



MSJ 1000

2V 1000Ah

MSJ 1000 is a long service life battery up to 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. 72.75 kg(160.38 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 at 25 °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(L / Recessed Terminal)
Container Material	The container and cover are made of flame retardant plastics which meet ABS(UL 94-V0/File E88637) specifications.The oxygen index level is higher than 28



MH14533(N)



ISO 9001
No.:041005117

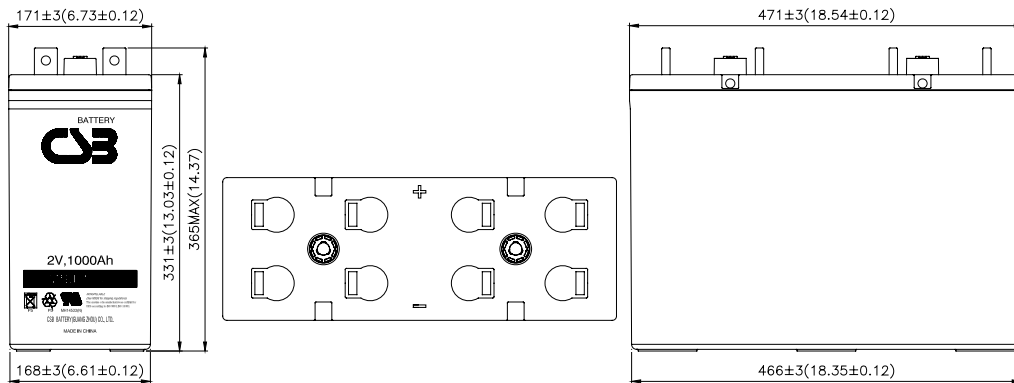


ISO 14001
NO. UM 1-12-0045

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)

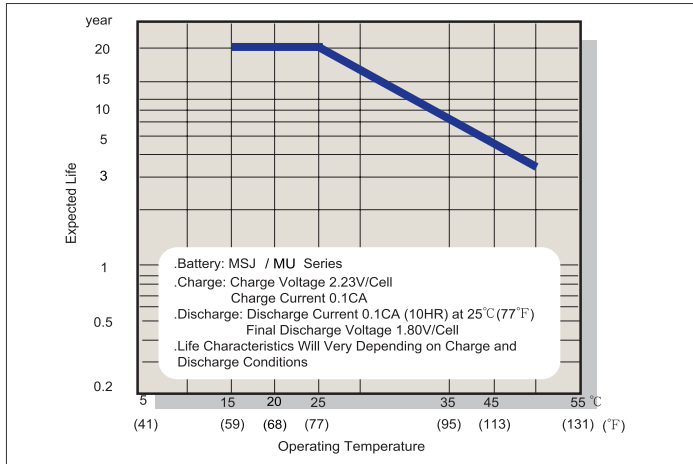
F.V/Time	15MIN	30MIN	60MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR
1.60V	1588	1054	646	384	286	228	192	166	134	112
1.65V	1510	1012	618	370	274	220	184	162	128	108
1.70V	1408	954	606	364	268	218	182	158	126	106
1.75V	1250	848	558	344	254	206	174	150	122	104
1.80V	1076	782	526	328	244	204	168	148	120	100
1.83V	910	704	486	310	232	188	160	140	114	96.0

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

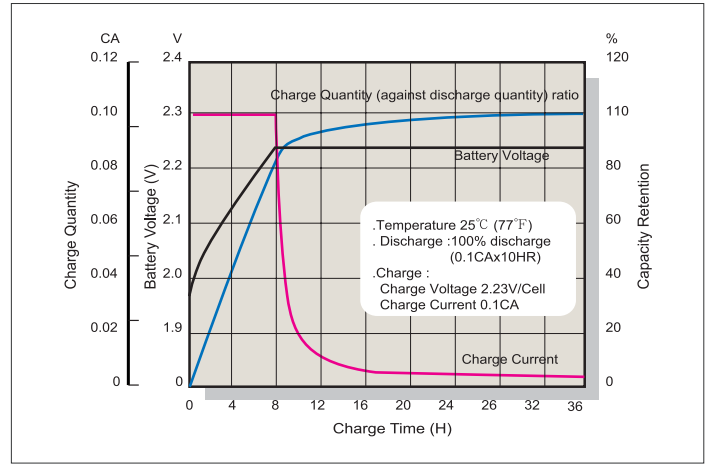
F.V/Time	15MIN	30MIN	60MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR
1.60V	2780	1874	1154	694	520	418	354	314	250	212
1.65V	2754	1864	1150	684	518	414	350	310	248	210
1.70V	2534	1734	1114	674	502	408	346	304	244	208
1.75V	2278	1562	1040	644	484	394	332	290	238	202
1.80V	1960	1440	980	616	464	382	322	284	230	196
1.83V	1658	1298	904	580	442	352	308	268	220	190

