



MSJ 1000

2V 1000Ah

MSJ-1000 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	1000Ah @ 10hr-rate to 1.80V per cell @25 °C (77°F)
Weight	Approx. 70kg(154.0 lbs)
Maximum Discharge Current	6000A(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	300A
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.



MH14533(N)



No.:041005117

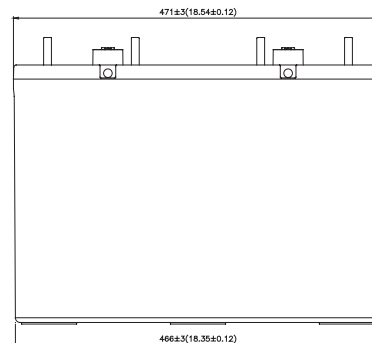
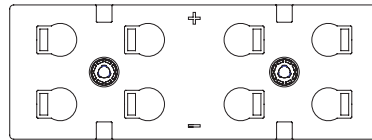
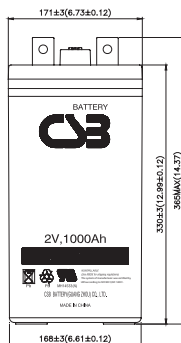


NO. UM 1-12-0045

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

Dimensions

Unit:(mm)



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

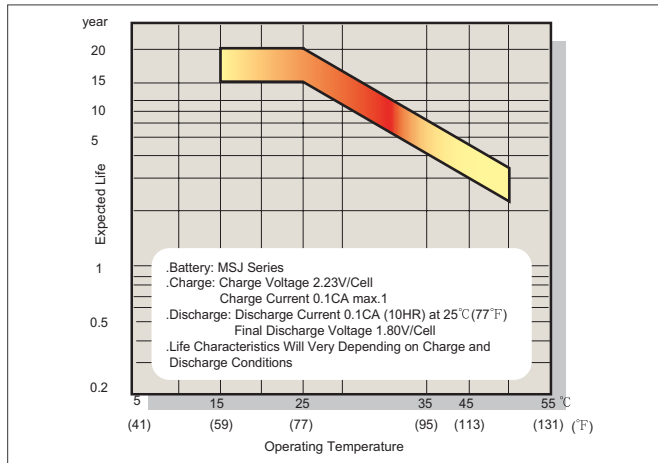
F.V/Time	15MIN	30MIN	60MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR
1.83V	910.00	704.00	486.00	310.00	232.00	188.00	160.00	140.00	114.00	96.00
1.80V	1076.00	782.00	526.00	328.00	244.00	204.00	168.00	148.00	120.00	100.00
1.75V	1250.00	848.00	558.00	344.00	254.00	206.00	174.00	150.00	122.00	104.00
1.70V	1408.00	954.00	606.00	364.00	268.00	218.00	182.00	158.00	126.00	106.00
1.65V	1510.00	1012.00	618.00	370.00	274.00	220.00	184.00	162.00	128.00	108.00
1.60V	1588.00	1054.00	646.00	384.00	286.00	228.00	192.00	166.00	134.00	112.00

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

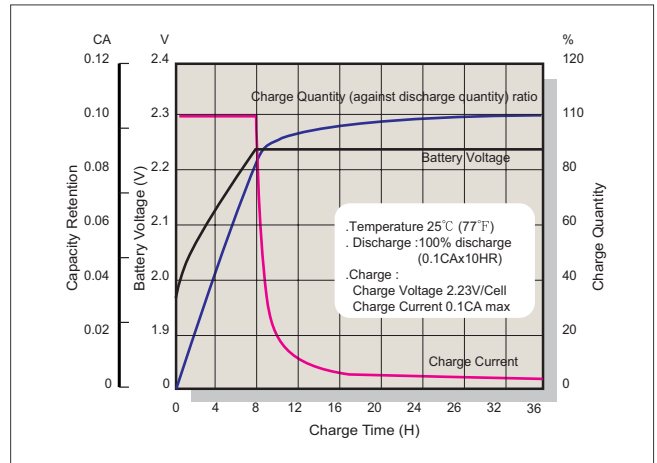
F.V/Time	15MIN	30MIN	60MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR
1.83V	1658.00	1298.00	904.00	580.00	442.00	352.00	308.00	268.00	220.00	190.00
1.80V	1960.00	1440.00	980.00	616.00	464.00	382.00	322.00	284.00	230.00	196.00
1.75V	2278.00	1562.00	1040.00	644.00	484.00	394.00	332.00	290.00	238.00	202.00
1.70V	2534.00	1734.00	1114.00	674.00	502.00	408.00	346.00	304.00	244.00	208.00
1.65V	2754.00	1864.00	1150.00	684.00	518.00	414.00	350.00	310.00	248.00	210.00
1.60V	2780.00	1874.00	1154.00	694.00	520.00	418.00	354.00	314.00	250.00	212.00

