

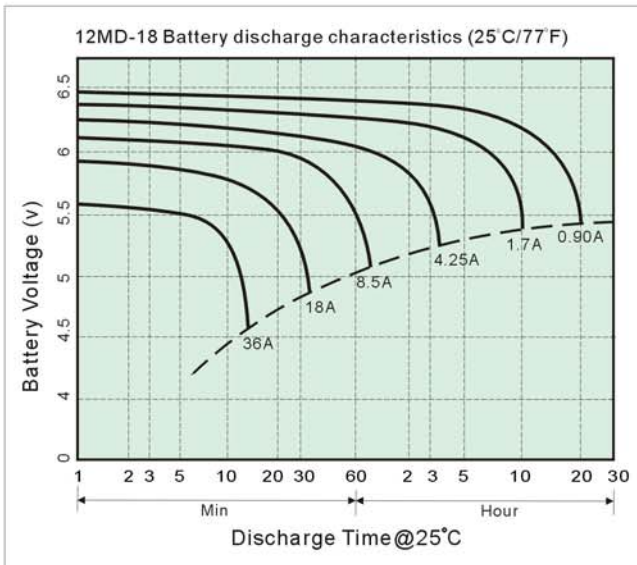
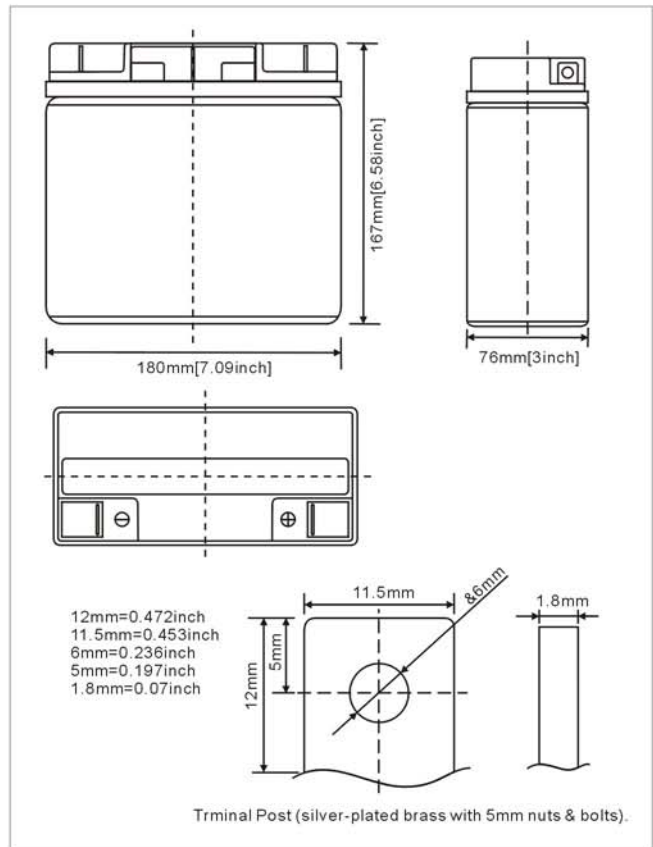
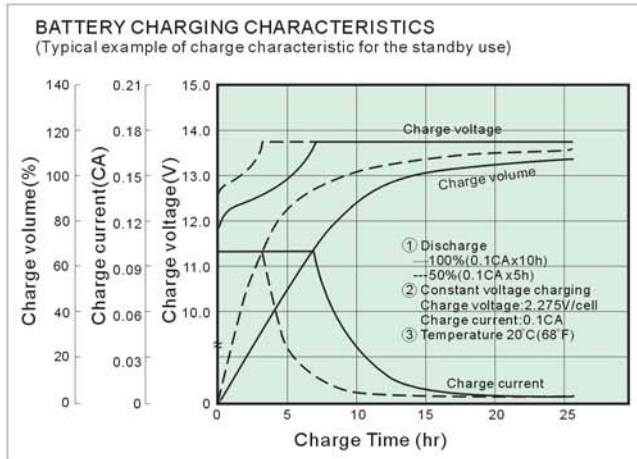


**MD SERIES**  
12MD-18 (12V18AH)

- FEATURES**
- \*Maintenance Free
  - \*Leak Proof/ Spill Proof
  - \*Gas Recombination
  - \*Absorbed Electrolyte
  - \*Float/ Cycle Use
  - \*Low Self Discharge Rate
  - \*Safety Valve
  - \*Lead Calcium Alloy
  - \*Useable In Any Position
  - \*Rugged Design
  - \*Available Flame Retardant Material(Optional)

