

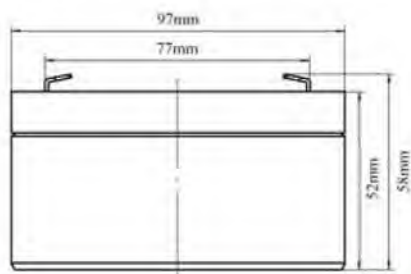


## Specification

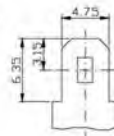
|                                            |                                                                                                                                                              |
|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Cells Per Unit                             | 3                                                                                                                                                            |
| Voltage Per Unit                           | 6                                                                                                                                                            |
| Capacity                                   | 1.3Ah@20hr-rate to 1.75V per cell @25°C                                                                                                                      |
| Weight                                     | Approx. 0.32 Kg                                                                                                                                              |
| Size (L x W x H x Total H)                 | 97 x 24 x 52 x 58 mm.                                                                                                                                        |
| Max. Discharge Current                     | 13A (5 sec)                                                                                                                                                  |
| Internal Resistance                        | Approx. 50 mΩ                                                                                                                                                |
| 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 ± 5°C                                                                                                                                                   |
| Float charging Voltage                     | 6.8 to 6.9 VDC/unit Average at 25°C                                                                                                                          |
| Recommended Maximum Charging Current Limit | 0.39 A                                                                                                                                                       |
| Equalization and Cycle Service             | 7.25 to 7.45 VDC/unit Average at 25°C                                                                                                                        |
| Self Discharge                             | SPA batteries can be stored for more than 6 months at 25°C. Please charge batteries before using. For higher temperature, the time interval will be shorter. |
| Terminal                                   | Faston Tab 187(F1)                                                                                                                                           |
| Container Material                         | A.B.S. (UL94-HB) Flammability resistance of UL94-V2 can be available upon request.                                                                           |

## Dimensions

Unit: mm



Terminal F1



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

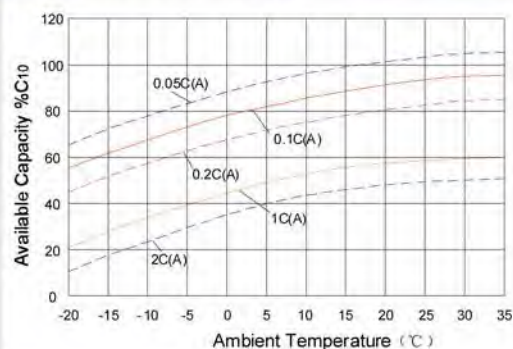
| F.V/Time | 5MIN | 10MIN | 15MIN | 30MIN | 1HR  | 2HR  | 3HR  | 4HR  | 5HR  | 8HR  | 10HR | 20HR |
|----------|------|-------|-------|-------|------|------|------|------|------|------|------|------|
| 1.60V    | 5.40 | 3.61  | 2.77  | 1.53  | 0.90 | 0.54 | 0.34 | 0.27 | 0.22 | 0.16 | 0.13 | 0.08 |
| 1.67V    | 5.05 | 3.37  | 2.61  | 1.51  | 0.90 | 0.54 | 0.34 | 0.27 | 0.22 | 0.16 | 0.13 | 0.07 |
| 1.70V    | 4.78 | 3.26  | 2.55  | 1.50  | 0.89 | 0.53 | 0.33 | 0.27 | 0.22 | 0.16 | 0.13 | 0.07 |
| 1.75V    | 4.31 | 3.06  | 2.42  | 1.45  | 0.88 | 0.53 | 0.33 | 0.27 | 0.22 | 0.16 | 0.12 | 0.07 |
| 1.80V    | 3.86 | 2.85  | 2.28  | 1.42  | 0.87 | 0.52 | 0.33 | 0.27 | 0.22 | 0.16 | 0.12 | 0.07 |
| 1.85V    | 3.40 | 2.63  | 2.15  | 1.39  | 0.86 | 0.51 | 0.33 | 0.27 | 0.22 | 0.16 | 0.12 | 0.07 |

## Constant Power Discharge Characteristics Unit: W(25°C)

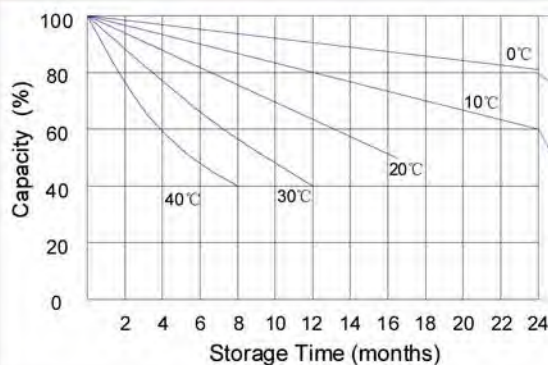
| F.V/Time | 5MIN  | 10MIN | 15MIN | 30MIN | 1HR  | 2HR  | 3HR  | 4HR  | 5HR  | 8HR  | 10HR | 20HR |
|----------|-------|-------|-------|-------|------|------|------|------|------|------|------|------|
| 1.60V    | 10.40 | 6.76  | 5.49  | 3.06  | 1.80 | 1.08 | 0.66 | 0.54 | 0.52 | 0.33 | 0.25 | 0.14 |
| 1.67V    | 9.75  | 6.50  | 5.21  | 3.00  | 1.80 | 1.07 | 0.66 | 0.54 | 0.51 | 0.33 | 0.25 | 0.14 |
| 1.70V    | 9.56  | 6.31  | 4.41  | 2.98  | 1.80 | 1.07 | 0.66 | 0.54 | 0.51 | 0.33 | 0.25 | 0.13 |
| 1.75V    | 4.78  | 6.05  | 4.83  | 2.91  | 1.77 | 1.05 | 0.66 | 0.54 | 0.51 | 0.33 | 0.25 | 0.13 |
| 1.80V    | 7.71  | 5.66  | 3.80  | 2.84  | 1.73 | 1.04 | 0.65 | 0.53 | 0.51 | 0.31 | 0.24 | 0.13 |
| 1.85V    | 6.79  | 5.27  | 4.29  | 2.77  | 1.70 | 1.03 | 0.65 | 0.53 | 0.51 | 0.31 | 0.24 | 0.12 |

All mentioned values are average values.

