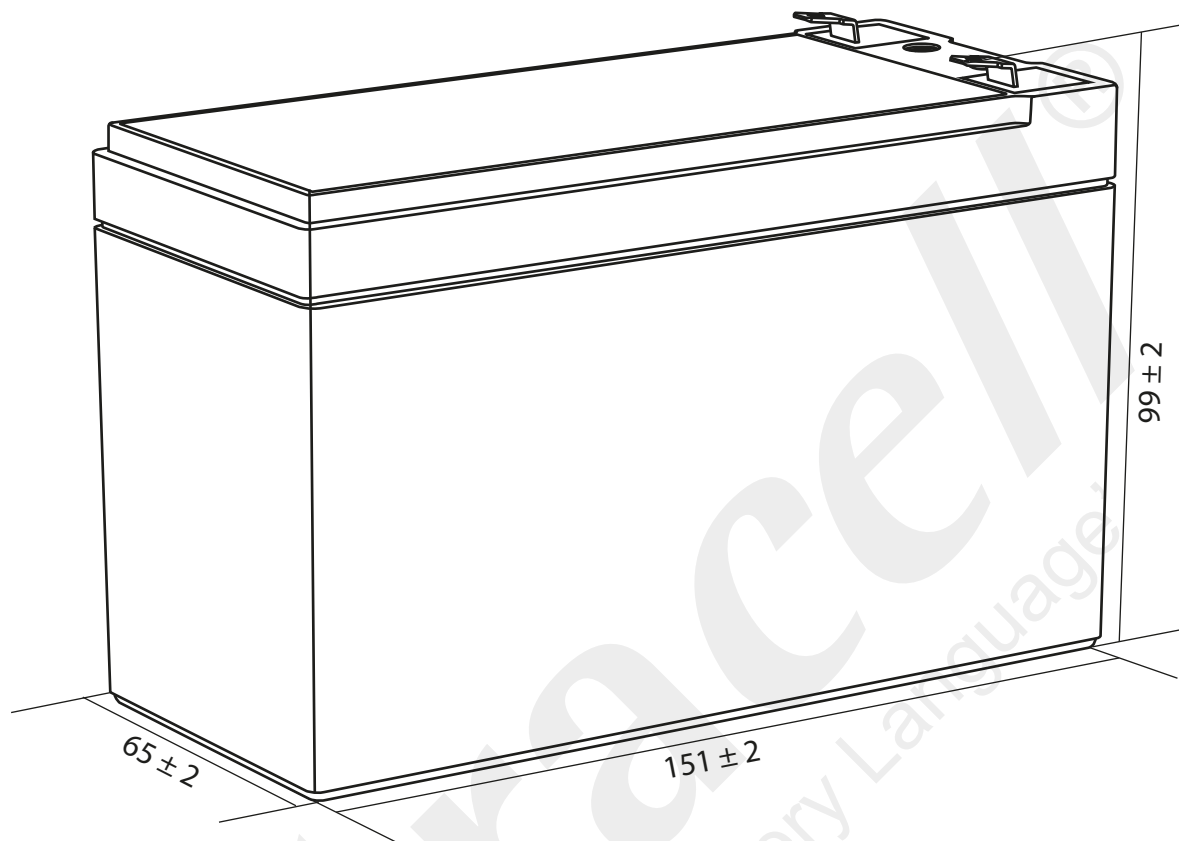
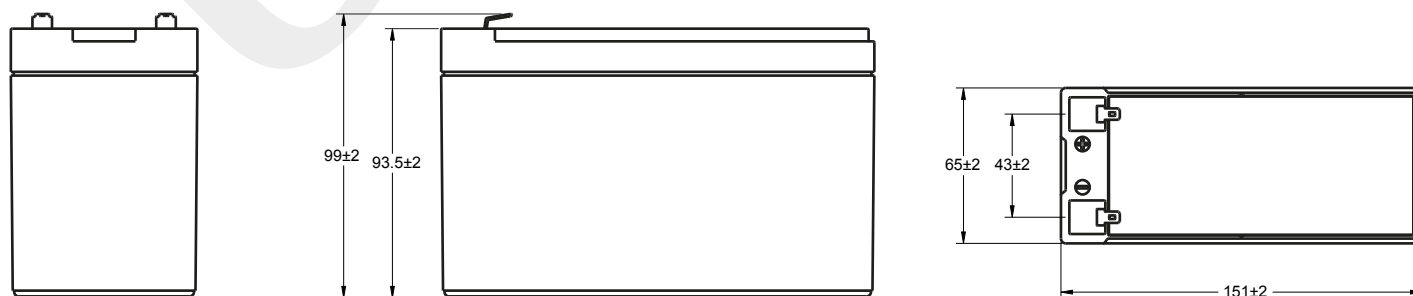




