

General features for MPPS Series battery (OPzS)

- * Tubular positive plate; separator with the combined application of porous rubber and porous PVC, separator is with a high porosity & good corrosion resistance.
- * Computer designed lead, calcium tin alloy grid for high power density.
- * Long service life, float or cyclic applications: designed floating life is 20 years at 25°C; Designed cycle life more than 1200 cycles at 80% DOD at 25°C/77°F.
- * Acid-proof bolt: It is of a special shape of funnel having the function of filtering acid smog and retarding flame, it can measure the density and temperature of electrolyte.
- * Ensuring sufficient electrolyte for battery discharge.
- * Battery container is transparent, easy checks electrolyte.



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MPPS2-500 (2V500Ah)

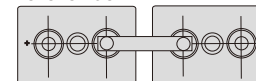
Specifications

| | | |
|-------------------------------|---------------------------------|-----------------------|
| Nominal Voltage | | 2 V |
| Rated capacity (10 hour rate) | | 500 Ah |
| Dimensions (±3mm) | Total Height (Include terminal) | 525mm (20.7inches) |
| | Height | 470mm (18.5inches) |
| | Length | 166mm (6.54inches) |
| | Width | 206mm (8.11inches) |
| Approx Weight (±5%) | Without electrolyte | 26.0Kg (57.2lbs) |
| | With Electrolyte | 36.0Kg (79.2lbs) |
| | Electrolyte weight (d=1.24kg/l) | Approx 10Kg (22.0lbs) |

Battery picture and construction



Connection method for reference:



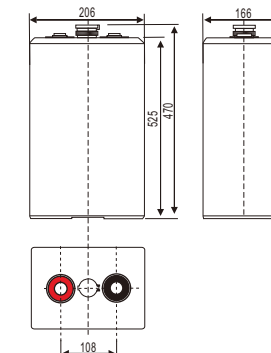
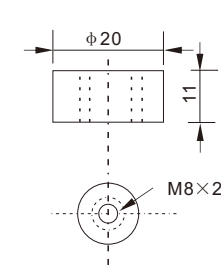
Battery Construction

| | | | | |
|--------------|----------------------|----------------|-----------------|----------|
| Component | Positive plate | Negative plate | Container | Cover |
| Raw material | Lead dioxide | Lead | SAN transparent | ABS |
| Component | Electrolyte | Separator | Safety valve | Terminal |
| Raw material | Dilute sulfuric acid | PVC | Porous rubber | Copper |

Outer dimension and terminal

Terminal: TP

Outer dimensions (±3mm) Unit:mm



Characteristics

| | | |
|---|---|---|
| Capacity 25°C(77°F) | 10 hour rate(50A, 1.8V) 3 hour rate(128A, 1.75V) 1 hour rate(280A, 1.60V) | 500Ah 383Ah 280Ah |
| Internal Resistance | Full charged battery at 25°C(77°F) | Approx 0.7 mΩ |
| Capacity affected by Temperature (10hour rate) | 40°C (104°F) 25°C (77°F) 0°C (32°F) -15°C (5°F) | 103% 100% 85% 65% |
| Remaining capacity Self-Discharge At 25°C(77°F) | Capacity after 3 month storage Capacity after 6 month storage | 88% 76% |
| Terminal type | TP (copper) | |
| Max. Discharge current 25°C/(77°F) | 2500A (5Seconds) | |
| Nominal operating temperature | 25°C ± 5°C (77°F ± 9°F) | |
| Operating Temperature Range | Discharge | -15°C ~ 50°C (5°F ~ 122°F) |
| | Charge | 0°C ~ 45°C (32°F ~ 113°F) |
| | Storage | -15°C ~ 45°C (5°F ~ 113°F) |
| Charge methods (constant Voltage) At 25°C(77°F) | Boost charge | Initial Charging Current less than 125 A Voltage 2.40-2.45V Temperature compensation: -3mV/°C |
| | Floating charge | Voltage 2.23-2.25V Temperature compensation: -3mV/°C |

Constant current discharge (25°C , 77 °F)

