

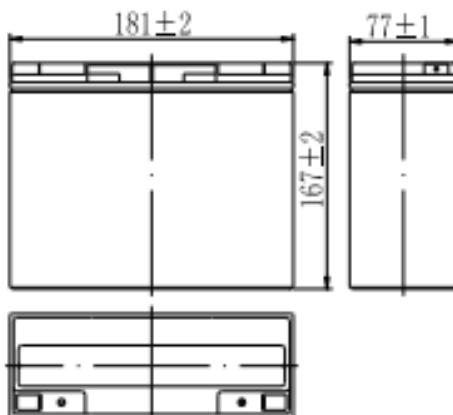
## BW 12220 (12V22Ah)

### SPECIFICATIONS

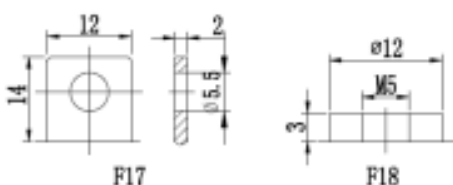
|                                           |              |                                                       |
|-------------------------------------------|--------------|-------------------------------------------------------|
| Nominal Voltage                           |              | 12 V                                                  |
| Capacity (25°C)                           | 20HR         | 22 Ah                                                 |
|                                           | 10HR         | 18.7 Ah                                               |
|                                           | 1HR          | 13 Ah                                                 |
| Dimension                                 | Length       | 181±2mm (7.13inch)                                    |
|                                           | Width        | 77±1mm (3.03inch)                                     |
|                                           | Height       | 167±2mm (6.57inch)                                    |
|                                           | Total Height | 167±2mm (6.57inch)                                    |
| Approx. Weight                            |              | 5.7kg (12.6lbs)±5%                                    |
| Terminal type                             |              | M5 or NB(F17)                                         |
| Internal resistance (Fully charged, 25°C) |              | Approx. 14mΩ                                          |
| Capacity affected by temperature (20HR)   | 40°C         | 102%                                                  |
|                                           | 25°C         | 100%                                                  |
|                                           | 0°C          | 85%                                                   |
|                                           | -15°C        | 65%                                                   |
| Self-discharge (25°C)                     | 3 month      | Remaining Capacity: 91%                               |
|                                           | 6 month      | Remaining Capacity: 82%                               |
|                                           | 12 month     | 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)              |              | 13.60 to 13.80V<br>Temperature compensation: -18mV/°C |
| Cyclic charging voltage(25°C)             |              | 14.50 to 15.00V<br>Temperature compensation: -30mV/°C |
| Maximum charging current                  |              | 6A                                                    |
| Maximum discharge current                 |              | 300 A(5 sec.)                                         |
| Designed floating life(20°C)              |              | 5 years                                               |



### DIMENSIONS



### TERMINAL



### 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 (A, 25°C)

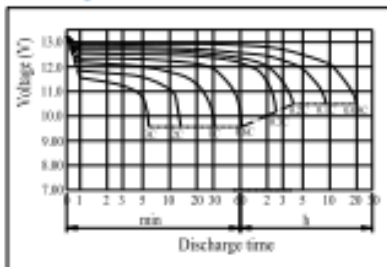
| F.V/TIME | 10min | 15min | 30min | 60min | 2h   | 3h   | 4h   | 5h   | 8h   | 10h  | 20h  |
|----------|-------|-------|-------|-------|------|------|------|------|------|------|------|
| 9.60V    | 48.4  | 37.8  | 21.3  | 13.1  | 7.17 | 4.96 | 4.10 | 3.49 | 2.26 | 1.89 | 1.02 |
| 9.90V    | 46.9  | 36.9  | 20.9  | 12.9  | 7.12 | 4.93 | 4.08 | 3.47 | 2.25 | 1.89 | 1.01 |
| 10.2V    | 45.0  | 35.5  | 20.2  | 12.6  | 7.06 | 4.89 | 4.05 | 3.44 | 2.24 | 1.88 | 1.01 |
| 10.5V    | 43.1  | 34.3  | 19.7  | 12.3  | 6.95 | 4.86 | 4.02 | 3.42 | 2.22 | 1.87 | 1.00 |
| 10.8V    | 40.7  | 32.5  | 19.0  | 11.9  | 6.78 | 4.71 | 3.90 | 3.32 | 2.15 | 1.83 | 0.98 |