## Technical Dimensions (mm)

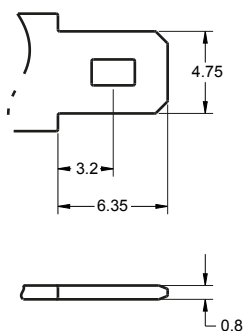


## Image

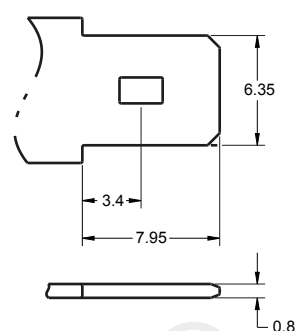


## Terminal Dimensions (mm)

Standard  
Terminal: F1



Optional  
Terminal: F2



## Technical Specification

|                                  |                              |                                                                                                     |
|----------------------------------|------------------------------|-----------------------------------------------------------------------------------------------------|
| Output                           | Nominal Voltage              | 12V                                                                                                 |
|                                  | Nominal Capacity (20HR)      | 7Ah                                                                                                 |
| Terminal Type                    | Standard Terminal            | F1                                                                                                  |
|                                  | Optional Terminal            | F2                                                                                                  |
| Container Material               | Standard Option              | ABS                                                                                                 |
|                                  | Flame Retardant Option (FR)  | ABS (UL94:VO)                                                                                       |
| Rated Capacity                   | (20HR 1.80V/cell, 25°C)      | 7 Ah/0.350A                                                                                         |
|                                  | (10HR 1.80V/cell, 25°C)      | 6.53 Ah/0.653A                                                                                      |
|                                  | (5HR 1.75V/cell, 25°C)       | 5.80 Ah/1.16A                                                                                       |
|                                  | (3HR 1.75V/cell, 25°C)       | 5.13 Ah/1.71A                                                                                       |
|                                  | (1HR 1.60V/cell, 25°C)       | 4.26 Ah/4.26A                                                                                       |
|                                  |                              |                                                                                                     |
| Max Discharge Current            | 105A (5s)                    |                                                                                                     |
| Internal Resistance              | Approx 23mΩ                  |                                                                                                     |
| Discharge Characteristics        | Operating Temp Range         | Discharge: -15 ~ 50°C                                                                               |
|                                  |                              | Charge: 0 ~ 40°C                                                                                    |
|                                  |                              | Storage: -15 ~ 40°C                                                                                 |
|                                  | Nominal Operating Temp Range | 25 ± 3°C                                                                                            |
|                                  | Cycle Use                    | Initial Charging Current less than 2.1A.<br>Voltage 14.4V ~ 15.0V @ 25°C Temp. Coefficient -30mV/°C |
|                                  | Standby Use                  | No limit on initial charging current.<br>Voltage 13.5V ~ 13.8V @ 25°C Temp. Coefficient -20mV/°C    |
| Capacity affected by Temperature | 40°C                         | 103%                                                                                                |
|                                  | 25°C                         | 100%                                                                                                |
|                                  | 0°C                          | 86%                                                                                                 |
| Design Floating Life at 20°C     | 5 Years                      |                                                                                                     |

## Self Discharge

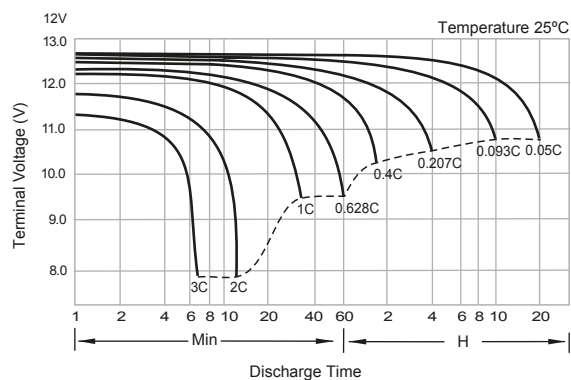
Ultracell® UL batteries may be stored for up to 6 months at 25°C and then a refresh charge is required. For higher temperatures the time intervals will be shorter.