Unit:A

| Time | 30min | 1h | 2h | 3h | 4h | 5h | 6h | 8h | 10h | 20h |
|-------|-------|-----|-----|-----|------|------|------|------|------|------|
| 1.70V | 390 | 270 | 165 | 129 | 103 | 90.6 | 77.0 | 59.0 | 50.6 | 27.2 |
| 1.75V | 380 | 262 | 163 | 128 | 103 | 90.0 | 76.6 | 58.6 | 50.6 | 27.2 |
| 1.80V | 366 | 256 | 159 | 124 | 99.6 | 87.6 | 74.0 | 56.6 | 50.0 | 27.0 |
| 1.85V | 346 | 240 | 149 | 116 | 93.6 | 82.6 | 69.6 | 53.0 | 53.0 | 25.8 |

(Above characteristics data are average values obtained within three charge/discharge cycles, not the minimum values.)

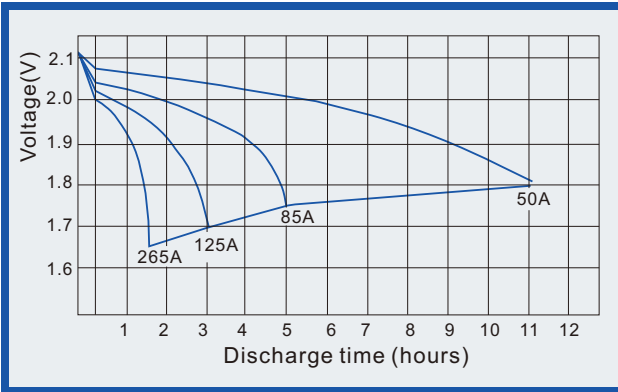
Constant power discharge (25°C , 77 °F)

Unit:watts

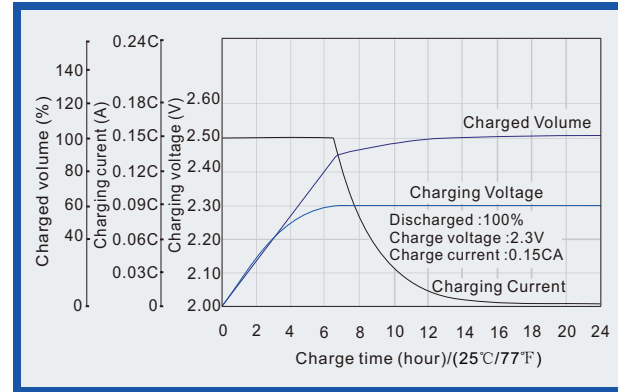
| Time | 30min | 1h | 2h | 3h | 4h | 5h | 6h | 8h | 10h | 20h |
|-------|-------|-----|-----|-----|-----|-----|-----|-----|------|------|
| 1.70V | 728 | 510 | 318 | 252 | 202 | 179 | 152 | 117 | 101 | 54.6 |
| 1.75V | 710 | 500 | 312 | 250 | 202 | 178 | 151 | 116 | 100 | 54.6 |
| 1.80V | 686 | 486 | 306 | 242 | 195 | 172 | 146 | 113 | 99.6 | 54.0 |
| 1.85V | 636 | 450 | 286 | 226 | 182 | 160 | 136 | 105 | 92.6 | 50.0 |

(Above characteristics data are average values obtained within three charge/discharge cycles, not the minimum values.)

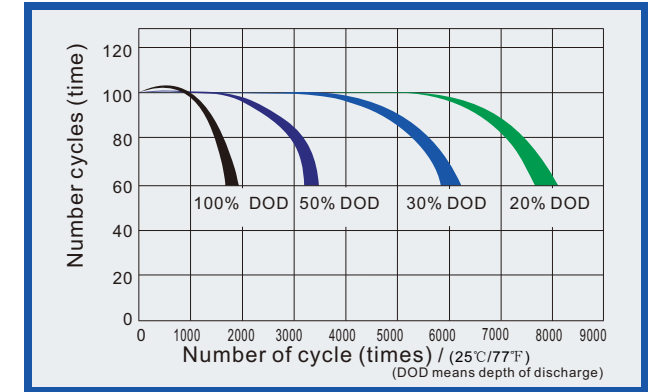
Discharge characteristics (25°C, 77°F)



