



| Specification                    |                                                                                                                                                                          | (Artikel-Nr. 2010673)         |
|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| Nominal Voltage                  | 12V                                                                                                                                                                      |                               |
| Nominal Capacity(20HR)           | 2.1AH                                                                                                                                                                    |                               |
| Dimensions                       | Length                                                                                                                                                                   | 178 ± 2mm (7.00 inches)       |
|                                  | Width                                                                                                                                                                    | 35 ± 1mm (1.38 inches)        |
|                                  | Container Height                                                                                                                                                         | 60 ± 1mm (2.36 inches)        |
|                                  | Total Height (with Terminal)                                                                                                                                             | 66 ± 1mm (2.60 inches)        |
| Approx Weight                    | Approx 0.96 kg (2.12lbs)                                                                                                                                                 |                               |
| Terminal                         | T1                                                                                                                                                                       |                               |
| Container Material               | ABS                                                                                                                                                                      |                               |
| Rated Capacity                   | 2.10 AH/0.105A                                                                                                                                                           | (20hr, 1.80V/cell, 25°C/77°F) |
|                                  | 1.90AH/0.190A                                                                                                                                                            | (10hr, 1.80V/cell, 25°C/77°F) |
|                                  | 1.67 AH/0.334A                                                                                                                                                           | (5hr, 1.75V/cell, 25°C/77°F)  |
|                                  | 1.49AH/0.497A                                                                                                                                                            | (3hr, 1.75V/cell, 25°C/77°F)  |
|                                  | 1.22 AH/1.22A                                                                                                                                                            | (1hr, 1.60V/cell, 25°C/77°F)  |
| Max. Discharge Current           | 31.5A (5s)                                                                                                                                                               |                               |
| Internal Resistance              | Approx 70mΩ                                                                                                                                                              |                               |
| Operating Temp. Range            | Discharge : -15~50°C (5~122°F)                                                                                                                                           |                               |
|                                  | Charge : 0~40°C (32~104°F)                                                                                                                                               |                               |
|                                  | Storage : -15~40°C (5~104°F)                                                                                                                                             |                               |
| Nominal Operating Temp. Range    | 25 ± 3°C (77 ± 5°F)                                                                                                                                                      |                               |
| Cycle Use                        | Initial Charging Current less than 0.63A. Voltage                                                                                                                        |                               |
|                                  | 14.4V~15.0V at 25°C (77°F) Temp. Coefficient -30mV/°C                                                                                                                    |                               |
| Standby Use                      | No limit on Initial Charging Current Voltage                                                                                                                             |                               |
|                                  | 13.5V~13.8V at 25°C (77°F) Temp. Coefficient -20mV/°C                                                                                                                    |                               |
| Capacity affected by Temperature | 40°C (104°F)                                                                                                                                                             | 103%                          |
|                                  | 25°C (77°F)                                                                                                                                                              | 100%                          |
|                                  | 0°C (32°F)                                                                                                                                                               | 86%                           |
| Self Discharge                   | ST series batteries may be stored for up to 6 months at 25°C (77°F) and then a freshening charge is required. For higher temperatures the time interval will be shorter. |                               |

### Applications

- ◆ All purpose
- ◆ Uninterruptable Power Supply (UPS)
- ◆ Electric Power System (EPS)
- ◆ Emergency backup power supply
- ◆ Emergency light
- ◆ Railway signal
- ◆ Aircraft signal
- ◆ Alarm and security system
- ◆ Electronic apparatus and equipment
- ◆ Communication power supply
- ◆ DC power supply
- ◆ Auto control system