## Constant Current Discharge / Constant Power Discharge At 25°C (Amperes & Watts/Cell)

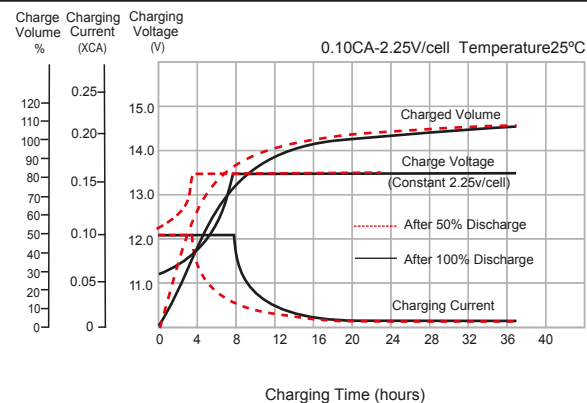
A = Amperes W = Watts

| F.V/TIME   | 5    | 10   | 15   | 20   | 30   | 45   | 60   | 2     | 3     | 4     | 5     | 6     | 8     | 10    | 20    |
|------------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|
| A          | min  | min  | min  | min  | min  | min  | min  | hours | hours | hours | hours | hours | hours | hours | hours |
| 1.85V/cell | 16.0 | 11.7 | 9.97 | 8.46 | 6.17 | 4.52 | 3.60 | 2.14  | 1.60  | 1.30  | 1.10  | 0.95  | 0.756 | 0.626 | 0.343 |
|            | 30.3 | 22.3 | 19.2 | 16.4 | 12.0 | 8.86 | 7.09 | 4.23  | 3.17  | 2.59  | 2.20  | 1.91  | 1.52  | 1.26  | 0.694 |
| 1.80V/cell | 19.2 | 13.7 | 11.3 | 9.20 | 6.65 | 4.80 | 3.83 | 2.24  | 1.66  | 1.35  | 1.14  | 0.99  | 0.783 | 0.653 | 0.350 |
|            | 35.9 | 25.8 | 21.5 | 17.7 | 12.9 | 9.37 | 7.52 | 4.42  | 3.30  | 2.69  | 2.27  | 1.97  | 1.57  | 1.31  | 0.704 |
| 1.75V/cell | 21.5 | 14.9 | 12.0 | 9.70 | 6.92 | 4.99 | 3.98 | 2.31  | 1.71  | 1.38  | 1.16  | 1.01  | 0.795 | 0.663 | 0.357 |
|            | 39.8 | 28.0 | 22.8 | 18.6 | 13.4 | 9.72 | 7.79 | 4.55  | 3.37  | 2.74  | 2.31  | 2.00  | 1.59  | 1.33  | 0.716 |
| 1.70V/cell | 23.4 | 15.9 | 12.8 | 10.2 | 7.18 | 5.12 | 4.05 | 2.36  | 1.75  | 1.41  | 1.19  | 1.03  | 0.812 | 0.672 | 0.361 |
|            | 42.8 | 29.5 | 24.0 | 19.3 | 13.8 | 9.89 | 7.88 | 4.61  | 3.42  | 2.78  | 2.34  | 2.03  | 1.61  | 1.33  | 0.718 |
| 1.65V/cell | 25.5 | 16.8 | 13.4 | 10.6 | 7.43 | 5.28 | 4.17 | 2.40  | 1.77  | 1.43  | 1.21  | 1.04  | 0.823 | 0.680 | 0.365 |
|            | 45.7 | 30.7 | 24.8 | 19.8 | 14.1 | 10.1 | 8.02 | 4.65  | 3.45  | 2.80  | 2.36  | 2.05  | 1.62  | 1.34  | 0.720 |
| 1.60V/cell | 26.8 | 17.6 | 13.8 | 10.9 | 7.64 | 5.42 | 4.26 | 2.46  | 1.81  | 1.46  | 1.23  | 1.06  | 0.837 | 0.690 | 0.371 |
|            | 47.0 | 31.5 | 25.1 | 20.1 | 14.3 | 10.3 | 8.13 | 4.73  | 3.50  | 2.83  | 2.39  | 2.07  | 1.63  | 1.35  | 0.728 |

