

Specification

| | | |
|-------------------------------------|---|---------------------------------|
| Nominal Voltage | 12V | |
| Nominal Capacity(20HR) | 4.5AH | |
| Dimensions | Length | 90±1mm (3.54 inches) |
| | Width | 70±1mm (2.76 inches) |
| | Container Height | 101±2mm (3.98 inches) |
| | Total Height (with Terminal) | 107±2mm (4.21 inches) |
| Approx Weight | Approx 1.45 kg (3.20lbs) | |
| Terminal | T1 / T2 | |
| Container Material | ABS | |
| Rated Capacity | 4.50 AH/0.225A | (20hr, 1.80V/cell, 25 °C/77 °F) |
| | 4.19 AH/0.419A | (10hr, 1.80V/cell, 25 °C/77 °F) |
| | 3.78 AH/0.756A | (5hr, 1.75V/cell, 25 °C/77 °F) |
| | 3.30 AH/1.10A | (3hr, 1.75V/cell, 25 °C/77 °F) |
| | 2.73 AH/2.73A | (1hr, 1.60V/cell, 25 °C/77 °F) |
| Max. Discharge Current | 67.5A (5s) | |
| Internal Resistance | Approx 40mΩ | |
| Operating Temperature | Discharge : | -15 ~ 50°C (5 ~ 122°F) |
| | Charge : | 0 ~ 40°C (32 ~ 104°F) |
| | Storage : | -15 ~ 40°C (5 ~ 104°F) |
| Nominal Operating Temperature Range | 25 ± 3°C (77 ± 5°F) | |
| Cycle Use | Initial Charging Current less than 1.35A. 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 | ZINOVA LP 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 | 8.64 | 6.02 | 4.97 | 4.31 | 3.46 | 2.66 | 2.17 | 1.33 | 1.01 | 0.831 | 0.706 | 0.611 | 0.486 | 0.404 | 0.223 |
| 1.80V/cell | 10.6 | 7.19 | 5.76 | 4.87 | 3.83 | 2.90 | 2.34 | 1.41 | 1.06 | 0.874 | 0.736 | 0.638 | 0.504 | 0.419 | 0.225 |
| 1.75V/cell | 12.6 | 8.13 | 6.35 | 5.31 | 4.09 | 3.08 | 2.46 | 1.47 | 1.10 | 0.901 | 0.756 | 0.654 | 0.518 | 0.427 | 0.227 |
| 1.70V/cell | 14.3 | 8.96 | 6.88 | 5.70 | 4.29 | 3.20 | 2.57 | 1.53 | 1.14 | 0.924 | 0.775 | 0.670 | 0.525 | 0.434 | 0.231 |
| 1.65V/cell | 15.7 | 9.64 | 7.27 | 5.98 | 4.47 | 3.32 | 2.67 | 1.58 | 1.17 | 0.943 | 0.792 | 0.683 | 0.534 | 0.440 | 0.234 |
| 1.60V/cell | 16.5 | 10.0 | 7.58 | 6.17 | 4.60 | 3.40 | 2.73 | 1.63 | 1.19 | 0.966 | 0.808 | 0.696 | 0.545 | 0.447 | 0.236 |

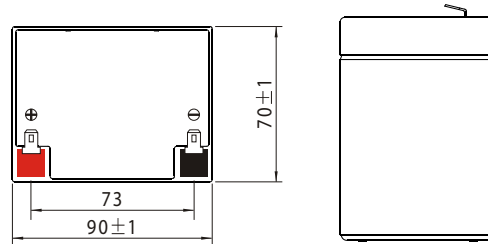
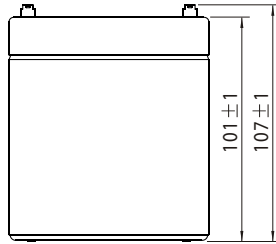
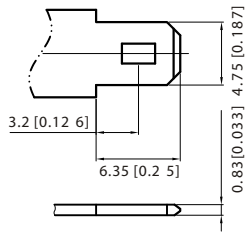
Constant Power Discharge (Watts/cell) at 25 °C (77°F)

| F.V/Time | 5min | 10min | 15min | 20min | 30min | 45min | 1h | 2h | 3h | 4h | 5h | 6h | 8h | 10h | 20h |
|------------|------|-------|-------|-------|-------|-------|------|------|------|------|------|------|-------|-------|-------|
| 1.85V/cell | 16.3 | 11.5 | 9.55 | 8.35 | 6.74 | 5.21 | 4.28 | 2.63 | 2.01 | 1.66 | 1.41 | 1.23 | 0.977 | 0.815 | 0.450 |
| 1.80V/cell | 19.8 | 13.6 | 11.0 | 9.37 | 7.41 | 5.65 | 4.58 | 2.78 | 2.10 | 1.73 | 1.46 | 1.27 | 1.01 | 0.838 | 0.452 |
| 1.75V/cell | 23.2 | 15.2 | 12.0 | 10.1 | 7.86 | 5.96 | 4.80 | 2.88 | 2.16 | 1.78 | 1.49 | 1.30 | 1.03 | 0.849 | 0.453 |
| 1.70V/cell | 26.0 | 16.6 | 12.9 | 10.8 | 8.20 | 6.16 | 4.97 | 2.98 | 2.22 | 1.81 | 1.52 | 1.32 | 1.04 | 0.858 | 0.459 |
| 1.65V/cell | 28.3 | 17.6 | 13.4 | 11.2 | 8.48 | 6.36 | 5.15 | 3.05 | 2.27 | 1.84 | 1.55 | 1.34 | 1.05 | 0.866 | 0.463 |
| 1.60V/cell | 29.2 | 18.1 | 13.9 | 11.4 | 8.62 | 6.44 | 5.22 | 3.13 | 2.31 | 1.87 | 1.57 | 1.36 | 1.07 | 0.876 | 0.464 |

