

# AccuForce 12V - 33Ah | VRLA Battery



## Specifications

|                                 |   |            |  |
|---------------------------------|---|------------|--|
| Nominal Voltage                 | 12 V  |            |  |
| Number of cells                 | 6   |            |  |
| Design Life                     | 10 years  |            |  |
| Dimensions                      | Length  | 195 mm     |  |
|                                 | Width   | 130 mm     |  |
|                                 | Height  | 155 mm     |  |
|                                 | Total Height  | 166 mm     |  |
| Approx. Weight                  | 9.2 kg  |            |  |
|                                 | 20 hours rate (1.73 A, 10.8 V)                      | 34.6 Ah    |  |
| Nominal Capacity (25°C)         | 10 hours rate (3.30 A, 10.8 V)                      | 33.0 Ah    |  |
|                                 | 5 hours rate (5.78 A, 10.5 V)                       | 28.9 Ah    |  |
|                                 | 1 hour rate (20.50 A, 9.6 V)                        | 20.5 Ah    |  |
| Max. Discharge Current (25°C)   | 330 A (5s)  |            |  |
| Internal Resistance             | 10 mOhms  |            |  |
| Fully Charged battery (25°C)    | 3%  |            |  |
| Self-Discharge                  | 3% of capacity declined per month at 20°C (average) |            |  |
|                                 | Discharge   | -15°C~50°C |  |
|                                 | Charge  | -10°C~50°C |  |
| Operating Temperature Range     | Storage : -20°C~50°C                                |            |  |
|                                 | 880 A   |            |  |
|                                 | Boost charging voltage : 2.40-2.45 Vpc              |            |  |
| Charging Characteristics (25°C) | Maximum charging current : 9.9 A                    |            |  |
|                                 | Temperature compensation : -30 mV/°C                |            |  |
|                                 | Float charging voltage : 2.23-2.27 Vpc              |            |  |
|                                 | Temperature compensation : -18 mV/°C                |            |  |
|                                 |   |            |  |

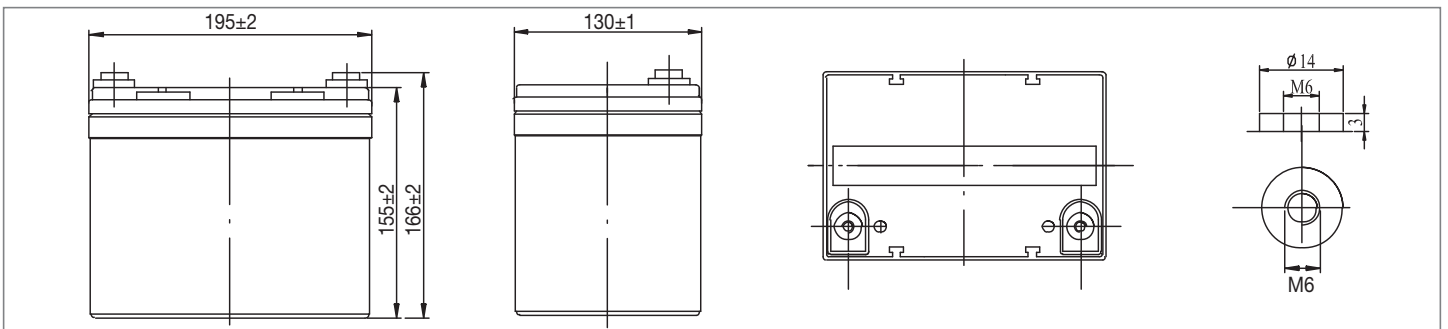
## Applications

- Uninterruptible Power Supplies (UPS)
- Electric Power Systems (EPS)
- Emergency backup power supplies
- Electronic apparatus and equipment
- Communication power supplies
- DC power supplies
- Auto control system

## Battery Construction

| Component    | Positive Plate | Negative Plate | Container | Cover | Safety Valve | Terminal | Separator  | Electrolyte   |
|--------------|----------------|----------------|-----------|-------|--------------|----------|------------|---------------|
| Raw material | Lead dioxide   | Lead           | ABS       | ABS   | Rubber       | Pb       | Fiberglass | Sulfuric acid |

