



# MSJ 500

## 2V 500Ah

MSJ-500 is a Long service life battery with 15 ~20 years expected life under normal float charge. As with all CSB batteries, all are rechargeable, highly efficient, leak proof and maintenance free.



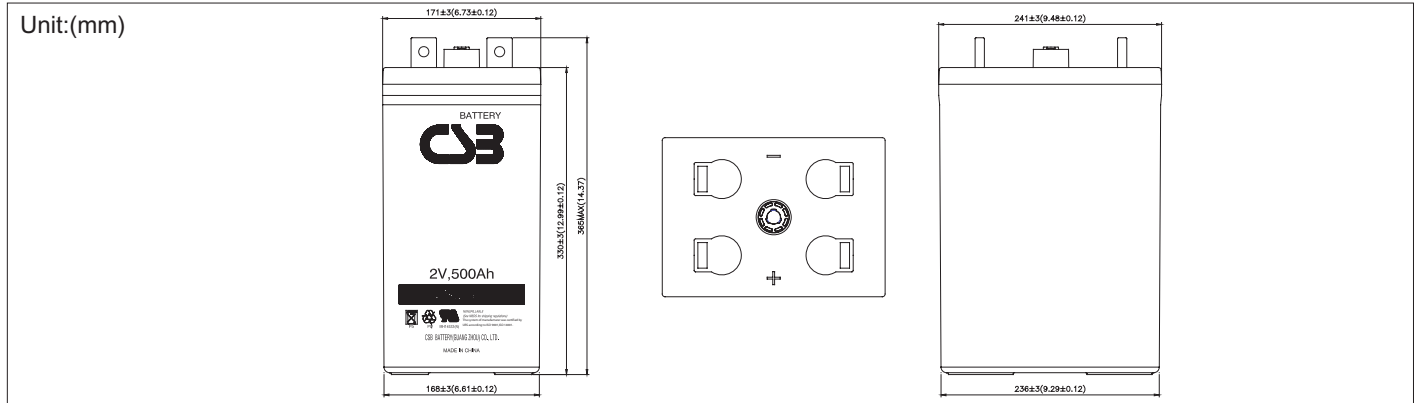
### Specification

Cells Per Unit	1
Voltage Per Unit	2
Capacity	500Ah @ 10hr-rate to 1.80V per cell @25 °C (77°F)
Weight	Approx. 35kg(77.0 lbs)
Maximum Discharge Current	3000A(5sec)
Internal Resistance	Approx. 0.41 mΩ
Operating Temperature Range	Discharge: -20°C~50°C (-4°F~122°F) Charge: 0°C~40°C (32°F~104°F) Storage: -20°C~40°C (-4°F~104°F)
Nominal Operating Temperature Range	25°C±3°C (77°F±5°F)
Float Charging Voltage	2.23±0.02/Cell AT25°C (77°F) Temp. Coefficient-3.3mV/°C (-1.8mV/°F)
Recommended Maximum Charging Current Limit	150A
Equalization and Cycle Service	2.35V Temps coefficient -3.3mV/°C (-1.8mV/°F)
Terminal	Pb-Ca-Sn Alloy
Container Material	The container and cover are made of flame retardant plastics which meet UL-94V-0 specifications. The oxygen index level is higher than 28.



CSB-manufactured batteries are UL-recognized components under UL924 and UL1989. CSB is also certified by ISO 9001 and ISO 14001.

