



## EV12-33(12V33Ah)



### Specification

|                                    |                                                                                                                                                                                                                            |
|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Cells Per Unit                     | 6                                                                                                                                                                                                                          |
| Voltage Per Unit                   | 12                                                                                                                                                                                                                         |
| Capacity                           | 33Ah@10hr-rate to 1.80V per cell @25°C                                                                                                                                                                                     |
| Weight                             | Approx. 9.6 Kg (Tolerance $\pm 3.0\%$ )                                                                                                                                                                                    |
| Internal Resistance                | Approx. 12.0 m $\Omega$                                                                                                                                                                                                    |
| Terminal                           | F7(M8)/F11(M6)                                                                                                                                                                                                             |
| Max. Discharge Current             | 330A (5 sec)                                                                                                                                                                                                               |
| Cold Cranking Ampere(CCA)          | 230A                                                                                                                                                                                                                       |
| Maxi. Charging Current             | 9.9A                                                                                                                                                                                                                       |
| Reference Capacity                 | C3 25.6AH<br>C5 28.8AH<br>C10 33.0AH<br>C20 35.0AH                                                                                                                                                                         |
| Float Charging Voltage             | 13.6 V~13.8 V @ 25°C<br>Temperature Compensation: -3mV/°C/Cell                                                                                                                                                             |
| Cycle Use Voltage                  | 14.6 V~14.8 V @ 25°C<br>Temperature Compensation: -4mV/°C/Cell                                                                                                                                                             |
| Operating Temperature Range        | Discharge: -20°C~60°C<br>Charge: 0°C~50°C<br>Storage: -20°C~60°C                                                                                                                                                           |
| Normal Operating Temperature Range | 25°C $\pm 5^\circ\text{C}$                                                                                                                                                                                                 |
| Self Discharge                     | RITAR Valve Regulated Lead Acid (VRLA) batteries can be stored for up to 6 months at 25°C and then recharging is recommended. Monthly Self-discharge ratio is less than 3% at 25°C. Please charged batteries before using. |
| Container Material                 | A.B.S. UL94-HB, UL94-V0 Optional.                                                                                                                                                                                          |



EV ( Electric Vehicle ) series is specially designed for frequent discharge deep cycle application. By using the specially designed active material, strong grids and thick plate construction, the EV series battery offers reliable performance in high load situations and could provide competitive cycle performance. It is suitable for Electric Vehicle and Golf cart, Floor Machines, Forklifts, Aerial lifts, Robotics, Marine, RV, Mobility and Medical Equipment, and most outdoor application.



