



# SMARTRONICS

MH61491

## 12-28WH

## 12V 28W

Valve Regulated Lead Acid Battery / AGM Technology

### Specifications

**Nominal Voltage(V)** 12V

#### Nominal Capacity

|            |                                    |        |
|------------|------------------------------------|--------|
| 20 hr rate | (0.35A to 1.75V/cell,25°C (77°F))  | 7AH    |
| 10 hr rate | (0.655A to 1.75V/cell,25°C (77°F)) | 6.65AH |
| 5 hr rate  | (1.19A to 1.70V/cell,25°C (77°F))  | 5.95AH |
| 3C         | (21A to 1.60V/cell,25°C (77°F))    | 2.8AH  |
| 1C         | (7A to 1.60V/cell,25°C (77°F))     | 4.43AH |

**Weight** Approx. 2.2 kg (4.84lbs)

**Internal Resistance** Approx. 19mΩ

**Maximum Discharge Current** 105A (5sec)

#### Charging Methods at 25°C (77°F)

##### Cycle use:

|                                    |            |
|------------------------------------|------------|
| Initial Charging Current less than | 2.1Av      |
| Charging Voltage                   | 14.4V~15.0 |
| Coefficient                        | -30mV/°C   |

##### Standby use:

|  |             |
|--|-------------|
| No limit on Initial Charging Current Voltage |             |
| Charging Voltage                             | 13.5V~13.8V |
| Coefficient                                  | -20.0mV/°C  |

#### Operating Temperature Range

|               |                                |
|---------------|--------------------------------|
| Charge        | -15~40°C (5~104°F)             |
| Discharge     | -15~50°C (5~122°F)             |
| Storage       | -15~40°C (5~104°F)             |
| Case Material | ABS UL94 HB                    |
| Terminal      | F1 or F2(Fasten Tab 187or 250) |

#### Description of torque value of hard ware for the terminals

|                                |                      |
|--------------------------------|----------------------|
| Recommended torque value       | M6: 7 N·m (71kgf·cm) |
| Maximum allowable torque value | M6: 9 N·m (92kgf·cm) |

#### Self-Discharge

This 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.



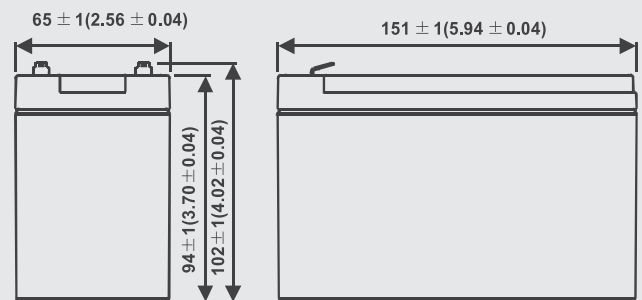
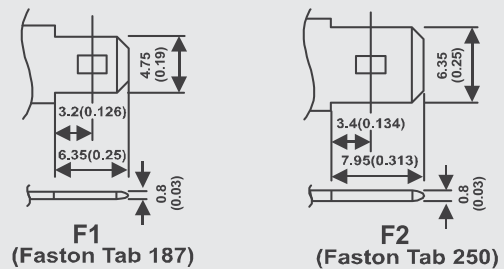
P# 12-28WH 202

\*H: High performance series

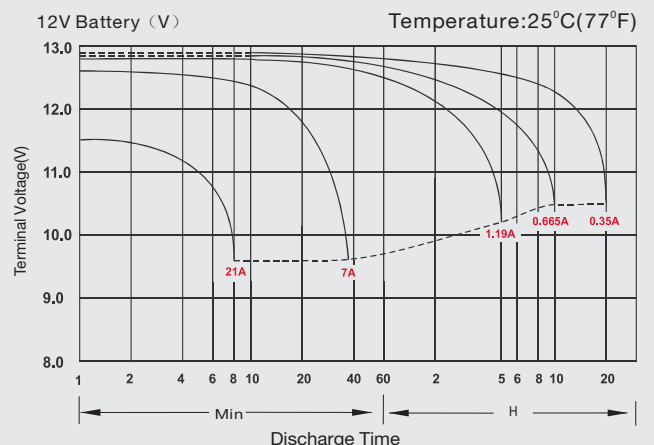
### For: Backup Power i.e. UPS, ...

