	5hr	8 hr	10 hr	20hr	100 hr	120hr
1.90V	360	302	241	214	190	166	137	107	83	68	58	40	33	18.76	4.90	4.14
1.85V	371	315	270	237	212	186	152	118	90	74	64	44	37	20.00	5.09	4.32
1.80V	386	378	343	279	244	208	173	137	106	85	72	49	41	21.56	5.43	4.61
1.75V	426	417	389	310	268	226	186	145	109	87	73	50	42	22.77	5.67	4.81



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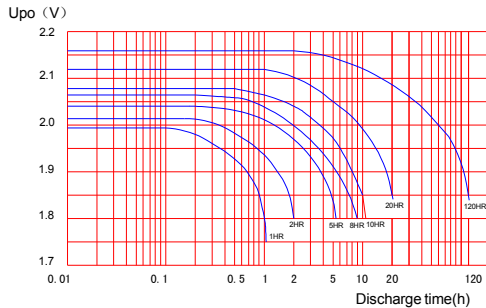


Figure 1 Discharge characteristic curve (20°C)

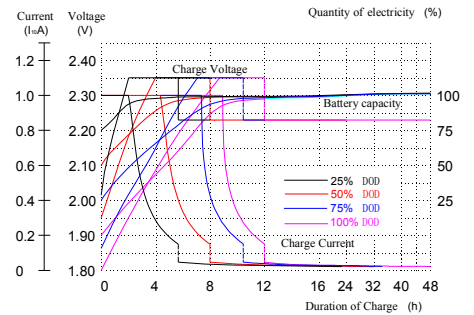


Figure 2 Constant voltage charge characteristic curve

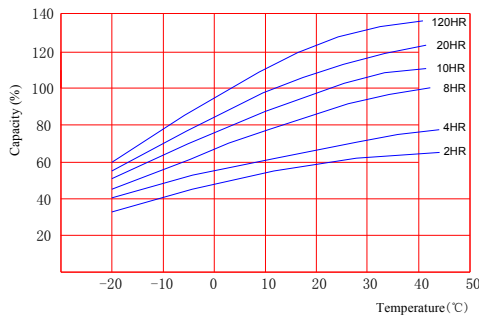


Figure 3 Relation curves between capacity and temperature

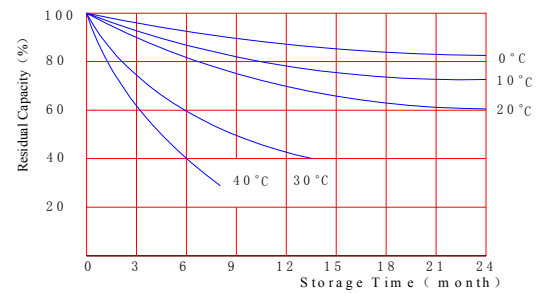


Figure 4 Self-discharge characteristic curve

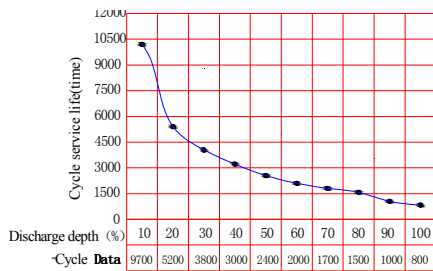


Figure 5 Relation curve between discharge depth and cycle service life

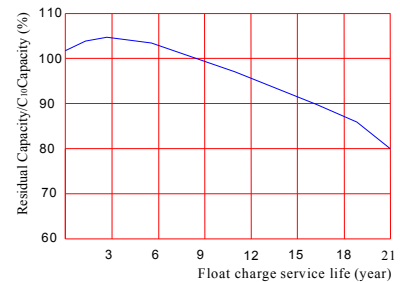


Figure 6 Relation curve between Float charge service life and residual ca

- Remark: a) test circumstances: 20-30°C, relative humidity is 50~80percent;  
 b) charge mode: electricity of charge is equal to 105~115percent of discharge  
 c) residual capacity is 80 percent C<sub>10</sub>

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The above data are only taken as reference instead of inspection standard. Additional notification won't be available for parameter change due to improvement and regulation of product. Inspection shall be performed in accordance with standards.

We must make a statement, when the battery service life and safe operating performance is confirmed, the test condition will be stricter; accordingly, the battery shall not be used in these conditions, because it's difficult for battery to reach expected service life.