



MSJ 200

2V 200Ah

MSJ 200 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.



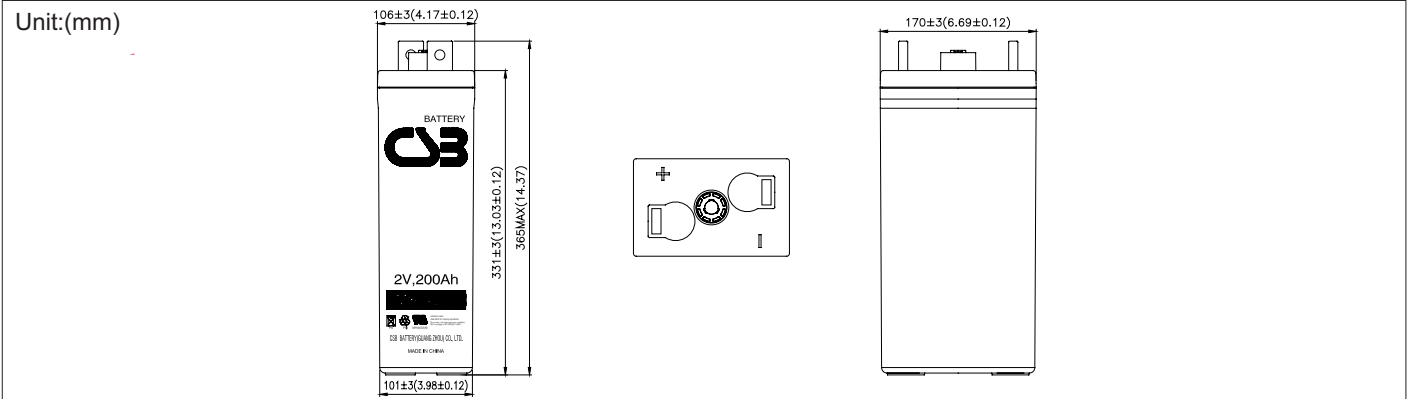
Specification

Cells Per Unit	1
Voltage Per Unit	2
Capacity	200Ah @ 10hr-rate to 1.80V per cell @25 °C (77°F)
Weight	Approx. 15.3 kg(33.73 lbs)
Maximum Discharge Current	1200A(5sec)
Internal Resistance	Approx. 0.62 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	60A
Equalization and Cycle Service	2.35V Temps coefficient -3.3mV/°C (-1.8mV/°F)
Terminal	Pb-Ca-Sn Alloy(L 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



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)

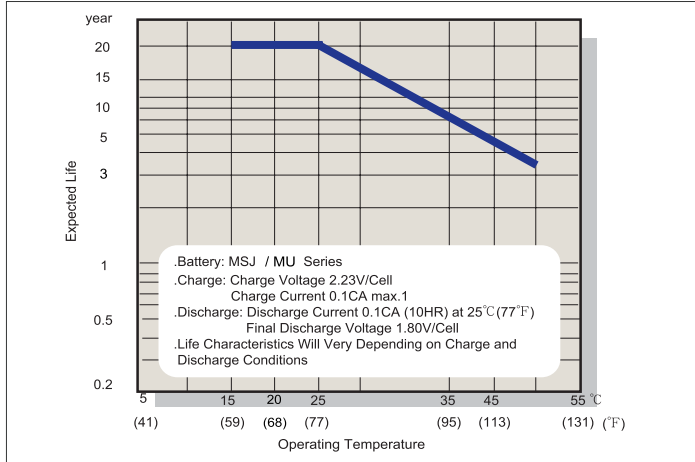
F.V/Time	15MIN	30MIN	60MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR
1.60V	317	211	129	77.0	57.0	45.0	38.0	33.0	27.0	22.5
1.65V	302	202	123	74.0	55.0	44.0	37.0	32.0	26.0	21.6
1.70V	282	191	121	73.0	54.0	43.0	36.0	31.7	25.0	21.3
1.75V	250	169	112	69.0	51.0	41.2	35.0	30.0	24.5	20.6
1.80V	215	156	105	66.0	49.0	40.8	34.0	29.0	24.0	20.0
1.83V	182	141	97.0	62.0	47.0	38.0	32.0	28.0	23.0	19.4

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

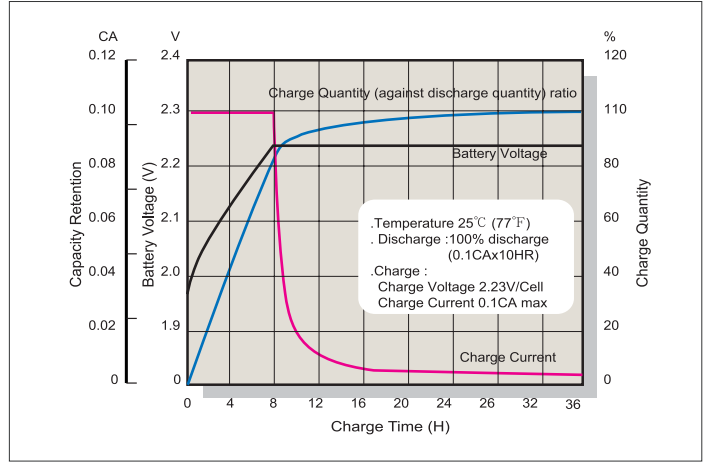
F.V/Time	15MIN	30MIN	60MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR
1.60V	556	375	231	139	104	84.0	71.0	62.0	50.0	42.0
1.65V	551	373	230	137	102	83.0	70.0	61.5	49.0	41.5
1.70V	507	347	223	135	101	82.0	69.0	61.0	48.0	41.0
1.75V	456	312	208	129	97.0	77.0	66.0	58.0	47.0	40.0
1.80V	392	288	196	123	93.0	76.0	65.0	57.0	46.0	39.0
1.83V	331	260	181	116	88.0	70.0	61.0	54.0	44.0	38.0