### Design life: 3-5 years (Ambient Temperature 20°C)

### Dimensions



### Discharge Characteristics



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

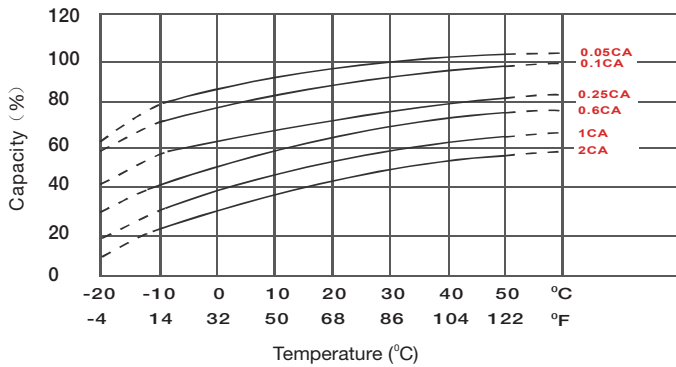
| F.V (V/cell) | Time | 5min | 10min | 15min | 30min | 60min | 2h   | 3h   | 4h   | 5h   | 10h   | 20h   |
|--------------|------|------|-------|-------|-------|-------|------|------|------|------|-------|-------|
| 1.85         |      | 23.1 | 16.1  | 12.6  | 6.54  | 4.02  | 2.26 | 1.65 | 1.35 | 1.10 | 0.667 | 0.339 |
| 1.80         |      | 26.2 | 17.3  | 13.1  | 7.05  | 4.25  | 2.38 | 1.74 | 1.40 | 1.16 | 0.675 | 0.346 |
| 1.75         |      | 27.8 | 18.1  | 13.5  | 7.28  | 4.41  | 2.45 | 1.79 | 1.44 | 1.2  | 0.682 | 0.35  |
| 1.70         |      | 29.1 | 18.6  | 13.8  | 7.47  | 4.52  | 2.49 | 1.82 | 1.47 | 1.25 | 0.687 | 0.353 |
| 1.65         |      | 30.5 | 19.2  | 14.1  | 7.68  | 4.63  | 2.54 | 1.85 | 1.51 | 1.28 | 0.694 | 0.357 |
| 1.60         |      | 31.7 | 19.8  | 14.3  | 7.85  | 4.71  | 2.57 | 1.88 | 1.53 | 1.29 | 0.698 | 0.359 |

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

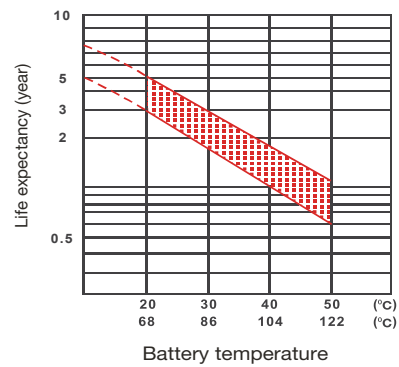
| F.V (V/cell) | Time | 5min | 10min | 15min | 30min | 60min | 2h   | 3h   | 4h   | 5h   | 10h  | 20h   |
|--------------|------|------|-------|-------|-------|-------|------|------|------|------|------|-------|
| 1.85         |      | 43.8 | 30.0  | 24.0  | 12.1  | 7.70  | 4.10 | 3.08 | 2.85 | 2.47 | 1.36 | 0.690 |
| 1.80         |      | 47.0 | 31.8  | 25.2  | 12.9  | 8.38  | 4.52 | 3.32 | 2.93 | 2.53 | 1.40 | 0.705 |
| 1.75         |      | 49.0 | 33.2  | 25.8  | 13.6  | 8.63  | 4.72 | 3.48 | 3.00 | 2.58 | 1.42 | 0.718 |
| 1.70         |      | 51.0 | 34.3  | 26.5  | 14.1  | 8.87  | 4.92 | 3.62 | 3.05 | 2.62 | 1.43 | 0.728 |
| 1.65         |      | 52.8 | 35.5  | 27.3  | 14.4  | 9.08  | 5.07 | 3.72 | 3.10 | 2.65 | 1.44 | 0.737 |
| 1.60         |      | 54.3 | 36.5  | 28.0  | 14.6  | 9.23  | 5.20 | 3.80 | 3.15 | 2.68 | 1.45 | 0.743 |

