

## NPD12-12Ah 12V12Ah

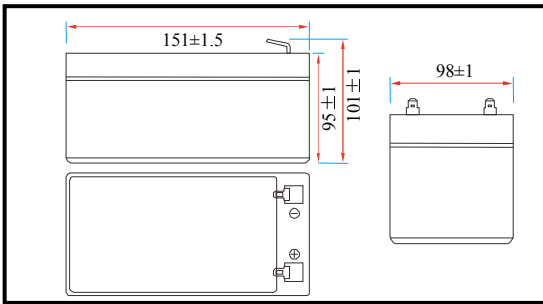
### Valve Regulated Lead Acid Battery



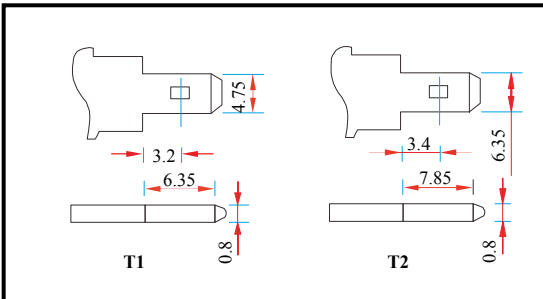
#### Specifications

|                       |                        |                      |
|-----------------------|------------------------|----------------------|
| Nominal voltage       | 12V (6 cells per unit) |                      |
| Rated capacity (20HR) | 12Ah/10.5V             |                      |
| Dimensions            | Length                 | 151±1.5mm (5.94inch) |
|                       | Width                  | 98±1mm (3.86inch)    |
|                       | Height                 | 95±1mm (3.74inch)    |
|                       | Total height           | 101±1mm (3.98inch)   |
| Approx. weight        | 4.05kg (8.82 lbs)±4%   |                      |

#### Outer dimensions (mm)



#### Terminal type (mm)



#### Characteristics

|   |   |  |
|---|---|--|
| Capacity (25°C)                           | 20HR (10.5V)                                | 12Ah   |
|   | 10HR (10.5V)                                | 11.7Ah   |
|   | 1HR (9.60V)                                 | 7.8Ah  |
| Terminal type                             |   | T2/T1  |
| Internal resistance (Fully charged, 25°C) |   | Approx. 13mΩ   |
| Capacity affected by temperature (10HR)   | 40°C  | 102%   |
|   | 25°C  | 100%   |
|   | 0°C   | 85%  |
|   | -15°C                                       | 65%  |
| Self-discharge (25°C)                     | 3 months                                    | Remaining capacity: 91%                                  |
|   | 6 months                                    | Remaining capacity: 82%                                  |
|   | 12 months                                   | Remaining capacity: 65%                                  |
| Nominal operating temperature             |   | 25°C±3°C (77°F±5°F)                                      |
| Operating temperature range               | Discharge                                   | -15°C~50°C (5°F~122°F)                                   |
|   | Charge                                      | -10°C~50°C (14°F~122°F)                                  |
|   | Storage                                     | -20°C~50°C (-4°F~122°F)                                  |
| Float charging voltage (25°C)             |   | 13.50 to 13.80V Temperature compensation: -18mV/°C/Block |
| Cyclic charging voltage (25°C)            |   | 14.50 to 15.00V Temperature compensation: -30mV/°C/Block |
| Maximum charging current                  |   | 3.6A   |
| Maximum discharge current                 |   | 180A (5 sec.)  |
| Design life                               | 8 years for floating (25°C)                 |  |
|   | Eurobat (20°C): 6-9 years, general purpose. |  |

#### Construction

| Component    | Positive plate | Negative plate | Container | Cover | Separator | Electrolyte   | Safety valve | Terminal |
|--------------|----------------|----------------|-----------|-------|-----------|---------------|--------------|----------|
| Raw material | Lead dioxide   | Lead           | ABS       | ABS   | AGM       | Sulfuric acid | Rubber       | Copper   |

