



## NP Series lead-acid battery

### Applications

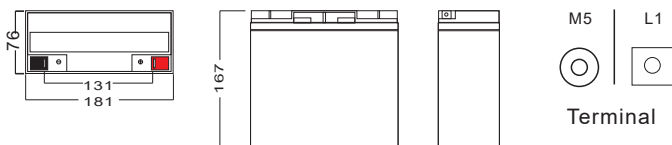
- › UPS/EPS
- › Power systems
- › Telecommunications system
- › Emergency lighting、Auto control system
- › Solar/wind generating storage cyclic
- › Other general purpose

### General Features

- › High corrosion resistant performance: Pb-Ca multi-alloy grid
- › High energy density and power density
- › Optimized capability of instant high-current discharging
- › Excellent charge acceptance ability
- › Excellent deep cycle discharge capability
- › Strong high and low temperature performance
- › Precision sealing technology



Dimension: 181(L)×76(W)×167(H)×167(TH) Unit: mm



### Specification

|                        |                                                   |
|------------------------|---------------------------------------------------|
| Nominal Voltage        | 12V                                               |
| Nominal Capacity       | 18Ah                                              |
| Design life            | 5 years                                           |
| Terminal               | M5/L1                                             |
| Approx. Weight         | Approx 5.00kg (11.0lbs)                           |
| Container Material     | ABS                                               |
| Rated Capacity         | 18.0Ah 20Hour Rate (0.90A to 10.5V)               |
|                        | 14.0Ah 3Hour Rate (4.66A to 10.5V)                |
|                        | 11.9Ah 1Hour Rate (11.9A to 9.60V)                |
| Internal resistance    | Full charged at 25°C: 18.0 mΩ                     |
| Max. Discharge Current | 270A(5S)                                          |
| Operating Temperature  | Discharge: -20 ~50 (-4~ 122°F)                    |
|                        | Charge: -20 ~50 (-4~ 122°F)                       |
|                        | Storage: -20 ~50 (-4~ 122°F)                      |
| Charge current:        | Max. 4.50A ; Recom.1.80A                          |
| Charge Method (25 °C)  | Float Charge:13.5-13.8V,recom.13.8V(-18mV/ °C)    |
|                        | Equalize charge:13.8-14.1V,recom.14.1V(-24mV/ °C) |
|                        | Cycle charge:14.4-15.0V,recom.14.7V(-30mV/ °C)    |
| Self discharge         | 3% of capacity declined per month at 25°C         |

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

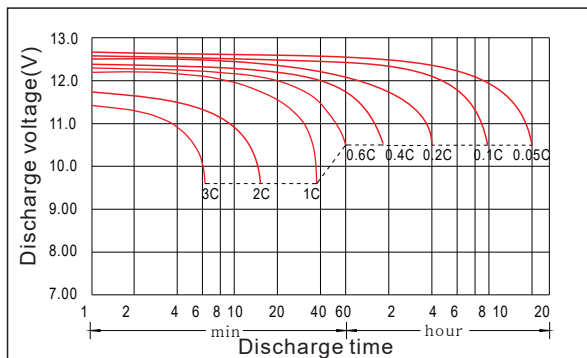
| FV/Time | 5min | 10min | 15min | 30min | 1h   | 2h   | 3h   | 4h   | 5h   | 8h   | 10h  | 20h   |
|---------|------|-------|-------|-------|------|------|------|------|------|------|------|-------|
| 1.60V   | 71.3 | 46.6  | 34.7  | 22.8  | 11.9 | 6.80 | 4.97 | 3.98 | 3.38 | 2.23 | 1.78 | 0.954 |
| 1.65V   | 70.7 | 44.6  | 31.9  | 21.6  | 11.2 | 6.53 | 4.82 | 3.85 | 3.31 | 2.20 | 1.76 | 0.936 |
| 1.70V   | 58.0 | 41.9  | 29.7  | 21.0  | 10.8 | 6.41 | 4.73 | 3.65 | 3.28 | 2.16 | 1.73 | 0.918 |
| 1.75V   | 53.8 | 40.0  | 27.7  | 20.5  | 10.4 | 6.25 | 4.66 | 3.60 | 3.13 | 2.11 | 1.69 | 0.900 |
| 1.80V   | 49.5 | 37.6  | 25.7  | 19.8  | 10.1 | 6.08 | 4.41 | 3.53 | 3.01 | 2.05 | 1.66 | 0.864 |

