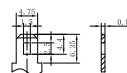
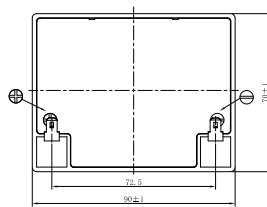
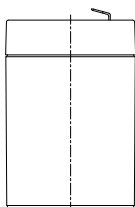
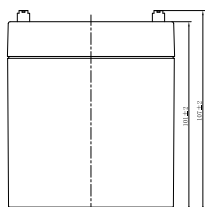


### Specification

|                                    |                                                                                                                                                                                                      |
|------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Cells Per Unit                     | 6                                                                                                                                                                                                    |
| Voltage Per Unit                   | 12                                                                                                                                                                                                   |
| Capacity                           | 4.5Ah@20hr-rate to 1.75V per cell @25°C                                                                                                                                                              |
| Weight                             | Approx. 1.39 Kg (Tolerance ±3.0%)                                                                                                                                                                    |
| Internal Resistance                | Approx. 48 mΩ                                                                                                                                                                                        |
| Terminal                           | T1                                                                                                                                                                                                   |
| Max. Discharge Current             | 67.5A (5 sec)                                                                                                                                                                                        |
| Design Life                        | 5 years (floating charge)                                                                                                                                                                            |
| Max. Charging Current              | 1.35 A                                                                                                                                                                                               |
| Reference Capacity                 | C3 3.39AH<br>C5 3.83AH<br>C10 4.19AH<br>C20 4.50AH                                                                                                                                                   |
| Float Charging Voltage             | 13.5 V~13.8V @ 25 °C<br>Temperature Compensation: -3mV/°C/Cell                                                                                                                                       |
| Cycle Use Voltage                  | 14.4 V~15.0 V @ 25°C<br>Temperature Compensation: -5mV/°C/Cell                                                                                                                                       |
| Operating Temperature Range        | Discharge: -15°C~50°C<br>Charge: -20°C~40°C<br>Storage: -15°C~40°C                                                                                                                                   |
| Normal Operating Temperature Range | 25°C ±5°C                                                                                                                                                                                            |
| Self Discharge                     | AMP-Tech Plus (VRLA) batteries can be stored for up to 6 months at 25°C then recharging is recommended. Monthly self-discharge ratio is less than 3% at 25°C. Please charged batteries before using. |
| Container Material                 | A.B.S. UL94-HB, UL94-V0 Optional.                                                                                                                                                                    |



### Dimensions



T1 Terminal

|              |                       |
|--------------|-----------------------|
| Length       | 90±2mm (3.54 inches)  |
| Width        | 70±2mm (2.76 inches)  |
| Height       | 101±2mm (3.98 inches) |
| Total Height | 107±2mm (4.21 inches) |
| Terminal     | Value                 |
| M5           | 6~7 N*m               |
| M6           | 8~10 N*m              |
| M8           | 10~12 N*m             |