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

| F.V/Time   | 5min | 10min | 15min | 20min | 30min | 45min | 1h    | 2h    | 3h    | 4h    | 5h    | 6h    | 8h    | 10h   | 20h   |
|------------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1.85V/cell | 4.03 | 2.81  | 2.32  | 1.99  | 1.60  | 1.21  | 0.972 | 0.600 | 0.457 | 0.368 | 0.312 | 0.276 | 0.224 | 0.185 | 0.104 |
| 1.80V/cell | 4.96 | 3.35  | 2.69  | 2.25  | 1.77  | 1.32  | 1.05  | 0.637 | 0.480 | 0.387 | 0.325 | 0.288 | 0.232 | 0.190 | 0.105 |
| 1.75V/cell | 5.87 | 3.79  | 2.97  | 2.45  | 1.89  | 1.41  | 1.10  | 0.665 | 0.497 | 0.399 | 0.334 | 0.295 | 0.239 | 0.194 | 0.106 |
| 1.70V/cell | 6.66 | 4.18  | 3.21  | 2.63  | 1.98  | 1.46  | 1.15  | 0.692 | 0.514 | 0.409 | 0.342 | 0.303 | 0.243 | 0.198 | 0.108 |
| 1.65V/cell | 7.35 | 4.50  | 3.39  | 2.76  | 2.06  | 1.52  | 1.19  | 0.713 | 0.527 | 0.417 | 0.350 | 0.308 | 0.246 | 0.201 | 0.109 |
| 1.60V/cell | 7.71 | 4.69  | 3.54  | 2.85  | 2.12  | 1.55  | 1.22  | 0.735 | 0.539 | 0.427 | 0.357 | 0.314 | 0.252 | 0.205 | 0.110 |

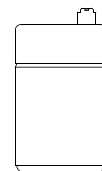
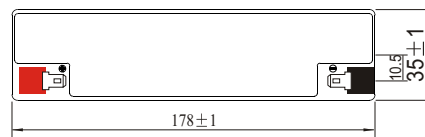
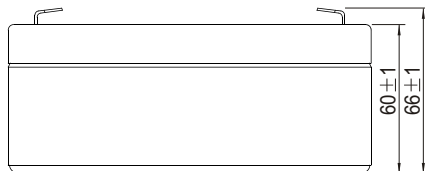
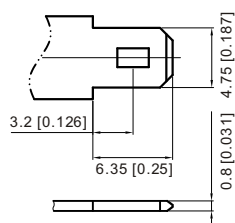
### Constant Power Discharge (Watts) at 25 °C (77°F)

| F.V/Time   | 5min | 10min | 15min | 20min | 30min | 45min | 1h   | 2h   | 3h    | 4h    | 5h    | 6h    | 8h    | 10h   | 20h   |
|------------|------|-------|-------|-------|-------|-------|------|------|-------|-------|-------|-------|-------|-------|-------|
| 1.85V/cell | 7.60 | 5.35  | 4.46  | 3.86  | 3.11  | 2.38  | 1.91 | 1.19 | 0.908 | 0.734 | 0.624 | 0.554 | 0.451 | 0.373 | 0.210 |
| 1.80V/cell | 9.24 | 6.33  | 5.12  | 4.33  | 3.42  | 2.58  | 2.05 | 1.25 | 0.949 | 0.767 | 0.647 | 0.575 | 0.463 | 0.380 | 0.211 |
| 1.75V/cell | 10.8 | 7.08  | 5.60  | 4.68  | 3.63  | 2.72  | 2.14 | 1.30 | 0.977 | 0.786 | 0.660 | 0.585 | 0.475 | 0.387 | 0.212 |
| 1.70V/cell | 12.1 | 7.73  | 6.01  | 4.98  | 3.79  | 2.81  | 2.22 | 1.35 | 1.00  | 0.801 | 0.673 | 0.596 | 0.479 | 0.391 | 0.214 |
| 1.65V/cell | 13.2 | 8.21  | 6.28  | 5.18  | 3.91  | 2.90  | 2.30 | 1.38 | 1.02  | 0.814 | 0.685 | 0.605 | 0.484 | 0.396 | 0.216 |
| 1.60V/cell | 13.6 | 8.44  | 6.47  | 5.28  | 3.98  | 2.94  | 2.33 | 1.41 | 1.04  | 0.828 | 0.694 | 0.613 | 0.492 | 0.402 | 0.216 |

