

## FREE MAINTENANCE SEALED LEAD ACID Battery

# SM12-9.0

SM series Sealed free maintenance lead acid batteries are designed with AGM technology, high performance pure lead plates and sulfuric acid electrolyte to gain extra power output for common power backup system applications widely used in the fields of UPS, Security and Emergency lighting system. They are sealed and free maintenance whole life, valve regulated type standby **AGM battery**, also named by **VRLA battery**, **SLA battery**, and **SMF battery**.

**12V**  
Voltage

**9Ah**  
Capacity

**AGM**  
Technology

**VRLA**  
Battery



### GENERAL FEATURES

- **Non-spillable construction design**
- **Long life span 5-8 years in floating condition**
- **High quality AGM separator: extend cycle life and prevents micro short circuit**
- **99.99% pure lead plates ensure high quality and high reliability.**
- **Flame-resistance ABS material: increases the strength of battery container.**

### APPLICATIONS

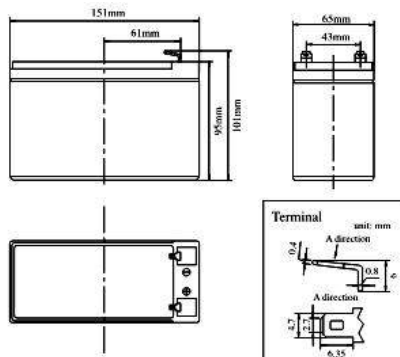
- **Fire & Security**
- **UPS systems & Inverter**
- **Alarm & Portable lights**
- **Power tools & Toys**
- **Emergency Power Systems**

### COMPLIED STANDARDS



### DIMENSIONS & WEIGHT

|                       |          |
|-----------------------|----------|
| Length(mm/inch)       | 151/5.95 |
| Width(mm/inch)        | 65/2.56  |
| Height(mm/inch)       | 94/3.71  |
| Total Height(mm/inch) | 100/3.94 |
| Weight(kg/lbs)(±3%)   | 2.4/5.28 |



### TECHNICAL SPECIFICATIONS

| Nominal Voltage                                  |                           | 12V(6 cells per unit)                                         |
|--------------------------------------------------|---------------------------|---------------------------------------------------------------|
| Design Floating Life @25°C                       |                           | 5 Years                                                       |
| Nominal Capacity @25°C(20 hour rate@0.45A,10.8V) |                           | 9Ah                                                           |
| Capacity @25°C                                   | 10hour rate (0.83A,10.8V) | 8.3Ah                                                         |
|                                                  | 5 hour rate (1.51A,10.5V) | 7.55Ah                                                        |
|                                                  | 1 hour rate (5.67A,9.6V)  | 5.67Ah                                                        |
| Internal Resistance                              | Full Charged Battery@25°C | ≤20.0mΩ                                                       |
| Ambient Temperature                              | Discharge                 | -15°C~45°C                                                    |
|                                                  | Charge                    | -15°C~45°C                                                    |
|                                                  | Storage                   | -15°C~45°C                                                    |
| Max.Discharge Current@25°C                       |                           | 54A (5s)                                                      |
| Capacity affected by Temperature (10 hour )      | 40°C                      | 105%                                                          |
|                                                  | 25°C                      | 100%                                                          |
|                                                  | 0°C                       | 85%                                                           |
|                                                  | -15°C                     | 65%                                                           |
| Self-Discharge@25°C per Month                    |                           | 3%                                                            |
| Charge (Constant Voltage) @25°C                  | Standby Use               | Initial Charging Current Less than 2.7A<br>Voltage 13.6-13.8V |
|                                                  | Cycle Use                 | Initial Charging Current Less than 2.7A<br>Voltage 14.4-14.9V |