- All mentioned values are average values.
- Cycle Information : 300~400 cycles@DOD80%, 600~700 cycles@DOD50%, 900~1200 cycles@DOD30%
- Tolerance: X<6min(+15%~-15%),6min ≤ X<10min(+12%~-12%),10min ≤ X<60min(+8%~-8%),X ≥ 60min(+5%~-5%)

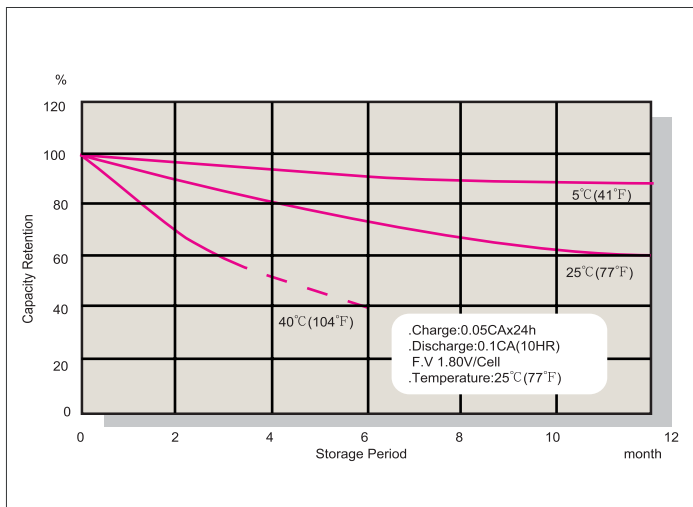
Expected Life V.S Operating Temperature



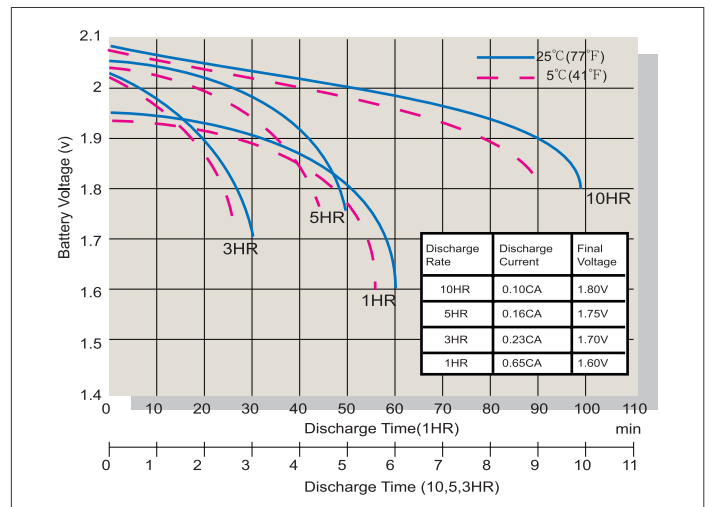
Typical Constant Voltage Charge Characteristics



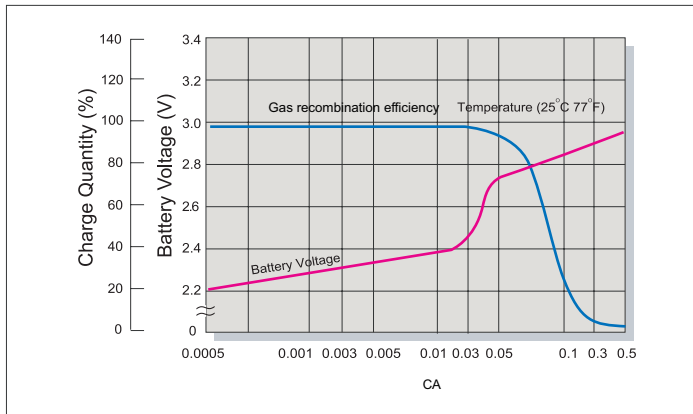
Capacity Retention Characteristics



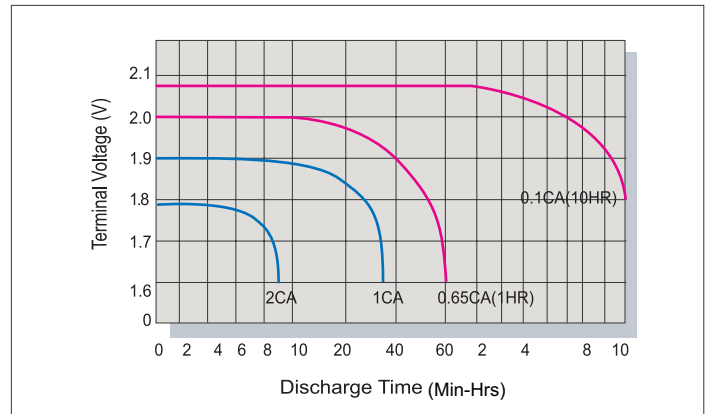
Discharge Characteristics



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
0.40C > A ≥ 0.20C	1.70
A > 0.40C	1.60

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