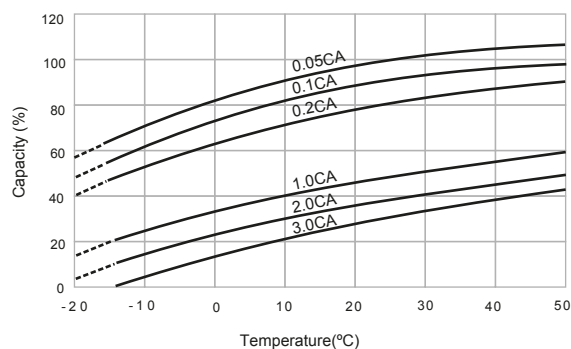
## Discharge Characteristics



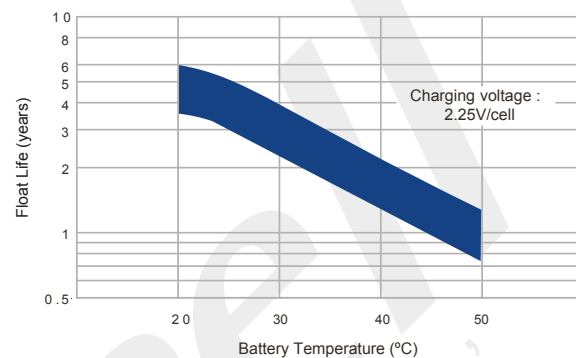
## Float Charging Characteristics



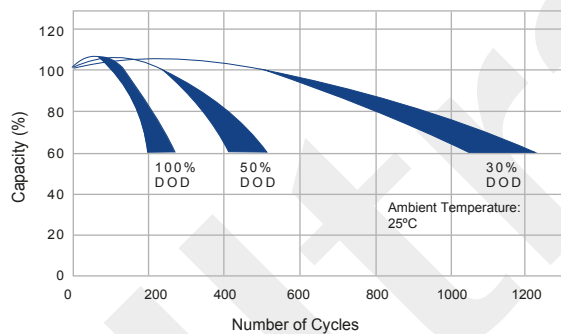
## Temperature Effects in Relation to Battery Capacity



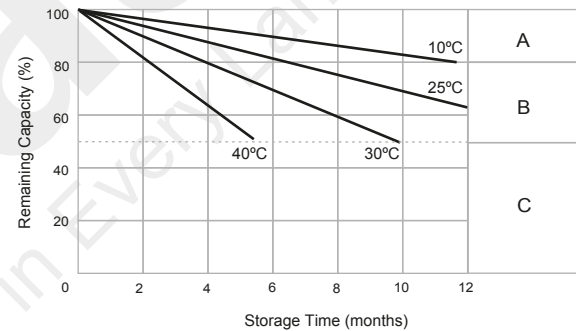
## Effects of Temperature on Long Term Float Life



## Cycle Life in Relation to Depth of Discharge



## General Relation of Capacity vs. Storage Time



## General Relation of Capacity vs. Storage Time (Notes)

- A) No supplementary charge required.  
(Carryout supplementary charge before use if 100% capacity is required.)
- B) Supplementary charge required before use. Optional charging way as below:
  1. Charged for above 3 days at limited current 0.25CA and constant voltage 2.25V/cell.
  2. Charged for above 20 hours at limited current 0.25CA and constant voltage 2.25V/cell.
  3. Charged for 8 ~ 10 hours at limited current 0.05 CA.
- C) Supplementary charge may often fail to recover the capacity.  
The battery should never be left standing till this is reached.