Specifications subject to change without notice.

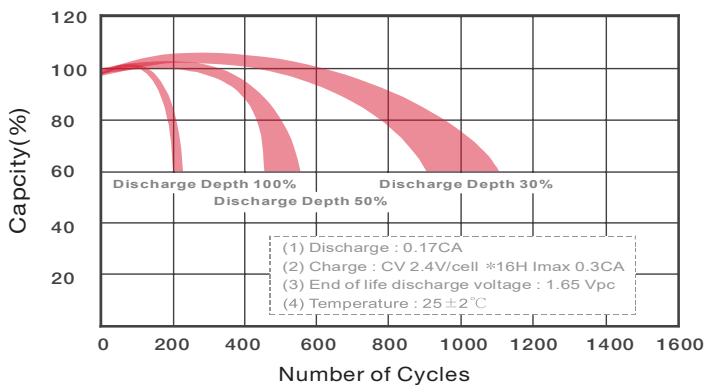
**Temperature Effects in Relation to Battery Capacity**



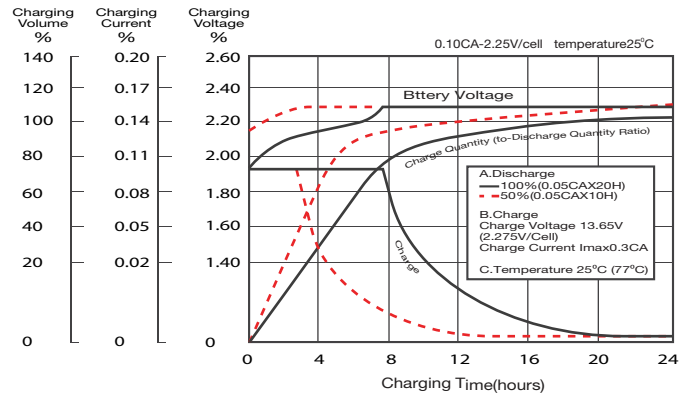
**Effect of Temperature on Long Term Float Life**



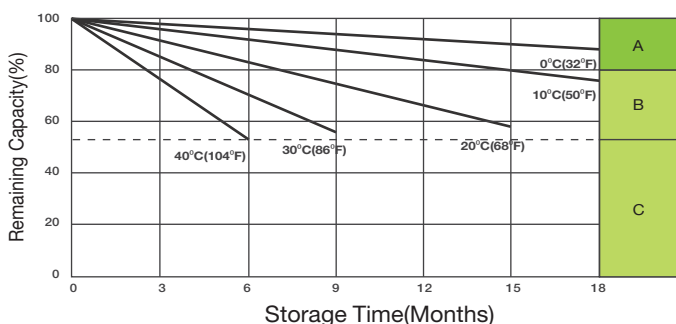
**Cycle Life in Relation to Depth of Discharge**



**Float Charging Characteristics**



**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 20hours at limited current 0.25CA and constant voltage 2.45V/cell.
  3. Charged for 8~10hours at limited current 0.05CA.
- C** Supplementary charge may often fail to recover the capacity. The battery should never be left standing till this is reached.