### CONSTANT POWER DISCHARGE CHARACTERISTICS (WATT, 25°C)

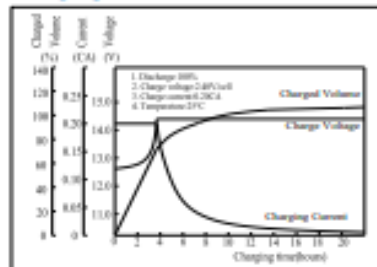
| F.V/TIME | 10min | 15min | 30min | 60min | 2h   | 3h   | 4h   | 5h    | 8h   | 10h  | 20h  |
|----------|-------|-------|-------|-------|------|------|------|-------|------|------|------|
| 9.60V    | 546   | 431   | 244   | 152   | 83.8 | 58.9 | 48.8 | 41.7  | 27.2 | 22.7 | 12.2 |
| 9.90V    | 530   | 421   | 239   | 149   | 83.3 | 58.5 | 48.5 | 41.4  | 27.0 | 22.6 | 12.1 |
| 10.2V    | 508   | 405   | 232   | 146   | 82.6 | 58.1 | 48.2 | 41.1  | 26.8 | 22.5 | 12.1 |
| 10.5V    | 486   | 391   | 226   | 143   | 81.4 | 57.7 | 47.9 | 40.8  | 26.6 | 22.4 | 12.0 |
| 10.8V    | 459   | 371   | 218   | 138   | 79.3 | 56.0 | 46.4 | 39.61 | 25.8 | 21.9 | 11.8 |

Note: The above characteristics data can be obtained within three charge/discharge cycles.

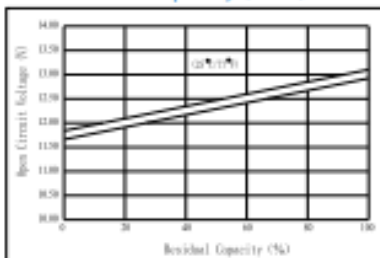
### Discharge Characteristics (25°C)



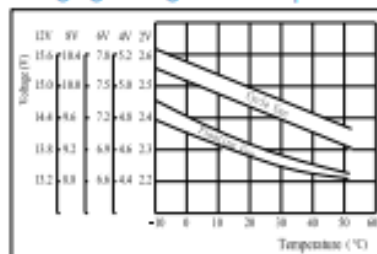
### Charging Characteristics (25°C)



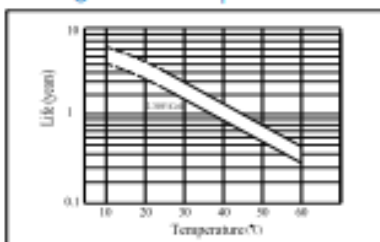
### The Relationship for Open Circuit Voltage and Residual Capacity (25°C)



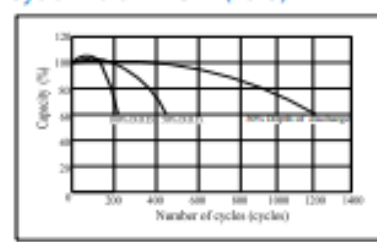
### The Relationship for Charging Voltage and Temperature



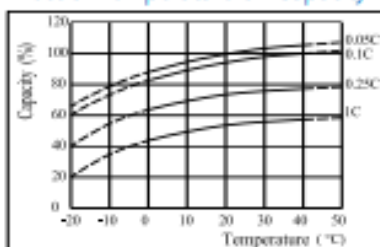
### Floating Life on Temperature



### Cycle Life on D.O.D (25°C)



### Effect of Temperature on Capacity



### Self-discharge Characteristics

