

## UC38-12



## Physical Specification

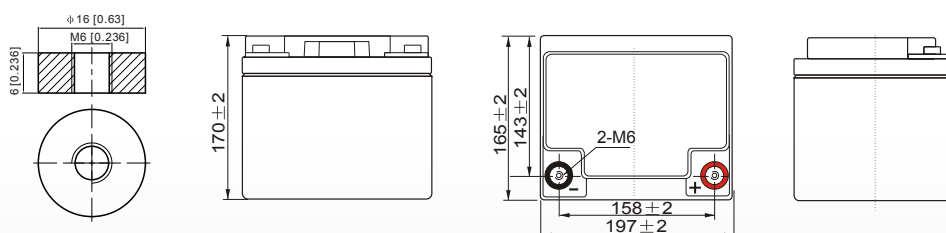
|                               |                                 |
|-------------------------------|---------------------------------|
| Part Number:                  | <b>UC38-12</b>                  |
| Length:                       | <b>197 ± 2 mm (7.76 inches)</b> |
| Width:                        | <b>165 ± 2 mm (6.50 inches)</b> |
| Container Height:             | <b>170 ± 2 mm (6.69 inches)</b> |
| Total Height (with terminal): | <b>170 ± 2 mm (6.69 inches)</b> |
| Approx Weight:                | <b>Approx 13.00kg</b>           |

## Specifications

|                              |                                                                                                                                                                      |                                                                                                             |
|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| Terminal Type                | Normal Voltage                                                                                                                                                       | 12V                                                                                                         |
|                              | Normal Capacity (20HR)                                                                                                                                               | 38.0AH                                                                                                      |
|                              | Standard Terminal                                                                                                                                                    | F6                                                                                                          |
| Container Material           | Optional Terminal                                                                                                                                                    |                                                                                                             |
|                              | Standard Option                                                                                                                                                      | ABS                                                                                                         |
| Rated Capacity               | Flame Retardant Option (FR)                                                                                                                                          | ABS(UL94:VO)                                                                                                |
|                              | 40.7 AH/2.04A                                                                                                                                                        | (20hr, 1.80V/cell, 25°C / 77°F)                                                                             |
|                              | 38.0 AH/3.80A                                                                                                                                                        | (10hr, 1.80V/cell, 25°C / 77°F)                                                                             |
|                              | 33.3 AH/6.67A                                                                                                                                                        | (5hr, 1.75V/cell, 25°C / 77°F)                                                                              |
|                              | 30.2 AH/10.1A                                                                                                                                                        | (3hr, 1.75V/cell, 25°C / 77°F)                                                                              |
|                              | 24.5 AH/24.5A                                                                                                                                                        | (1hr, 1.60V/cell, 25°C / 77°F)                                                                              |
| Max Discharge Current        | 456A (5s)                                                                                                                                                            |                                                                                                             |
| Internal Resistance          | Approx 9.0mΩ                                                                                                                                                         |                                                                                                             |
| Discharge Characteristics    | Operating Temp. Range                                                                                                                                                | Discharge: -15 ~ 50°C (5 ~ 122°F)<br>Charge: 0 ~ 40°C (5 ~ 104°F)<br>Storage: -15 ~ 40°C (5 ~ 104°F)        |
|                              | Nominal Operating Temp. Range                                                                                                                                        | 25 ± 3°C (77 ± 5°F)                                                                                         |
|                              | Cycle Use                                                                                                                                                            | Initial Charging Current less than 11.4A.Voltage<br>14.4V ~ 15.0V at 25°C (77°F) Temp. Coefficient -30mV/°C |
|                              | Standby Use                                                                                                                                                          | No limit on Initial Charging Current Voltage<br>13.5V ~ 13.8V at 25°C (77°F) Temp. Coefficient -20mV/°C     |
|                              | Capacity affected by Temperature                                                                                                                                     | 40°C (104°F) 103%<br>25°C (77°F) 100%<br>0°C (32°F) 86%                                                     |
|                              |                                                                                                                                                                      |                                                                                                             |
|                              |                                                                                                                                                                      |                                                                                                             |
|                              |                                                                                                                                                                      |                                                                                                             |
| Design Floating Life at 20°C | 12 Years                                                                                                                                                             |                                                                                                             |
| Self Discharge               | Ultracell batteries may be stored for up to 6 months at 25°C(77°F) and then a refresh charge is required. For higher temperatures the time interval will be shorter. |                                                                                                             |

## Dimensions

### F6 Terminal



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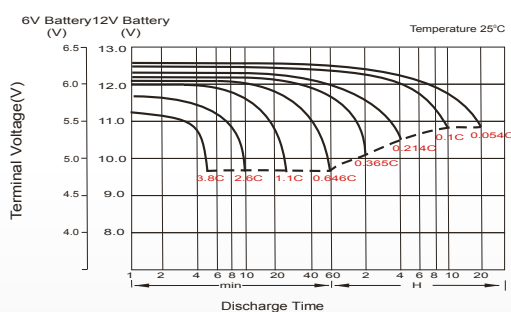
## Constant Current Discharge (Amperes) at 25°C (77°F)

