

# SP Series

## SP12-33 12V33Ah



SP series VRLA battery uses AGM technology and high-purity raw materials. Its good floating back up and large current discharge performance makes it optimal and economical choice for UPS/EPS.

### Benefits

- Standard Commercial according to EUROBAT Classification
- Maximum charge efficiency
- High gas recombination efficiency
- Low self-discharge rate
- Easy installation and handling
- Vertical or horizontal installation

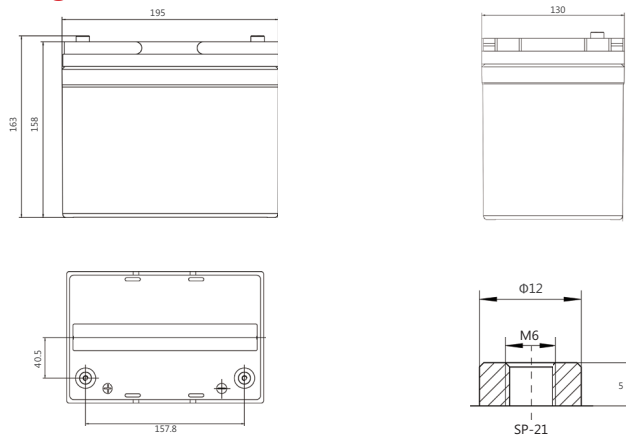
### Applications

- UPS units
- Emergency power
- Starting generators
- EPS units

### Standards

- IEC 61056-1/2
- JIS C8702-1/2
- EUROBAT guide

### Drawing



### Specifications

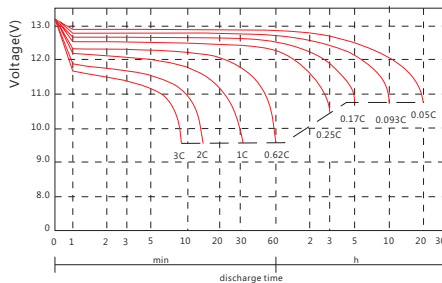
|                                      |                                                |                     |                     |                    |
|--------------------------------------|------------------------------------------------|---------------------|---------------------|--------------------|
| Battery Model                        | SP12-33                                        |                     |                     |                    |
| Design Life (years, 25°C)            | 5                                              |                     |                     |                    |
| Capacity (Ah, 25°C)                  | 20HR (1.65A, 1.75V)                            | 10HR (3.07A, 1.75V) | 5HR (5.6A, 1.75V)   | 1HR(20.03A, 1.70V) |
|                                      | 33                                             | 30.7                | 28                  | 20.03              |
| Dimensions (mm)                      | Length                                         | Width               | Height              | Total Height       |
|                                      | 195                                            | 130                 | 158                 | 163                |
| Approx. Weight (kg)                  | 10.5                                           |                     |                     |                    |
| Reference Internal Resistance (mΩ)   | 10.2 ( full charged @ 25°C)                    |                     |                     |                    |
| Maximum Discharge Current (A/5 Sec.) | 495                                            |                     |                     |                    |
| Self-Discharge (25°C)                | < 3% per month                                 |                     |                     |                    |
| Charge Voltage (V/cell, 25°C)        | Cycle use                                      |                     | Float use           |                    |
|                                      | 2.45 (-4mV/°C/cell), max charge current: 9.9 A |                     | 2.27 (-3mV/°C/cell) |                    |
| Short Circuit Current (A)            | 850                                            |                     |                     |                    |