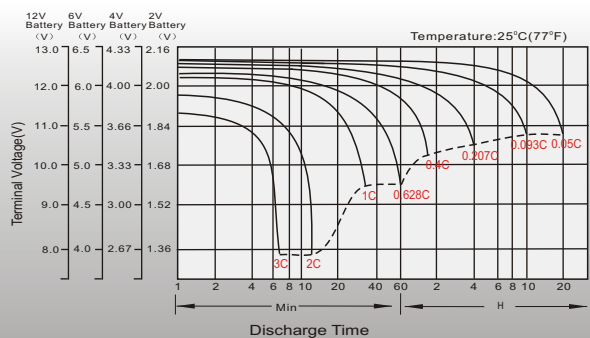
## Dimensions

### T1 Terminal

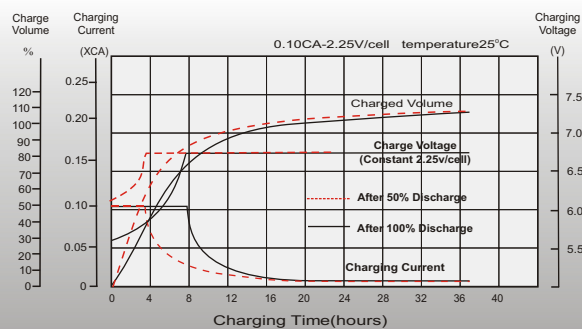
Unit: mm [inches]



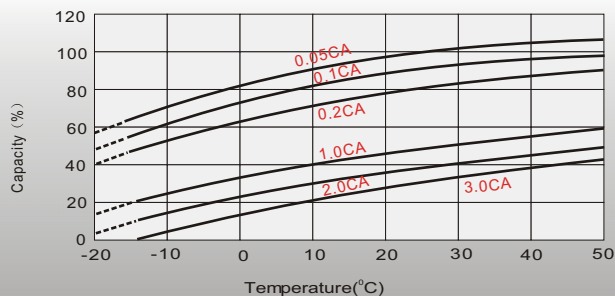
## Discharge Characteristics



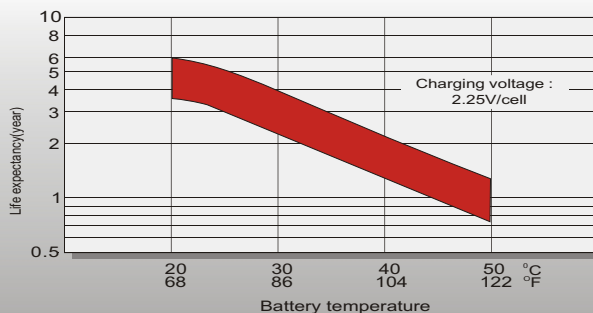
## Float Charging Characteristics



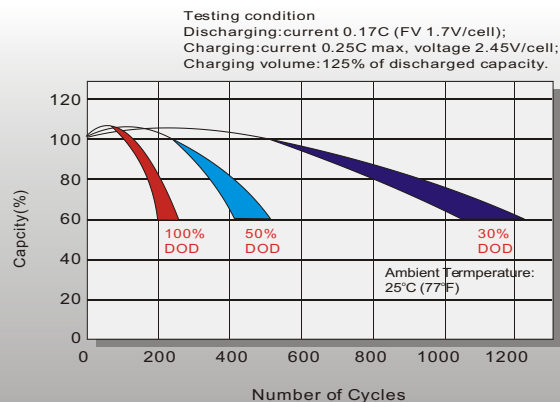
## Temperature Effects in Relation to Battery Capacity



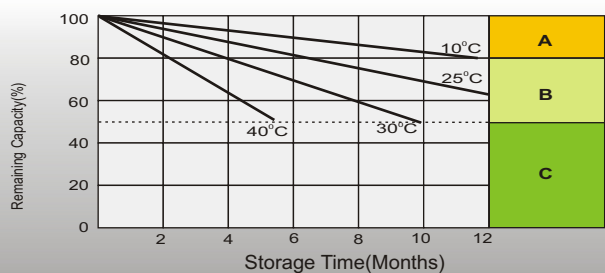
## Effect of Temperature on Long Term Float Life



## 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.