ISO 9001



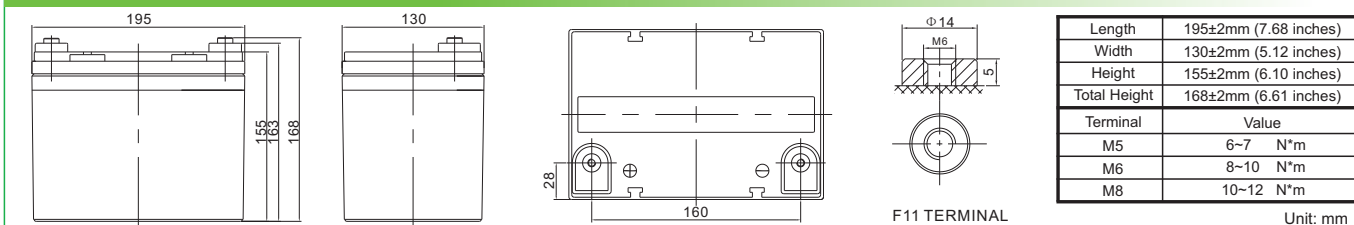
ISO 14001



OHSAS 18001



### Dimensions



#### Constant Current Discharge Characteristics : A(25°C)

| F.V/Time | 5MIN  | 10MIN | 15MIN | 30MIN | 1HR   | 2HR   | 3HR  | 4HR  | 5HR  | 8HR  | 10HR | 20HR |
|----------|-------|-------|-------|-------|-------|-------|------|------|------|------|------|------|
| 1.60V    | 111.0 | 83.76 | 63.02 | 36.86 | 20.36 | 12.02 | 9.32 | 7.32 | 6.23 | 4.19 | 3.48 | 1.82 |
| 1.65V    | 107.0 | 79.15 | 60.25 | 35.39 | 19.67 | 11.64 | 9.03 | 7.12 | 6.07 | 4.14 | 3.44 | 1.79 |
| 1.70V    | 101.8 | 72.87 | 56.43 | 33.82 | 19.03 | 11.26 | 8.78 | 6.93 | 5.91 | 4.08 | 3.39 | 1.77 |
| 1.75V    | 95.1  | 66.70 | 52.51 | 32.33 | 18.33 | 10.86 | 8.52 | 6.75 | 5.76 | 4.02 | 3.34 | 1.75 |
| 1.80V    | 86.62 | 60.38 | 48.49 | 30.90 | 17.63 | 10.48 | 8.26 | 6.56 | 5.62 | 3.95 | 3.30 | 1.73 |
| 1.85V    | 76.23 | 49.35 | 40.24 | 26.61 | 15.81 | 9.60  | 7.63 | 6.10 | 5.24 | 3.71 | 3.11 | 1.64 |

#### Constant Power Discharge Characteristics : WPC(25°C)

| F.V/Time | 5MIN  | 10MIN | 15MIN | 30MIN | 1HR  | 2HR  | 3HR  | 4HR  | 5HR  | 8HR  | 10HR | 20HR |
|----------|-------|-------|-------|-------|------|------|------|------|------|------|------|------|
| 1.60V    | 191.1 | 142.4 | 110.2 | 67.0  | 38.3 | 22.8 | 17.8 | 14.1 | 12.0 | 8.18 | 6.84 | 3.59 |
| 1.65V    | 189.0 | 137.1 | 106.9 | 64.9  | 37.2 | 22.2 | 17.3 | 13.7 | 11.7 | 8.10 | 6.77 | 3.53 |
| 1.70V    | 181.8 | 128.6 | 101.6 | 62.7  | 36.2 | 21.6 | 16.9 | 13.4 | 11.5 | 8.00 | 6.68 | 3.50 |
| 1.75V    | 172.9 | 119.8 | 95.9  | 60.5  | 35.1 | 20.9 | 16.5 | 13.1 | 11.2 | 7.90 | 6.60 | 3.46 |
| 1.80V    | 160.3 | 110.3 | 89.8  | 58.5  | 33.9 | 20.3 | 16.0 | 12.8 | 11.0 | 7.79 | 6.52 | 3.43 |
| 1.85V    | 143.6 | 91.8  | 75.6  | 50.8  | 30.6 | 18.7 | 14.9 | 11.9 | 10.3 | 7.33 | 6.15 | 3.26 |

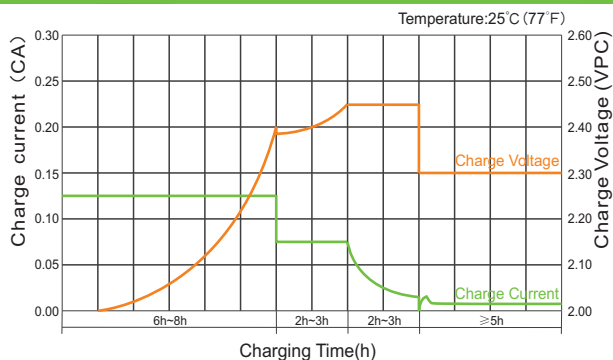
(Note) The above characteristics data are average values obtained within three charge/discharge cycle not the minimum values.

The battery must be fully charged before the capacity test. The C<sub>10</sub> should reach 95% after the first cycle and 100% after the third cycle.

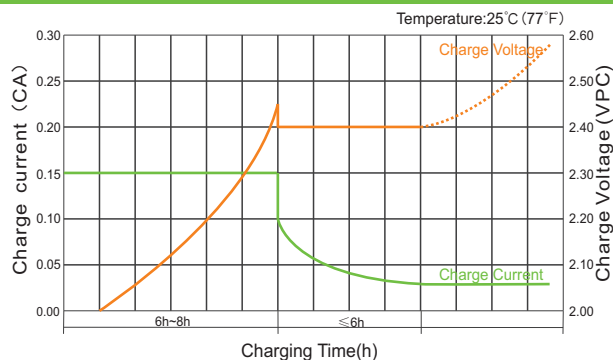
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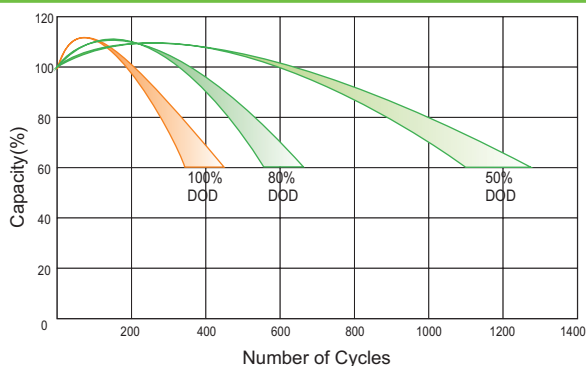
Charge Characteristic Curve for Cycle Use(IUUU)