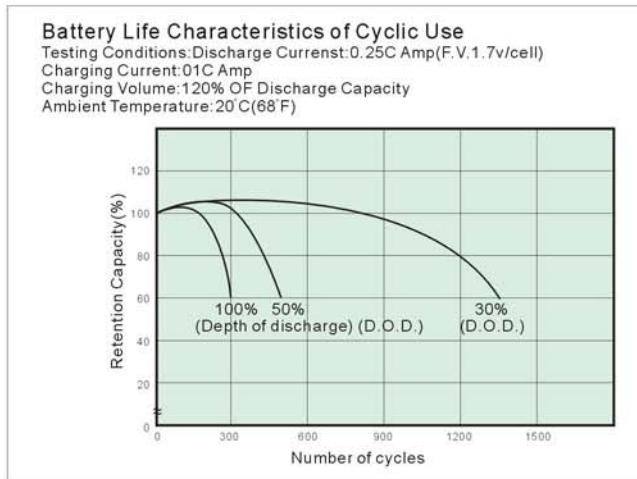
| Nominal Voltage               |               |                    |
|-------------------------------|---------------|--------------------|
| Rated Capacity (20 Hour Rate) |               |                    |
| Dimensions                    | Length        | 180mm (7.09inches) |
|                               | Width         | 76mm (3.00inches)  |
|                               | Height        | 167mm (6.58inches) |
|                               | Total Height  | 167mm (6.58inches) |
|                               | Weight        | 5.96kg(13.12lbs)   |
| Standard Terminals            | ST3(standard) |                    |

| VRLA 12V18Ah - Specifications                   |  |   |                               |                     |
|---|--|---|-------------------------------|---------------------|
| Nominal Voltage                                 | Rated Capacity @20hr rate  | Maximum Charge Rate   | Maximum Discharge- Amps 5sec. | Internal Resistance |
| 12V   | 18Ah   | 4.5Amps   | 250Amps                       | 14Mili Ohms         |
| Capacity@ 77 F(25 C)                            | 18.00Ah @ 20 hour rate (0.9A) to 1.75 volts per cell   |   |                               |                     |
|   | 16.70Ah @ 10 hour rate (1.67A) to 1.75 volts per cell  |   |                               |                     |
|   | 15.30Ah @ 5 hour rate (3.06A) to 1.75 volts per cell   |   |                               |                     |
|   | 13.80Ah @ 3 hour rate (4.60A) to 1.75 volts per cell   |   |                               |                     |
|   | 11.00Ah @ 1 hour rate (11.00A) to 1.75 volts per cell  |   |                               |                     |
| Operating Temperature Range                     | Discharge  | -4 F (-20 C) to +140 F (60 C)   |                               |                     |
|   | Charge   | 14 F (-10 C) to +122 F (50 C) .(with temperature compensation)            |                               |                     |
| Recommonded Operating Temperature Range         | +68 F (20 C)to + 77 F (25 C)   |   |                               |                     |
| Charging (Constant Voltage)                     | Cycle use  | Initial Current5.4Amps (recommended).                                     |                               |                     |
|   | Float use  | Voltage 14.5-14.9Volts @77 F (25 C)<br>Voltage13.6-13.8Volts @77 F (25 C) |                               |                     |
| Self Discharge @ 77 F (25 C)                    | Capacity after 3 month storage   | 90%   |                               |                     |
|   | Capacity after 6 month storage   | 80%   |                               |                     |
|   | Capacity after 12 month storage  | 60%   |                               |                     |
|   | CCB Battery may be stored for up to 12 months at 77 F(25 C) and then a freshing charge is required. For higher temperatures the time interval will be shorter. |   |                               |                     |
| Capacity affected by Temperature (20 hour rate) | 104 F (40 C)   | 102%  |                               |                     |
|   | 77 F (25 C)  | 100%  |                               |                     |
|   | 32 F (0 C)   | 85%   |                               |                     |
|   | 58 F ( -15 C)  | 65%   |                               |                     |
| Charge Method (Constant Voltage)                | Cycle use (Repeating use)  | Initial current   | 3 A or smaller                |                     |
|   |  | Control voltage   | 14.5V to 14.9V                |                     |
|   | Trickle use  | Initial current   | 1.7 A or smaller              |                     |
|   |  | Control voltage   | 13.6V to 13.8V                |                     |



Constant power discharge characteristics at 25°C/77°F

| End V/cell | Discharge time |       |       |       |      |     |     |      |
|------------|----------------|-------|-------|-------|------|-----|-----|------|
|            | 5Min           | 10Min | 15Min | 30Min | 1Hr  | 3Hr | 5Hr | 10Hr |
| 1.75V      | 110            | 74    | 57    | 31    | 17.5 | 4.5 | 5.5 | 3.2  |
| 1.70V      | 115            | 76    | 58.3  | 32    | 18   | 4.9 | 6.0 | 3.4  |
| 1.60V      | 119            | 76.8  | 59.1  | 33    | 18.2 | 5.1 | 6.3 | 3.55 |



### Charging Procedure

| Application              | Charging method                              | Charging Voltage at 20°C (V/cell) | Temperature compensation coefficient of charging voltage (mV/Ccell) | Max. charging current (CA) | Charging time 0.1CA, 20°C (h) |               | Temp (°C)       |
|--------------------------|--|-----------------------------------|---|----------------------------|-------------------------------|---------------|-----------------|
|                          |  |                                   |   |                            | 100% discharge                | 50% discharge |                 |
| For standby power Source | Constant voltage & Constant current charging | 2.25~2.30                         | -3  | 0.3                        | 24                            | 20            | 0~40 (32~104°F) |
| For cycle service        | constant charging (with current restriction) | 2.40~2.0                          | -4  | 0.3                        | 16                            | 10            |                 |

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