### Dimensions



### Constant Current Discharge Characteristics Unit:A (25°C, 77°F)

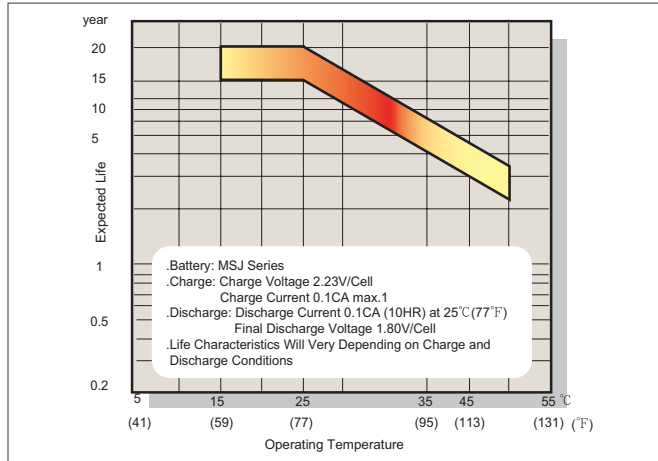
F.V/Time	15MIN	30MIN	60MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR
1.83V	455.00	352.00	243.00	155.00	116.00	94.00	80.00	70.00	57.00	48.00
1.80V	538.00	391.00	263.00	164.00	122.00	102.00	84.00	74.00	60.00	50.00
1.75V	625.00	424.00	279.00	172.00	127.00	103.00	87.00	75.00	61.00	52.00
1.70V	704.00	477.00	303.00	182.00	134.00	109.00	91.00	79.00	63.00	53.00
1.65V	755.00	506.00	309.00	185.00	137.00	110.00	92.00	81.00	64.00	54.00
1.60V	794.00	527.00	323.00	192.00	143.00	114.00	96.00	83.00	67.00	56.00

### Constant Power Discharge Characteristics Unit:W (25°C, 77°F)

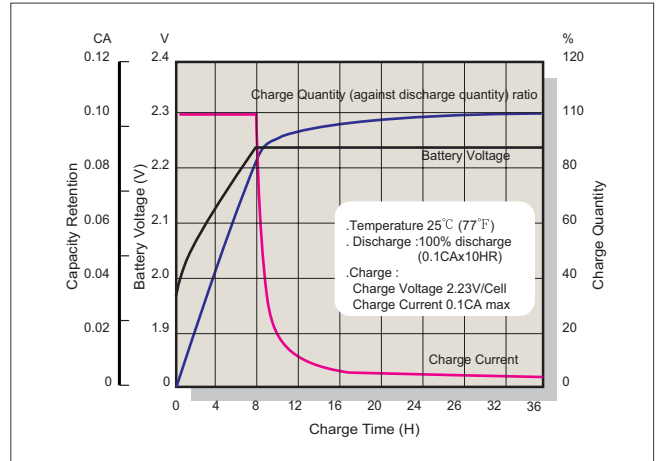
F.V/Time	15MIN	30MIN	60MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR
1.83V	829.00	649.00	452.00	290.00	221.00	176.00	154.00	134.00	110.00	95.00
1.80V	980.00	720.00	490.00	308.00	232.00	191.00	161.00	142.00	115.00	98.00
1.75V	1139.00	781.00	520.00	322.00	242.00	197.00	166.00	145.00	119.00	101.00
1.70V	1267.00	867.00	557.00	337.00	251.00	204.00	173.00	152.00	122.00	104.00
1.65V	1377.00	932.00	575.00	342.00	259.00	207.00	175.00	155.00	124.00	105.00
1.60V	1390.00	937.00	577.00	347.00	260.00	209.00	177.00	157.00	125.00	106.00

- All mentioned values are average values.
- Cycle Information : 300~400 cycles@DOD80%, 600~700 cycles@DOD50%, 900~1200 cycles@DOD30%

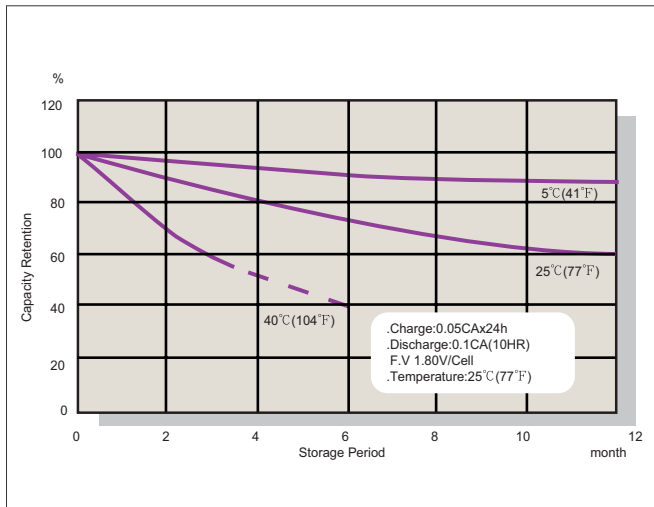
### Expected Life V.S Operating Temperature