#### Constant current discharge characteristics unit: Ampere/Block (at 25°C, 77°F)

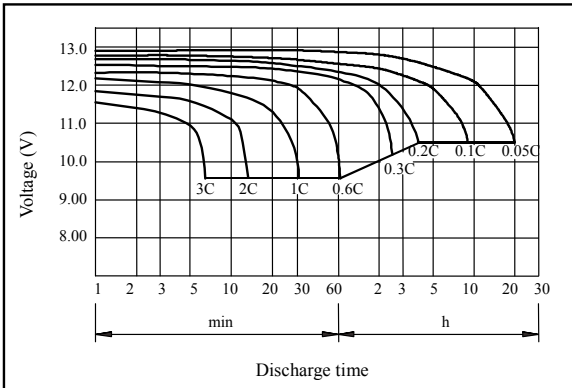
| F.V/Time | 5min | 10min | 15min | 30min | 60min | 2h   | 3h   | 4h   | 5h   | 10h  | 20h  |
|----------|------|-------|-------|-------|-------|------|------|------|------|------|------|
| 9.60V    | 47.8 | 30.3  | 23.6  | 13.3  | 8.19  | 4.48 | 3.10 | 2.56 | 2.18 | 1.18 | 0.63 |
| 9.90V    | 46.3 | 29.3  | 23.1  | 13.0  | 8.06  | 4.45 | 3.08 | 2.55 | 2.17 | 1.18 | 0.63 |
| 10.2V    | 44.4 | 28.1  | 22.2  | 12.6  | 7.86  | 4.41 | 3.06 | 2.53 | 2.15 | 1.17 | 0.63 |
| 10.5V    | 42.5 | 26.9  | 21.5  | 12.3  | 7.70  | 4.35 | 3.04 | 2.51 | 2.14 | 1.17 | 0.63 |
| 10.8V    | 40.1 | 25.4  | 20.3  | 11.9  | 7.47  | 4.24 | 2.95 | 2.44 | 2.07 | 1.14 | 0.61 |

#### Constant power discharge characteristics unit: Watt/Block (at 25°C, 77°F)

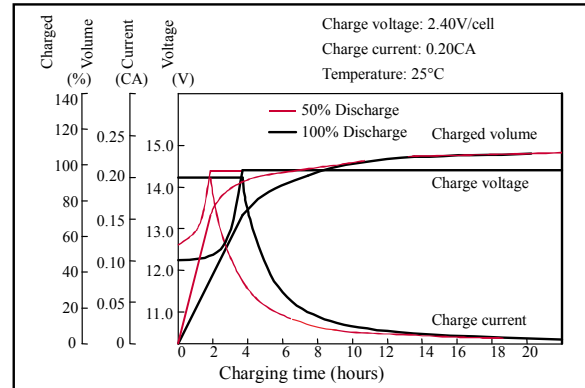
| F.V/Time | 5min | 10min | 15min | 30min | 60min | 2h   | 3h   | 4h   | 5h   | 10h  | 20h  |
|----------|------|-------|-------|-------|-------|------|------|------|------|------|------|
| 9.60V    | 533  | 341   | 269   | 153   | 94.8  | 52.4 | 36.8 | 30.5 | 26.0 | 14.2 | 7.61 |
| 9.90V    | 517  | 331   | 263   | 150   | 93.4  | 52.1 | 36.6 | 30.3 | 25.9 | 14.1 | 7.58 |
| 10.2V    | 496  | 317   | 253   | 145   | 91.0  | 51.6 | 36.3 | 30.1 | 25.7 | 14.1 | 7.55 |
| 10.5V    | 474  | 304   | 245   | 141   | 89.2  | 50.9 | 36.1 | 29.9 | 25.5 | 14.0 | 7.50 |
| 10.8V    | 448  | 287   | 232   | 136   | 86.5  | 49.6 | 35.0 | 29.0 | 24.8 | 13.7 | 7.35 |

Note 1: Above characteristics data can be obtained within three charge and discharge cycles.