## Dimensions



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

| End Voltage (Volts/Cell) | 10min | 15min | 30min | 1h   | 2h   | 3h   | 4h   | 5h   | 8h   | 10h  | 20h  |
|--------------------------|-------|-------|-------|------|------|------|------|------|------|------|------|
| 1.60 V                   | 69.3  | 54.5  | 33.0  | 20.5 | 12.1 | 8.42 | 6.90 | 5.89 | 4.04 | 3.36 | 1.76 |
| 1.65 V                   | 67.2  | 53.1  | 32.3  | 20.2 | 12.0 | 8.37 | 6.86 | 5.86 | 4.02 | 3.35 | 1.76 |
| 1.70 V                   | 64.4  | 51.2  | 31.4  | 19.6 | 11.9 | 8.31 | 6.81 | 5.82 | 3.99 | 3.34 | 1.76 |
| 1.75 V                   | 61.7  | 49.4  | 30.6  | 19.3 | 11.7 | 8.25 | 6.77 | 5.78 | 3.96 | 3.32 | 1.74 |
| 1.80 V                   | 58.2  | 46.8  | 29.5  | 18.7 | 11.4 | 8.00 | 6.56 | 5.60 | 3.84 | 3.30 | 1.73 |

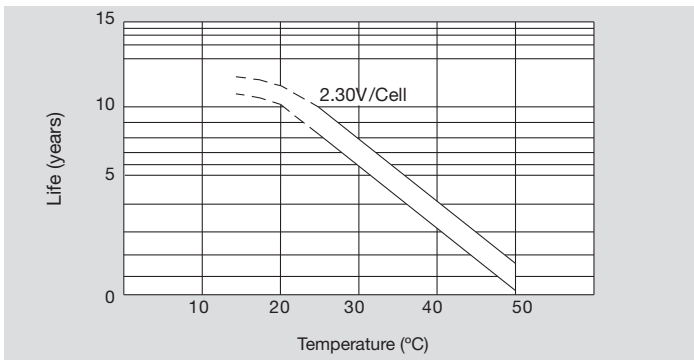
## Constant Power Discharge (Watts) at 25°C

| End Voltage (Volts/Cell) | 10min | 15min | 30min | 1h  | 2h  | 3h   | 4h   | 5h   | 8h   | 10h  | 20h  |
|--------------------------|-------|-------|-------|-----|-----|------|------|------|------|------|------|
| 1.60 V                   | 748   | 598   | 370   | 233 | 140 | 99.0 | 81.1 | 69.6 | 48.0 | 40.1 | 21.2 |
| 1.65 V                   | 726   | 584   | 363   | 230 | 139 | 98.4 | 80.7 | 69.2 | 47.7 | 40.0 | 21.1 |
| 1.70 V                   | 696   | 562   | 352   | 224 | 138 | 97.7 | 80.1 | 68.7 | 47.4 | 39.9 | 21.1 |
| 1.75 V                   | 666   | 543   | 343   | 219 | 136 | 97.0 | 79.6 | 68.3 | 47.0 | 39.7 | 20.9 |
| 1.80 V                   | 629   | 514   | 331   | 213 | 132 | 94.1 | 77.2 | 66.2 | 45.6 | 39.4 | 20.8 |

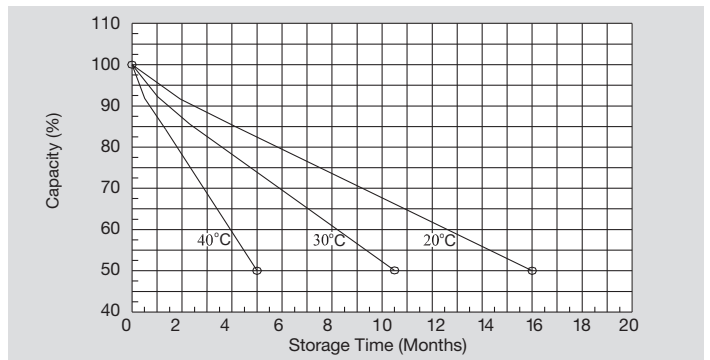
(Note) The above characteristics data are average values obtained within three charge/discharge cycles not the minimum values.

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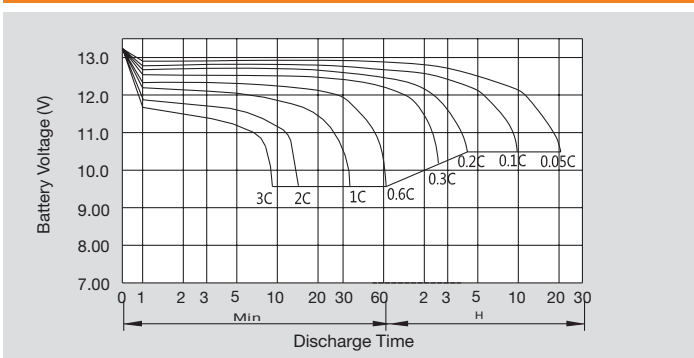
### Temperature Effects on Float Life