Unit: mm

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

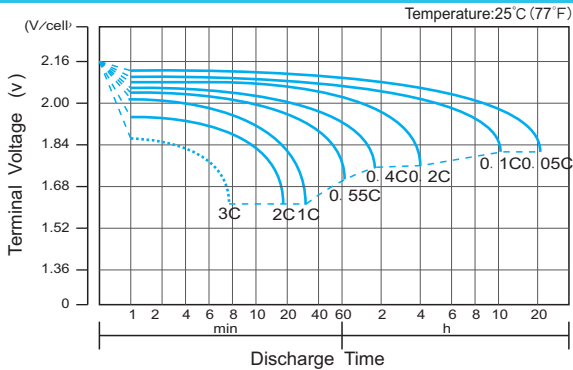
| F.V/Time   | 5MIN | 10MIN | 15MIN | 20MIN | 30MIN | 45MIN | 1HR  | 1.5HR | 2HR  | 3HR  | 4HR   | 5HR   | 6HR   | 8HR   | 10HR  | 20HR  |
|------------|------|-------|-------|-------|-------|-------|------|-------|------|------|-------|-------|-------|-------|-------|-------|
| 1.85V/cell | 11.3 | 8.26  | 6.55  | 5.35  | 4.07  | 2.99  | 2.44 | 1.84  | 1.53 | 1.09 | 0.876 | 0.744 | 0.637 | 0.500 | 0.409 | 0.220 |
| 1.80V/cell | 12.2 | 8.69  | 6.81  | 5.51  | 4.17  | 3.04  | 2.48 | 1.87  | 1.56 | 1.11 | 0.888 | 0.755 | 0.645 | 0.507 | 0.413 | 0.222 |
| 1.75V/cell | 13.1 | 9.10  | 7.06  | 5.68  | 4.27  | 3.11  | 2.53 | 1.90  | 1.58 | 1.13 | 0.900 | 0.765 | 0.653 | 0.513 | 0.419 | 0.225 |
| 1.70V/cell | 14.1 | 9.50  | 7.31  | 5.84  | 4.37  | 3.16  | 2.57 | 1.94  | 1.61 | 1.14 | 0.910 | 0.775 | 0.662 | 0.519 | 0.424 | 0.227 |
| 1.67V/cell | 14.8 | 9.80  | 7.46  | 5.95  | 4.43  | 3.20  | 2.60 | 1.95  | 1.62 | 1.15 | 0.920 | 0.780 | 0.667 | 0.523 | 0.427 | 0.229 |
| 1.60V/cell | 16.0 | 10.40 | 7.80  | 6.17  | 4.56  | 3.29  | 2.66 | 2.00  | 1.66 | 1.17 | 0.940 | 0.795 | 0.679 | 0.532 | 0.433 | 0.231 |

### Constant Power Discharge Characteristics : WPC(25°C)

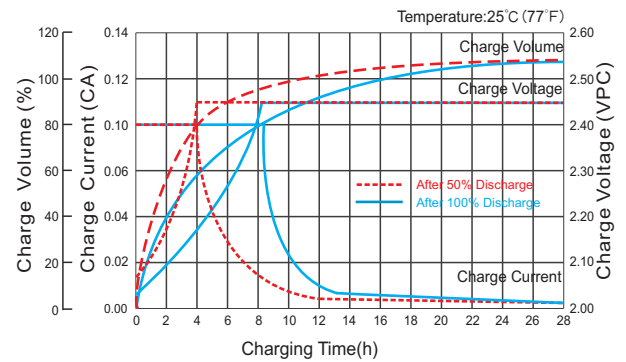
| F.V/Time   | 5MIN | 10MIN | 15MIN | 20MIN | 30MIN | 45MIN | 1HR  | 1.5HR | 2HR  | 3HR  | 4HR  | 5HR  | 6HR  | 8HR   | 10HR  | 20HR  |
|------------|------|-------|-------|-------|-------|-------|------|-------|------|------|------|------|------|-------|-------|-------|
| 1.85V/cell | 21.3 | 15.8  | 12.6  | 10.3  | 7.86  | 5.79  | 4.74 | 3.59  | 3.01 | 2.15 | 1.73 | 1.47 | 1.26 | 0.990 | 0.812 | 0.489 |
| 1.80V/cell | 23.0 | 16.5  | 13.1  | 10.5  | 8.02  | 5.89  | 4.82 | 3.65  | 3.04 | 2.18 | 1.75 | 1.49 | 1.28 | 1.01  | 0.821 | 0.494 |
| 1.75V/cell | 24.7 | 17.2  | 13.4  | 10.8  | 8.18  | 5.98  | 4.89 | 3.69  | 3.09 | 2.21 | 1.76 | 1.50 | 1.29 | 1.02  | 0.831 | 0.499 |
| 1.70V/cell | 26.4 | 17.9  | 13.9  | 11.1  | 8.33  | 6.07  | 4.96 | 3.74  | 3.12 | 2.23 | 1.79 | 1.52 | 1.31 | 1.03  | 0.840 | 0.504 |
| 1.67V/cell | 27.4 | 18.4  | 14.0  | 11.3  | 8.42  | 6.13  | 5.00 | 3.77  | 3.15 | 2.25 | 1.80 | 1.53 | 1.31 | 1.04  | 0.845 | 0.507 |
| 1.60V/cell | 29.5 | 19.3  | 14.6  | 11.6  | 8.63  | 6.26  | 5.09 | 3.83  | 3.20 | 2.29 | 1.83 | 1.56 | 1.33 | 1.05  | 0.858 | 0.515 |

(Note) The above characteristics data are average values obtained within three charge/discharge cycle not the minimum values.  
The battery must be fully charged before the capacity test. The C<sub>20</sub> should reach 95% after the first cycle and 100% after the third cycle.