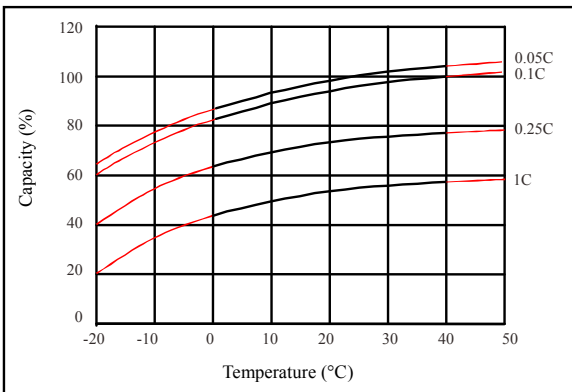
### ● Discharge characteristics (25°C)



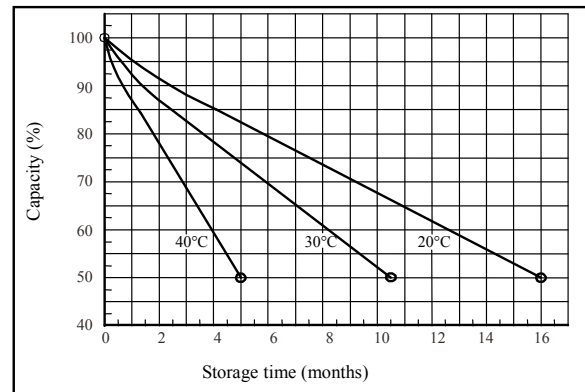
### ● Charging characteristics (25°C)



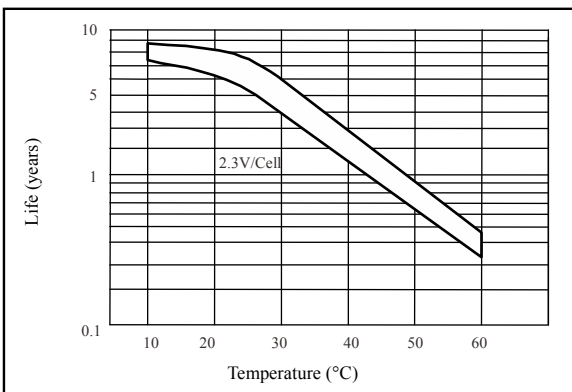
### ● Temperature effects on capacity



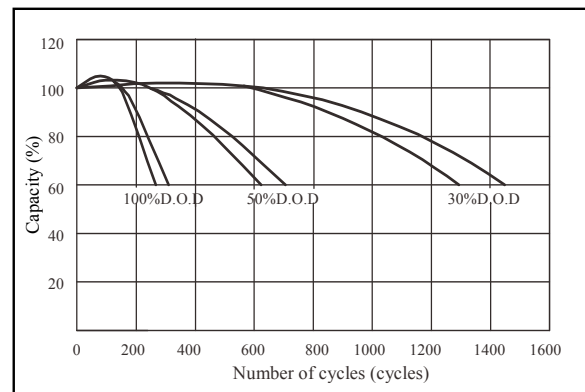
### ● Self-discharge characteristics



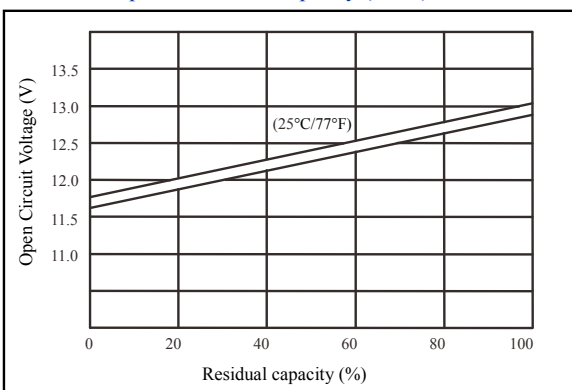
### ● Floating life on temperature



### ● Cycle life on D.O.D (25°C)



### ● Relationship for OCV and capacity (25°C)



### ● Relationship for charging voltage and temperature