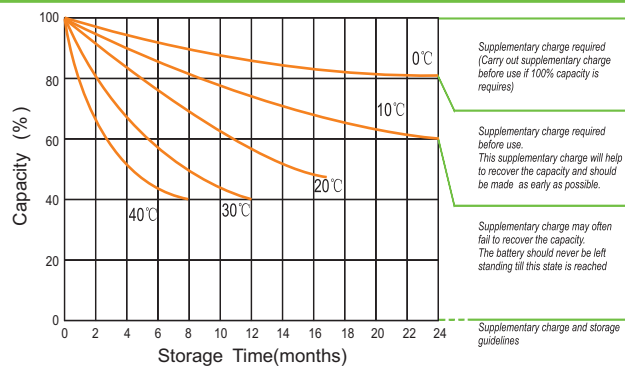
Charge Characteristic Curve For Cycle Use(IUII)



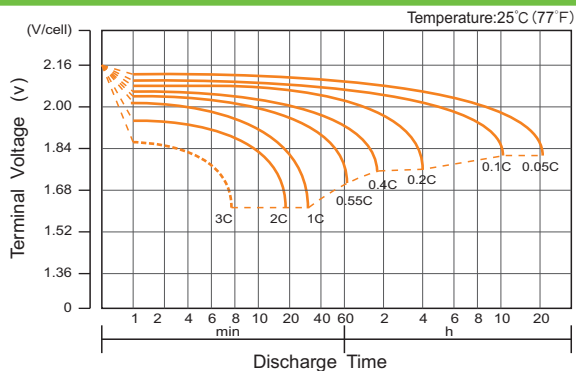
Cycle Life in Relation to Depth of Discharge



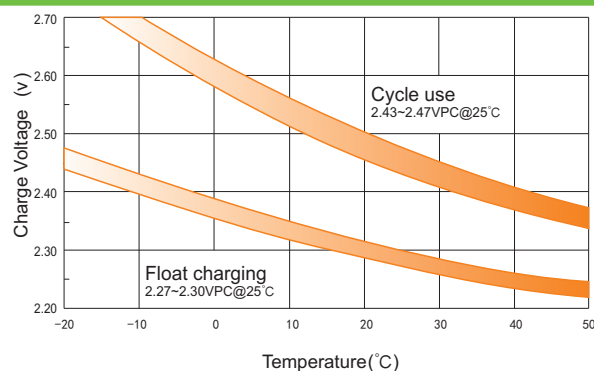
Storage Characteristics



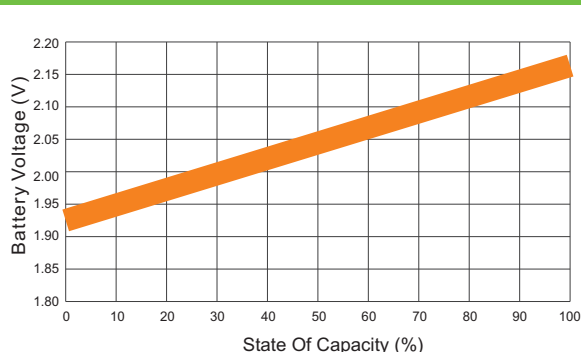
Discharge Characteristics Curve



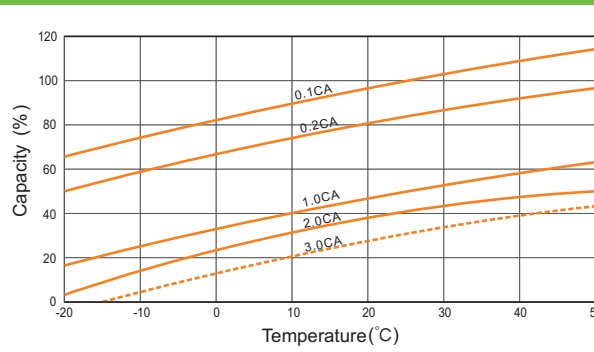
Relationship Between Charging Voltage and Temperature



Relationship of OCV And State of Charge(20°C)



Temperature Effects on Capacity



(Note) All above information shall be changed without prior notice, Ritar reserves the right to explain and update the latest information.