### Temperature effects curve



### Storage characteristic



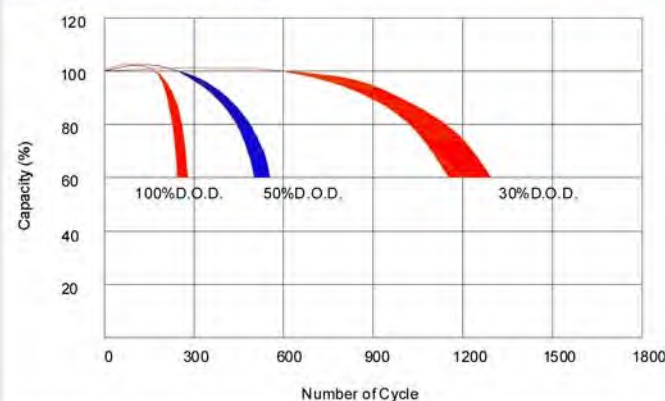
Supplementary charge required (Carry out supplementary charge before use if 100% capacity is required)

Supplementary charge required before use. This supplementary charge will help to recover the capacity and should be made as early as possible.

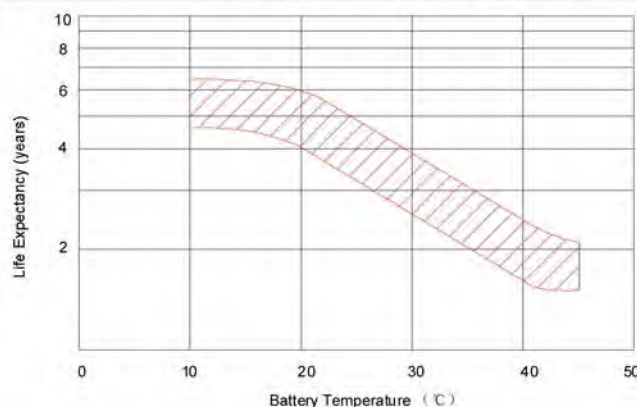
Supplementary charge may often fail to recover the capacity. The battery should never be left standing till this state is reached

Supplementary charge and storage guidelines

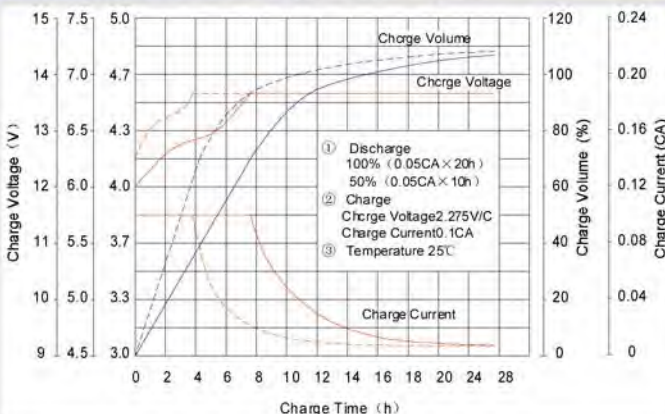
### Life characteristics of cyclic use



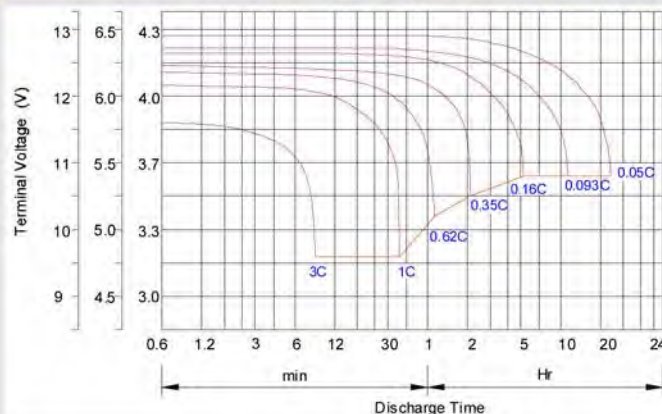
### Effect of temperature on long term float life



### Charge characteristic Curve for standby use



### Discharge characteristic Curve



### Charging Procedures

| Application | Charge Voltage (V) |           |                 | Max. Charge Current |
|-------------|--------------------|-----------|-----------------|---------------------|
|             | Temperature        | Set point | Allowable range |                     |
| Cycle Use   | 25°C               | 7.35      | 7.25~7.45       | 0.3C                |
| Standby     | 25°C               | 6.85      | 6.8~6.9         | 0.3C                |

### Discharge Current VS. Discharge Voltage

| Final Discharge Voltage V/cell | 1.75V      | 1.70V             | 1.60V      |
|--------------------------------|------------|-------------------|------------|
| Discharge Current (A)          | (A) ≤ 0.2C | 0.2C < (A) < 1.0C | (A) ≥ 1.0C |

**Charge the batteries at least once every six months, if they are stored at 25°C.**

**Charging Method:**

|                  |                                       |
|------------------|---------------------------------------|
| Constant Voltage | 7.25~7.45V, 5~11h, Max. Current 0.3CA |
|------------------|---------------------------------------|