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

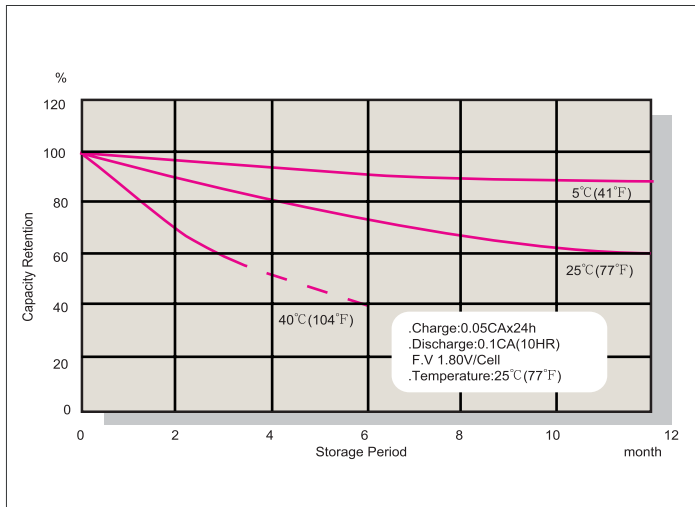
Expected Life V.S Operating Temperature



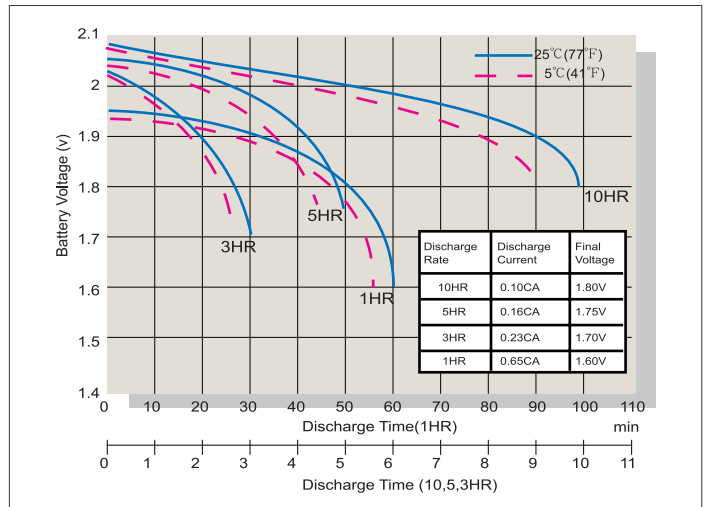
Typical Constant Voltage Charge Characteristics



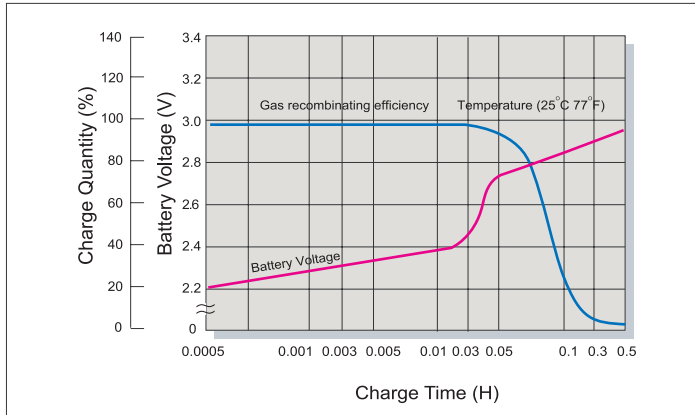
Capacity Retention Characteristics



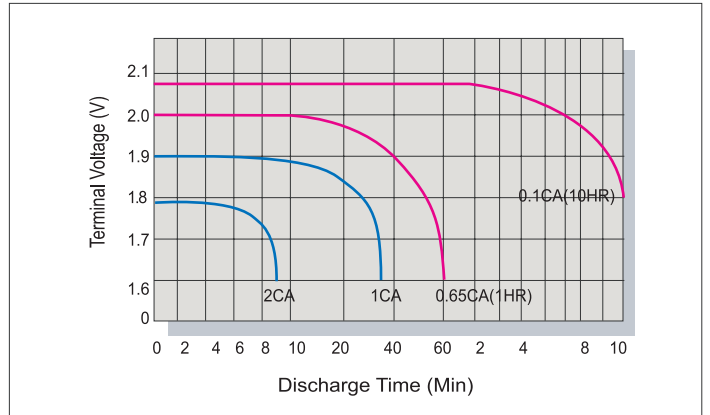
Discharge Characteristics



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
0.20 C > A ≥ 0.15C	1.75
0.40 C > A ≥ 0.20 C	1.70
A > 0.40 C	1.60

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