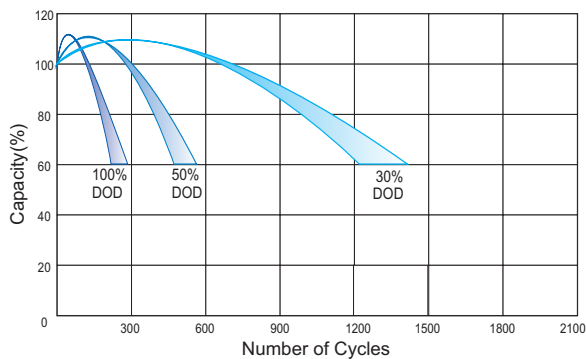
Discharge Characteristics Curve



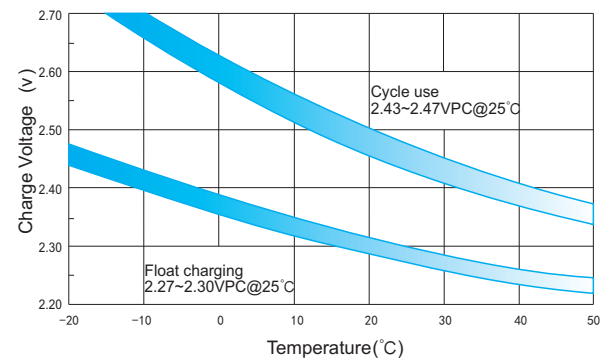
Charge Characteristic Curve for Cycle Use(IU)



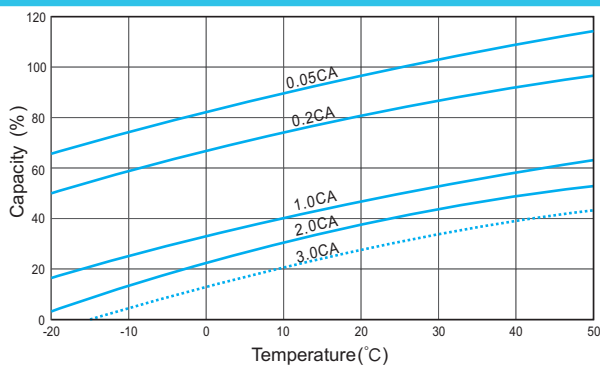
Cycle Life in Relation to Depth of Discharge



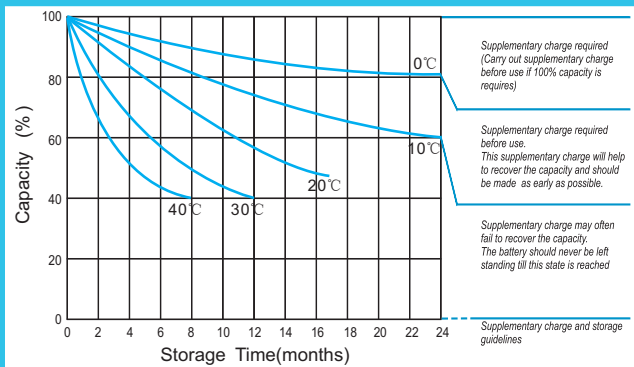
Relationship Between Charging Voltage and Temperature



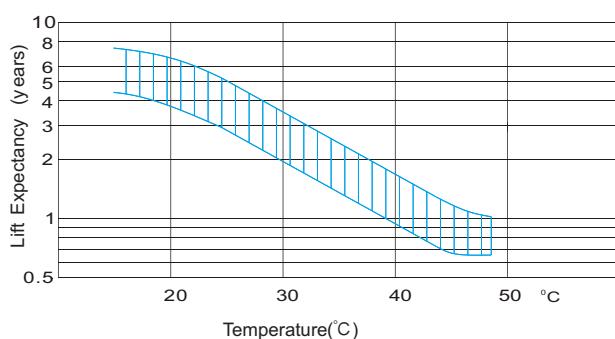
Temperature Effects on Capacity



Storage Characteristics



Effect of Temperature on Long Term Life



Relationship of OCV And State of Charge(20°C)