| F.V/Time   | 10 min | 15 min | 20 min | 30 min | 45 min | 1h   | 2h   | 3h   | 4h   | 5h   | 6h   | 8h   | 10h  | 20h  |
|------------|--------|--------|--------|--------|--------|------|------|------|------|------|------|------|------|------|
| 1.85V/cell | 55.6   | 46.8   | 40.9   | 29.4   | 23.4   | 19.0 | 11.8 | 9.19 | 7.44 | 6.05 | 5.28 | 4.31 | 3.59 | 2.02 |
| 1.80V/cell | 71.1   | 56.6   | 48.4   | 34.7   | 27.2   | 21.3 | 12.9 | 9.89 | 7.95 | 6.49 | 5.66 | 4.57 | 3.80 | 2.04 |
| 1.75V/cell | 78.1   | 61.8   | 52.0   | 36.1   | 28.2   | 22.2 | 13.3 | 10.1 | 8.12 | 6.67 | 5.81 | 4.65 | 3.84 | 2.06 |
| 1.70V/cell | 85.1   | 66.0   | 54.7   | 37.5   | 29.3   | 22.9 | 13.9 | 10.4 | 8.34 | 6.83 | 5.94 | 4.71 | 3.88 | 2.09 |
| 1.65V/cell | 91.9   | 70.1   | 58.1   | 39.6   | 30.1   | 23.7 | 14.3 | 10.8 | 8.63 | 7.02 | 6.06 | 4.79 | 3.96 | 2.12 |
| 1.60V/cell | 99.8   | 75.0   | 61.9   | 41.8   | 31.4   | 24.5 | 14.7 | 11.1 | 8.90 | 7.25 | 6.20 | 4.83 | 4.00 | 2.13 |

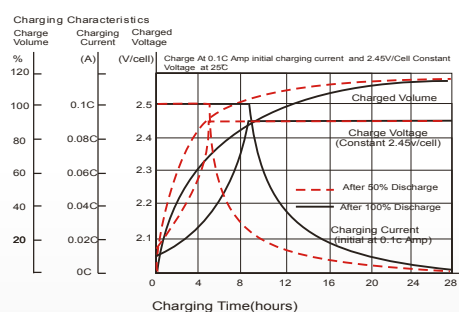
## Constant Power Discharge (Watts) at 25°C (77°F)

| F.V/Time   | 10 min | 15 min | 20 min | 30 min | 45 min | 1h   | 2h   | 3h   | 4h   | 5h   | 6h    | 8h   | 10h  | 20h  |
|------------|--------|--------|--------|--------|--------|------|------|------|------|------|-------|------|------|------|
| 1.85V/cell | 103.8  | 88.3   | 78.0   | 56.6   | 45.2   | 36.8 | 23.0 | 18.0 | 14.6 | 11.9 | 10.42 | 8.52 | 7.11 | 4.04 |
| 1.80V/cell | 130.9  | 105.1  | 90.8   | 65.9   | 52.2   | 41.0 | 24.9 | 19.2 | 15.5 | 12.7 | 11.14 | 9.02 | 7.52 | 4.07 |
| 1.75V/cell | 142.0  | 113.6  | 96.8   | 68.1   | 53.9   | 42.7 | 25.8 | 19.5 | 15.8 | 13.0 | 11.43 | 9.17 | 7.59 | 4.10 |
| 1.70V/cell | 152.6  | 120.4  | 101.2  | 70.6   | 55.9   | 44.0 | 26.7 | 20.0 | 16.2 | 13.3 | 11.65 | 9.29 | 7.66 | 4.18 |
| 1.65V/cell | 163.6  | 127.2  | 107.0  | 74.2   | 57.1   | 45.3 | 27.4 | 20.8 | 16.7 | 13.7 | 11.89 | 9.43 | 7.81 | 4.22 |
| 1.60V/cell | 174.6  | 134.4  | 112.8  | 77.5   | 58.9   | 46.5 | 28.1 | 21.4 | 17.2 | 14.1 | 12.12 | 9.51 | 7.89 | 4.24 |

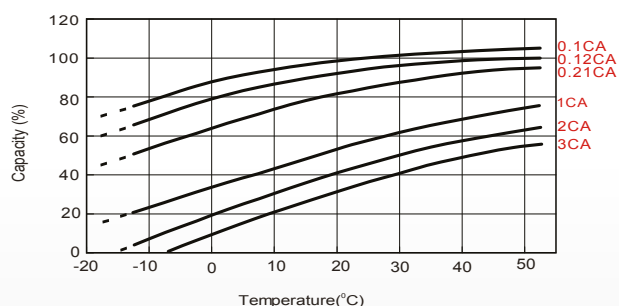
## Discharge Characteristics



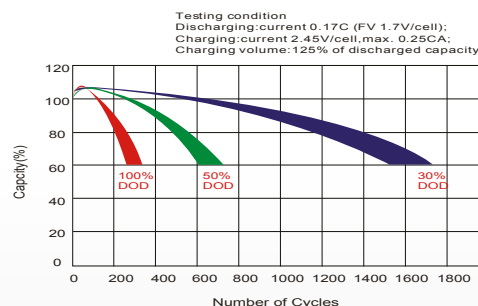
## Charging Characteristics (cycle use)



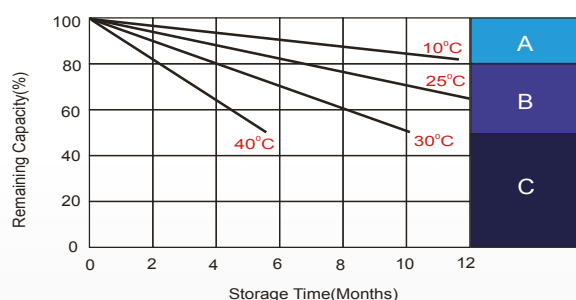
## Temperature Effects in Relation to Battery Capacity



## Cycle Life in Relation to Depth of Discharge



## Self Discharge Characteristics



- A** No supplementary charge required  
(Carry out 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 2.45V/cell.  
3. Charged for 8~10 hours at limited current 0.05CA.
- C** Supplementary charge may often fail to recover the capacity.  
The battery should never be left standing till this is reached.

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