### BATTERY DISCHARGE TABEL

#### Discharge Constant Current per Cell (Amperes at 25°C)

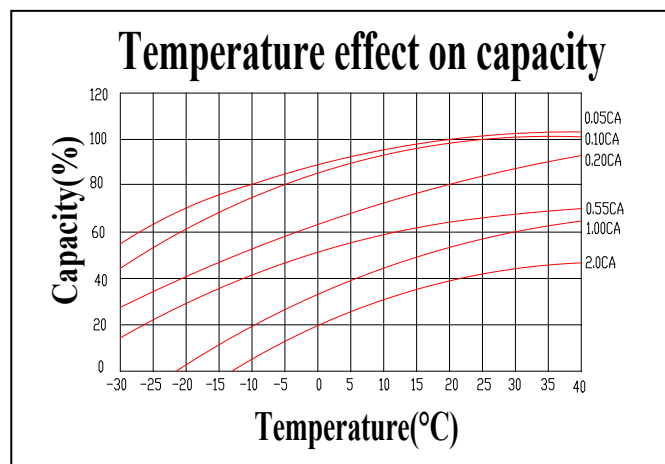
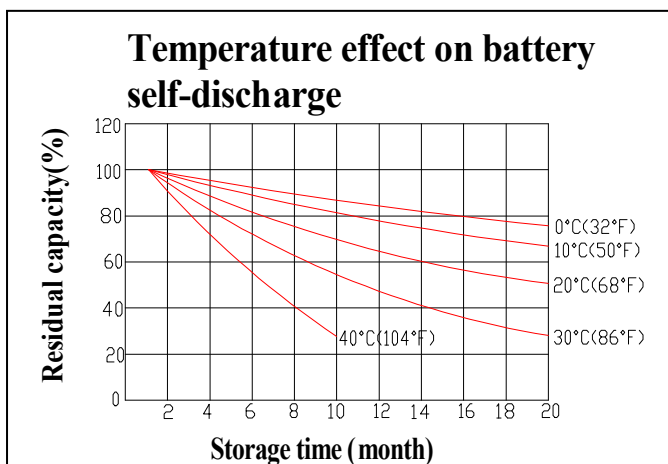
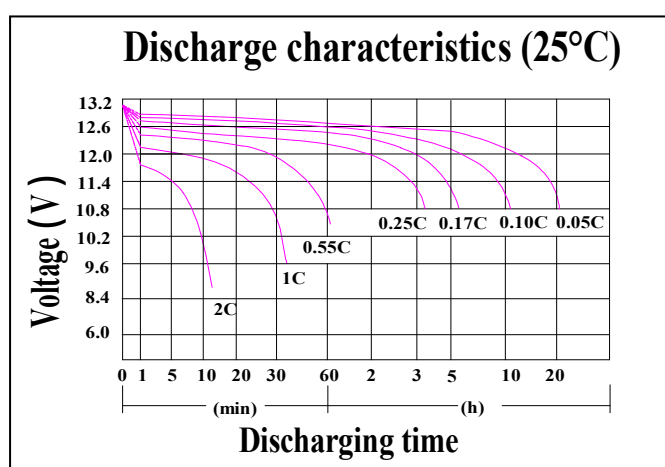
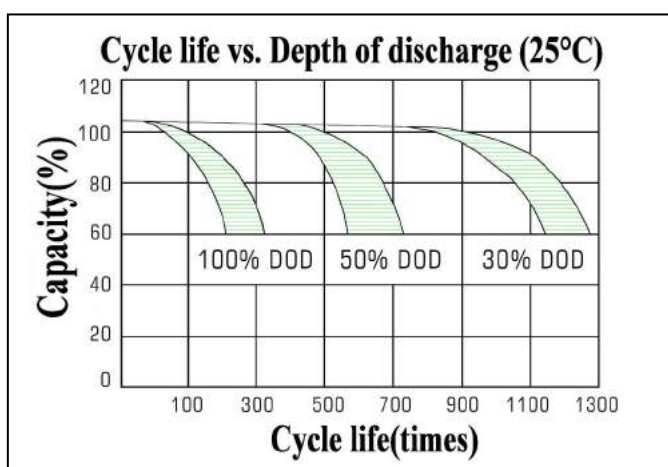
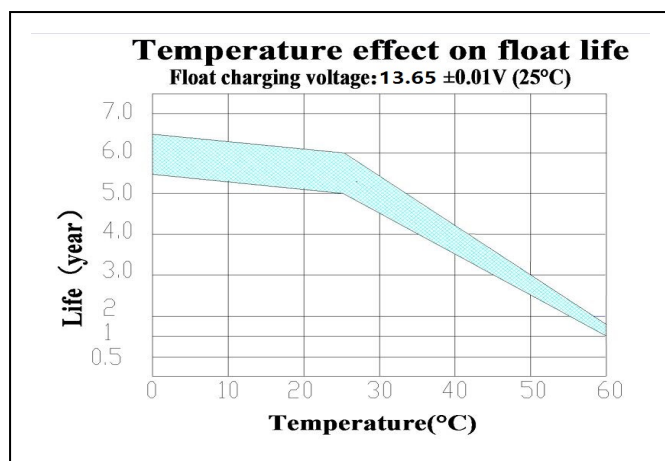
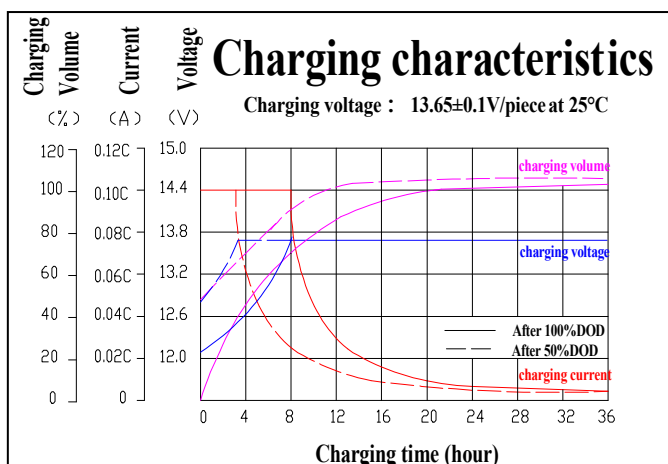
| F.V/Time | 15min | 30min | 45min | 1h   | 2h   | 3h   | 5h   | 8h   | 10h  | 20h  |
|----------|-------|-------|-------|------|------|------|------|------|------|------|
| 1.60V    | 17.1  | 9.76  | 6.95  | 5.67 | 3.51 | 2.40 | 1.60 | 1.08 | 0.89 | 0.47 |
| 1.65V    | 16.7  | 9.50  | 6.76  | 5.47 | 3.44 | 2.36 | 1.57 | 1.06 | 0.87 | 0.46 |
| 1.70V    | 16.2  | 9.24  | 6.58  | 5.28 | 3.38 | 2.32 | 1.54 | 1.04 | 0.86 | 0.45 |
| 1.75V    | 15.8  | 8.97  | 6.39  | 5.08 | 3.32 | 2.27 | 1.51 | 1.02 | 0.84 | 0.45 |
| 1.80V    | 15.3  | 8.71  | 6.21  | 4.89 | 3.19 | 2.18 | 1.46 | 0.98 | 0.83 | 0.45 |