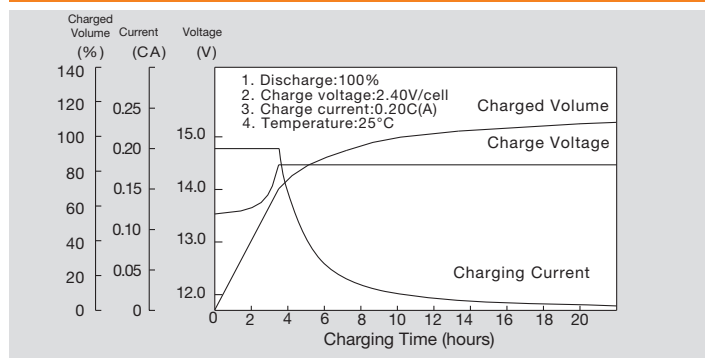
### Self Discharge Characteristics



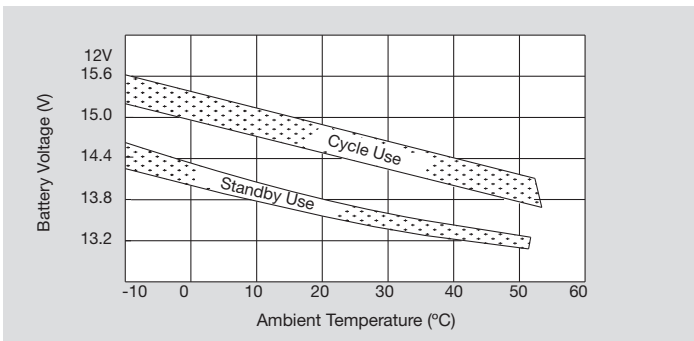
### Discharge Characteristics (25°C)



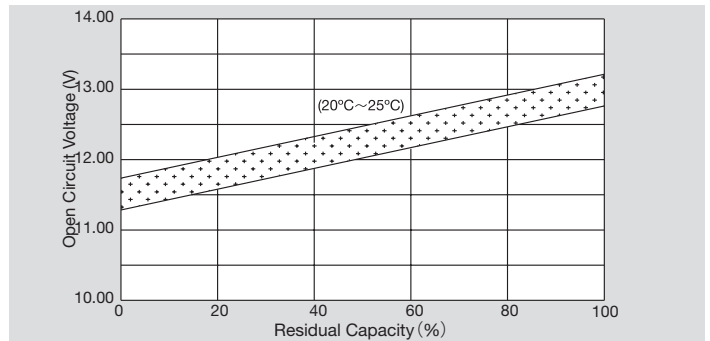
### Charging Characteristics (25°C)



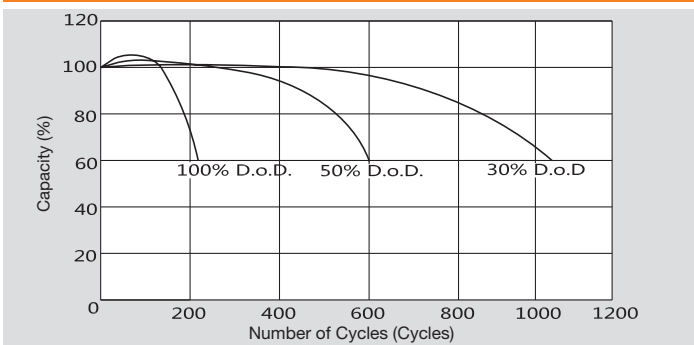
### Relationship Between Charging Voltage and Temperature



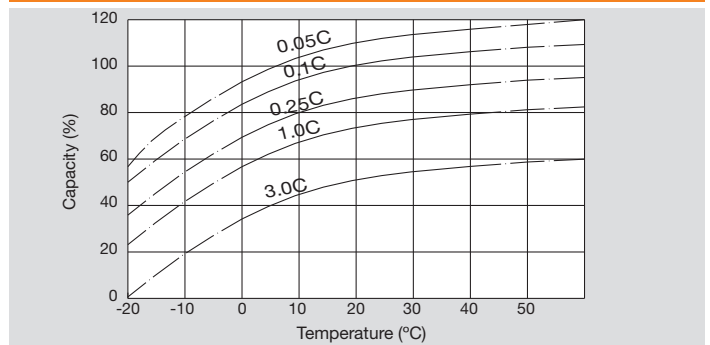
### Relationship Between OCV and Residual Capacity (25°C)



### Cycle Service Life in Relation to Depth of Discharge



### Temperature Effects on Capacity



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