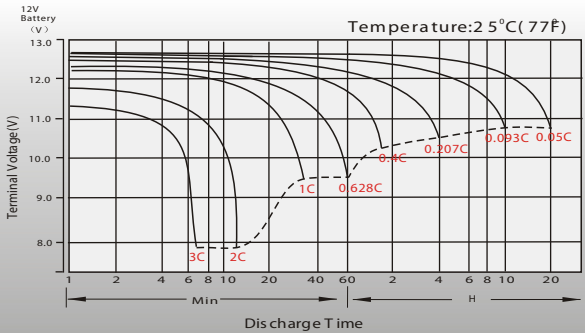
Dimensions

T1 Terminal

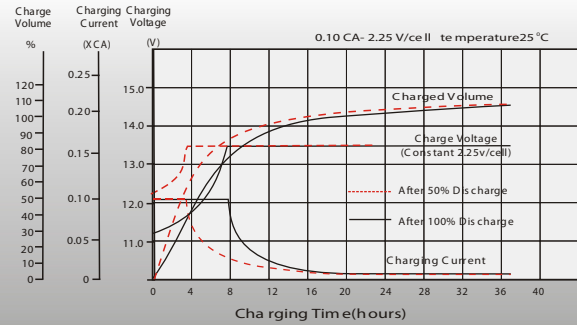
Unit: mm [inches]



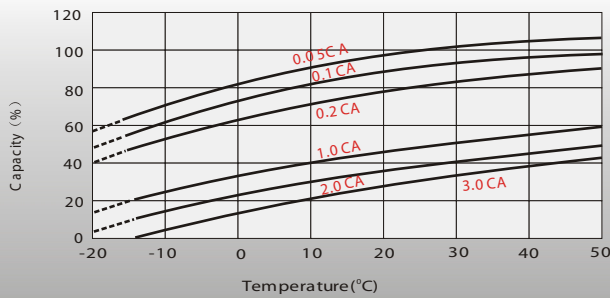
Discharge Characteristics



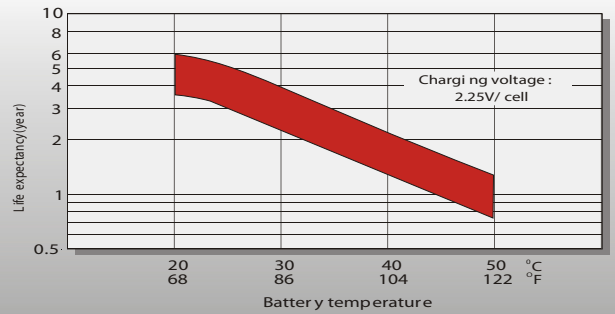
Float Charging Characteristics



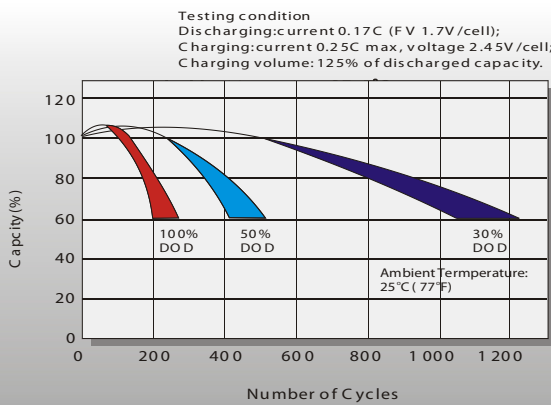
Temperature Effects in Relation to Battery Capacity



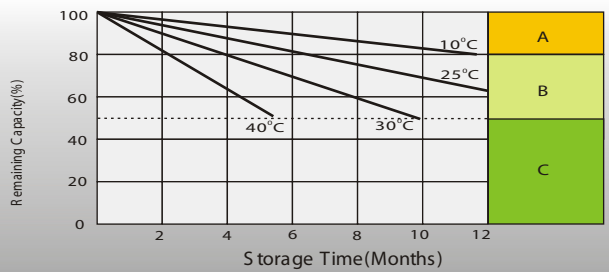
Effect of Temperature on Long Term Float Life



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. Optimal charging way as below:
1. Charged for a above 3 days at limited current 0.25CA and constant voltage 2.25V/cell.
2. Charged for a above 20 hours at limited current 0.25CA and constant voltage 2.45V/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.

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