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

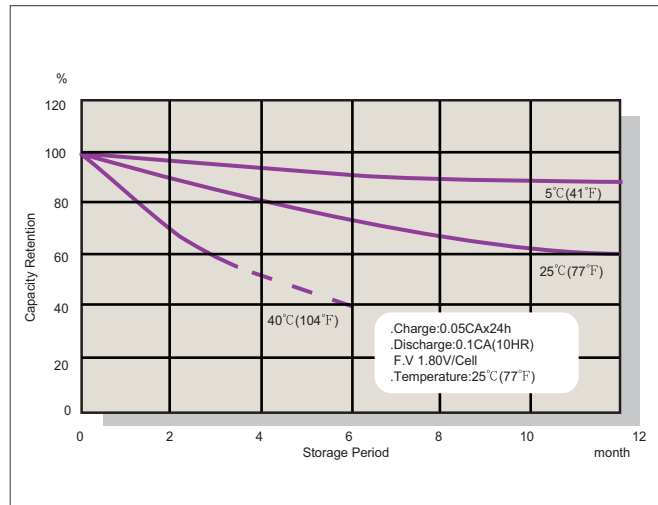
Expected Life V.S Operating Temperature



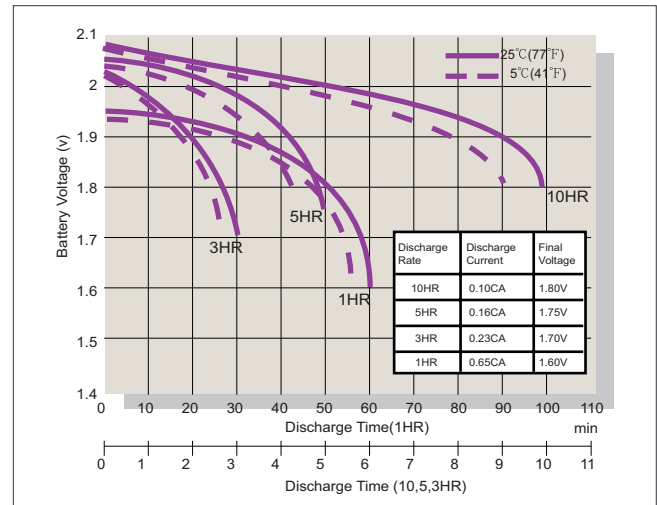
Typical Constant Voltage Charge Characteristics



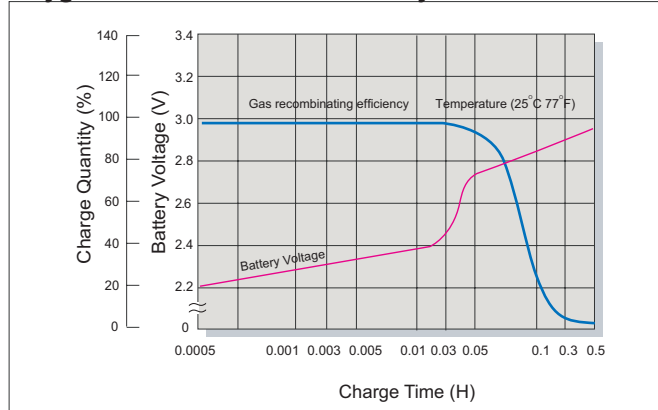
Capacity Retention Characteristics



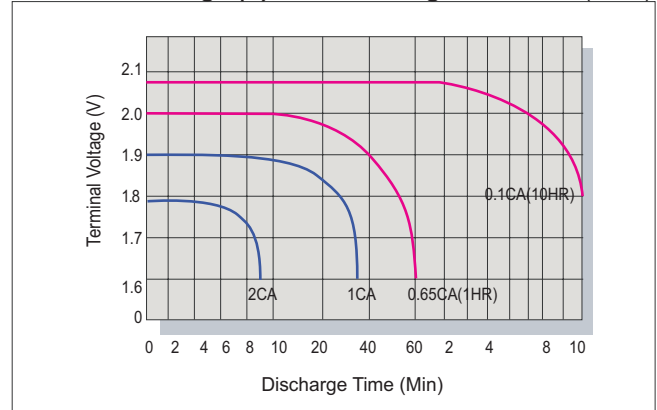
Discharge Characteristics



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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