#### Discharge Constant Power per Cell (Watts at 25°C)

| F.V/Time | 15min | 30min | 45min | 1h    | 2h   | 3h   | 5h   | 8h   | 10h  | 20h  |
|----------|-------|-------|-------|-------|------|------|------|------|------|------|
| 1.60V    | 33.0  | 18.78 | 13.38 | 10.91 | 6.75 | 4.63 | 3.08 | 2.07 | 1.71 | 0.90 |
| 1.65V    | 32.1  | 18.28 | 13.02 | 10.54 | 6.63 | 4.54 | 3.03 | 2.04 | 1.68 | 0.88 |
| 1.70V    | 31.2  | 17.78 | 12.66 | 10.16 | 6.50 | 4.46 | 2.97 | 2.00 | 1.65 | 0.87 |
| 1.75V    | 30.3  | 17.27 | 12.30 | 9.78  | 6.38 | 4.37 | 2.92 | 1.96 | 1.62 | 0.85 |
| 1.80V    | 29.5  | 16.77 | 11.94 | 9.41  | 6.14 | 4.21 | 2.80 | 1.88 | 1.56 | 0.82 |

**Note:** The above data are average values, and can be obtained within 3 charge/discharge cycles. These are not minimum values. Cell and battery designs/specifications are subject to modification without notice. Contact **SM SOLAR** or the latest information.

### PERFORMANCE CHARACTERISTICS



### BATTERY CONSTRUCTION

| Component | Positive plate                               | Negative plate                                            | Container & Cover | Safety valve                         | Terminal | Separator                                            | Electrolyte                      | Pillar seal                 |
|-----------|----------------------------------------------|-----------------------------------------------------------|-------------------|--------------------------------------|----------|------------------------------------------------------|----------------------------------|-----------------------------|
| Features  | Thick high Sn low Ca grid with special paste | Balanced Pb-Ca grid for improved recombination efficiency | ABS (UL94-V0)     | Flame Si-Rubber and aging resistance | F1/F2    | Advanced AGM separator for high pressure cell design | Dilute high purity sulfuric acid | Two layers epoxy resin seal |