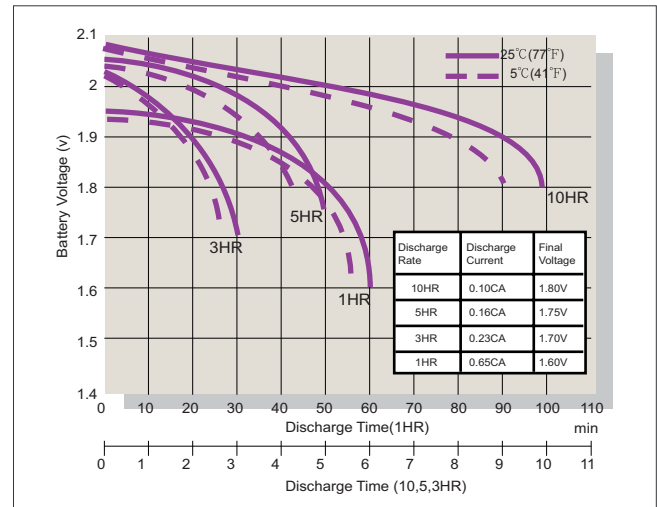
### Typical Constant Voltage Charge Characteristics



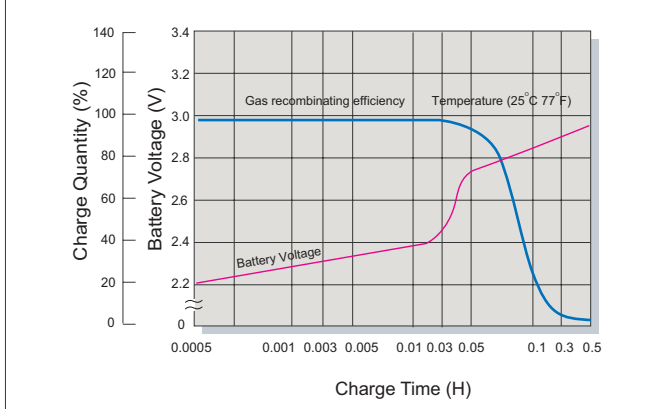
### Capacity Retention Characteristics



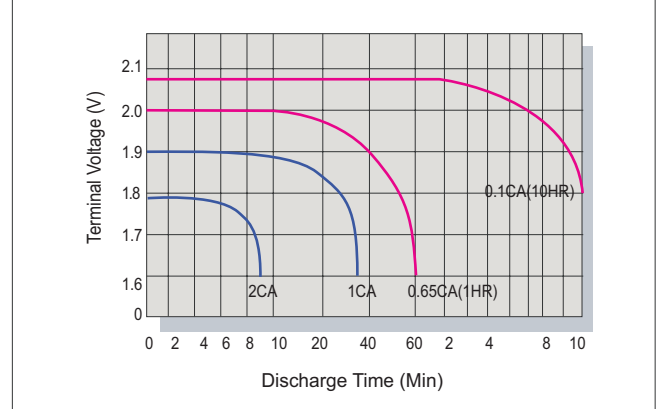
### Discharge Characteristics



### Oxygen Recombination Efficiency Chart



### Terminal Voltage (V) and Discharge Time 25°C (77°F)



### Charging Procedures

Application	Charge Voltage (V/Cell)			Max. Charge Current
	Temperature	Set Point	Allowable Range	
Standby	25°C (77°F)	2.23	2.21~2.25	0.3C

### Discharge Current VS. Discharge Voltage

Discharge Current (A)	Final Discharge Voltage (V/Cell)
0.05C > A	1.90
0.15C > A ≥ 0.05C	1.80
0.20C > A ≥ 0.15C	1.75
0.40 C > A ≥ 0.20C	1.70
A > 0.40 C	1.60

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