## Discharge Data

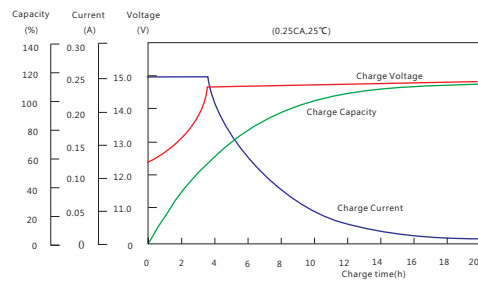
| Constant Current Discharge Data (25°C, A) |       |       |       |       |       |       |       |       |       |       |       |       |       |
|-------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| End Voltage (V/cell)                      | min   |       |       |       |       |       | h     |       |       |       |       |       |       |
|                                           | 5     | 10    | 15    | 20    | 30    | 45    | 1     | 1.5   | 2     | 3     | 5     | 10    | 20    |
| 1.60                                      | 104.0 | 74.90 | 60.63 | 49.63 | 35.58 | 25.79 | 20.34 | 14.56 | 12.02 | 8.685 | 5.812 | 3.167 | 1.700 |
| 1.65                                      | 97.00 | 72.00 | 59.19 | 49.14 | 35.31 | 25.58 | 20.19 | 14.46 | 11.95 | 8.624 | 5.772 | 3.154 | 1.691 |
| 1.67                                      | 94.60 | 70.60 | 58.72 | 48.91 | 35.14 | 25.48 | 20.11 | 14.42 | 11.90 | 8.602 | 5.751 | 3.141 | 1.685 |
| 1.70                                      | 92.94 | 69.30 | 58.41 | 48.58 | 34.95 | 25.38 | 20.03 | 14.36 | 11.86 | 8.571 | 5.730 | 3.127 | 1.678 |
| 1.75                                      | 86.00 | 66.60 | 56.34 | 47.03 | 33.89 | 24.64 | 19.47 | 13.97 | 11.55 | 8.360 | 5.600 | 3.070 | 1.650 |
| 1.80                                      | 77.22 | 63.08 | 54.10 | 45.28 | 32.72 | 23.89 | 18.92 | 13.59 | 11.25 | 8.170 | 5.494 | 3.029 | 1.635 |

| Constant Power Discharge Data (25°C, W/cell) |       |       |       |       |       |       |       |       |       |       |       |       |       |
|----------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| End Voltage (V/cell)                         | min   |       |       |       |       |       | h     |       |       |       |       |       |       |
|                                              | 5     | 10    | 15    | 20    | 30    | 45    | 1     | 1.5   | 2     | 3     | 5     | 10    | 20    |
| 1.60                                         | 183.8 | 138.4 | 114.4 | 94.71 | 68.38 | 49.90 | 39.61 | 28.49 | 23.63 | 17.19 | 11.56 | 6.341 | 3.411 |
| 1.65                                         | 175.1 | 134.3 | 112.5 | 94.31 | 68.22 | 49.78 | 39.44 | 28.39 | 23.58 | 17.11 | 11.51 | 6.332 | 3.401 |
| 1.67                                         | 172.7 | 132.5 | 112.0 | 94.16 | 68.13 | 49.71 | 39.42 | 28.40 | 23.56 | 17.13 | 11.50 | 6.324 | 3.396 |
| 1.70                                         | 171.1 | 130.9 | 111.8 | 93.84 | 67.97 | 49.66 | 39.42 | 28.36 | 23.55 | 17.10 | 11.49 | 6.309 | 3.390 |
| 1.75                                         | 159.3 | 126.2 | 108.1 | 91.07 | 66.09 | 48.35 | 38.41 | 27.67 | 22.99 | 16.72 | 11.25 | 6.205 | 3.341 |
| 1.80                                         | 144.3 | 120.4 | 104.3 | 87.99 | 64.06 | 47.09 | 37.44 | 27.02 | 22.49 | 16.40 | 11.07 | 6.140 | 3.324 |

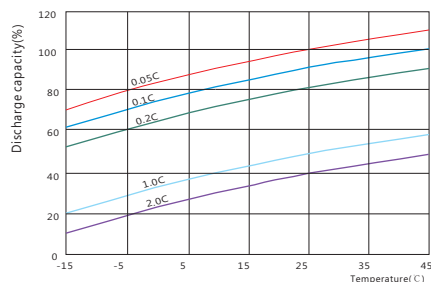
## Performance Curve



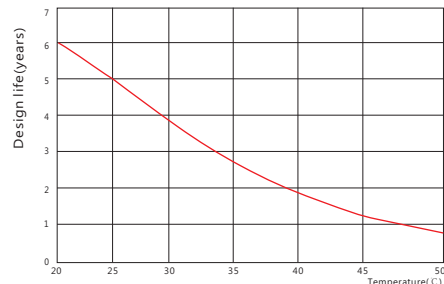
Discharge voltage vs. discharge time



Charge capacity vs. charge time



Discharge capacity vs. temperature



Design life vs. temperature

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