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

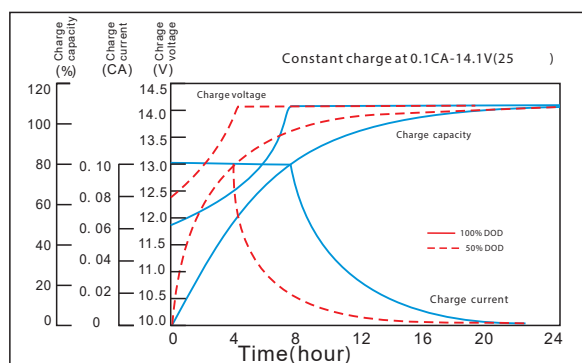
| FV/Time | 5min | 10min | 15min | 30min | 1h   | 2h   | 3h   | 4h   | 5h   | 8h   | 10h  | 20h  |
|---------|------|-------|-------|-------|------|------|------|------|------|------|------|------|
| 1.60V   | 134  | 84.0  | 63.6  | 38.5  | 21.8 | 12.8 | 9.39 | 7.53 | 6.39 | 4.21 | 3.45 | 1.89 |
| 1.65V   | 123  | 79.5  | 59.7  | 38.2  | 20.5 | 12.3 | 9.12 | 7.29 | 6.27 | 4.15 | 3.39 | 1.84 |
| 1.70V   | 113  | 77.1  | 57.0  | 38.1  | 19.9 | 12.0 | 8.97 | 6.93 | 6.09 | 4.11 | 3.36 | 1.82 |
| 1.75V   | 102  | 74.7  | 54.9  | 37.7  | 19.3 | 11.8 | 8.85 | 6.84 | 5.97 | 3.94 | 3.28 | 1.79 |
| 1.80V   | 91.8 | 72.3  | 52.5  | 37.4  | 19.0 | 11.7 | 8.61 | 6.78 | 5.82 | 3.81 | 3.22 | 1.77 |

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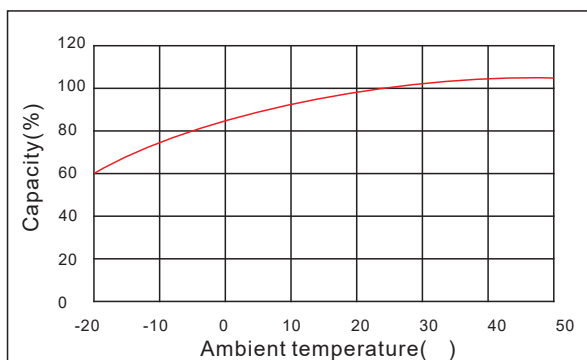
### Discharge characteristic



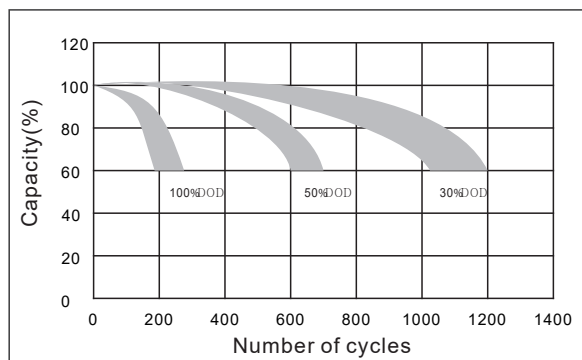
### Charging characteristic



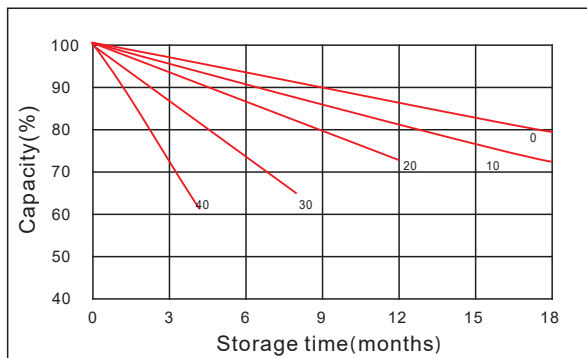
### The effect of temperature on capacity



### The effect of discharge depth on cycle life



### Curves of self-discharge



### The effect of temperature on float life