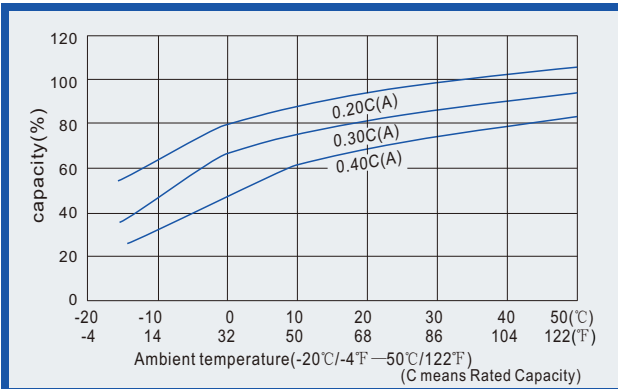
Charge characteristics (25°C, 77°F)



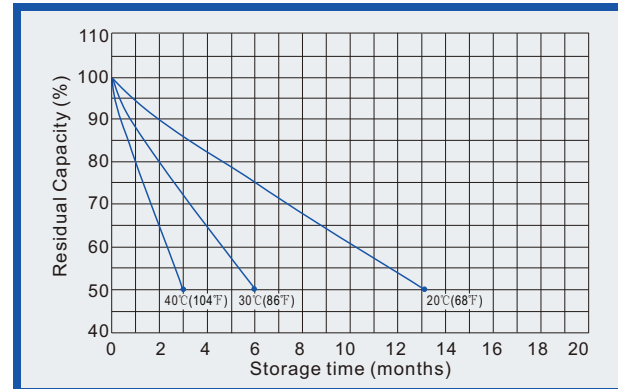
Life characteristics of Cyclic Use (25°C, 77°F)



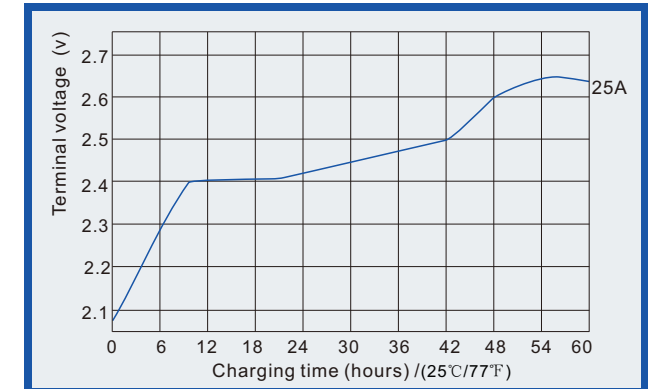
Effect of Temperature on capacity



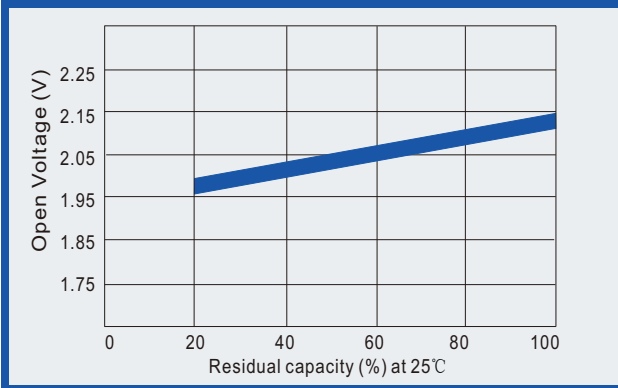
Self-discharge characteristics (with full charging)



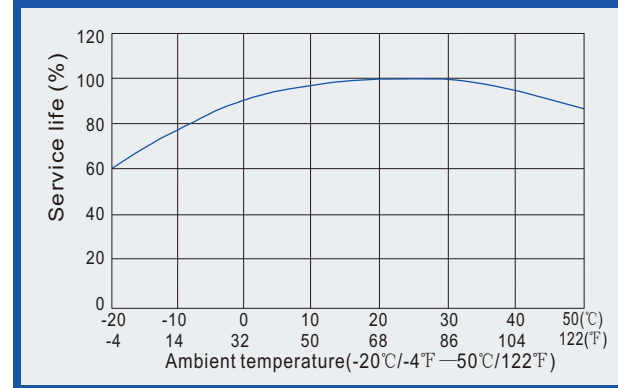
Initial charging characteristics



Relationships for open voltage and remained capacity (for reference)



Relationship for service life and temperature



Effect of discharge rate on capacity

