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# MSV 200 ▶ 2V 200Ah

MSV 200 is a long service life battery up to 15 years expected life under normal float charge. As with all CSB batteries, all are rechargeable, highly efficient, leak proof and maintenance free.



MH14533(N)



CSB-manufactured VRLA batteries are UL-recognized components under UL924 and UL1989.

CSB is also certified by ISO 9001 and ISO 14001.

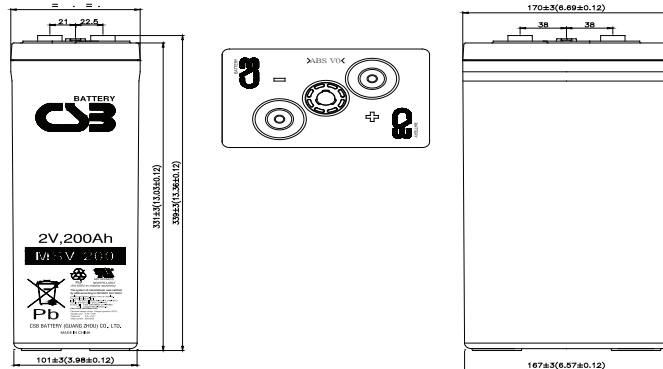
## ► Specification

Cells Per Unit	1
Voltage Per Unit	2
Capacity	200Ah @ 10hr-rate to 1.80V per cell @25 °C (77°F)
Weight	Approx. 13.7 kg(30.2 lbs)
Maximum Discharge Current	1200A(5sec)
Internal Resistance	Approx. 0.40 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 / Cycle Use Charging Voltage	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) specifications. The oxygen index level is higher than 28

## ► Dimensions :

Unit: mm (inch)

Overall Height (H)	Container height (h)	Length (L)	Width (W)
339±3 (13.39±0.12)	331±3 (13.03±0.12)	170±3 (6.69±0.12)	106±3 (4.17±0.12)



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

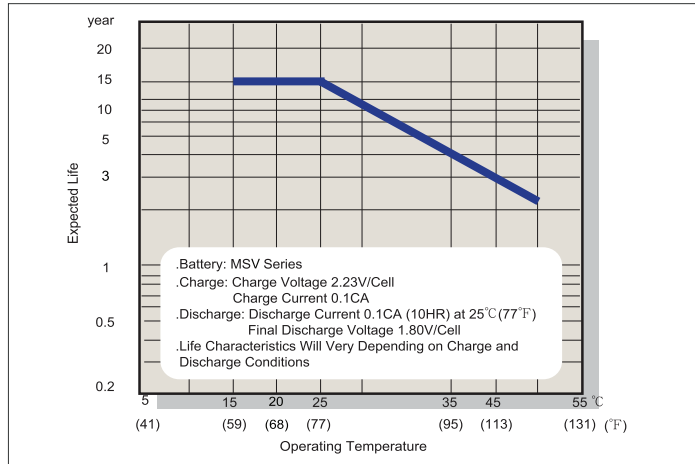
F.V/Time	15MIN	30MIN	60MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR
1.60V	285	196	130	76.5	57.5	45.5	38.5	33.5	26.5	22.5
1.67V	260	187	124	74.0	54.5	44.0	37.0	32.0	26.0	22.0
1.70V	241	182	122	72.5	54.0	43.5	36.5	31.5	25.5	21.5
1.75V	210	168	112	68.5	50.5	41.1	34.5	30.0	24.5	20.5
1.80V	183	147	106	66.0	48.5	39.5	33.5	29.5	24.0	20.0
1.83V	159	130	97.5	62.0	46.5	37.5	32.0	28.0	22.8	19.5

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

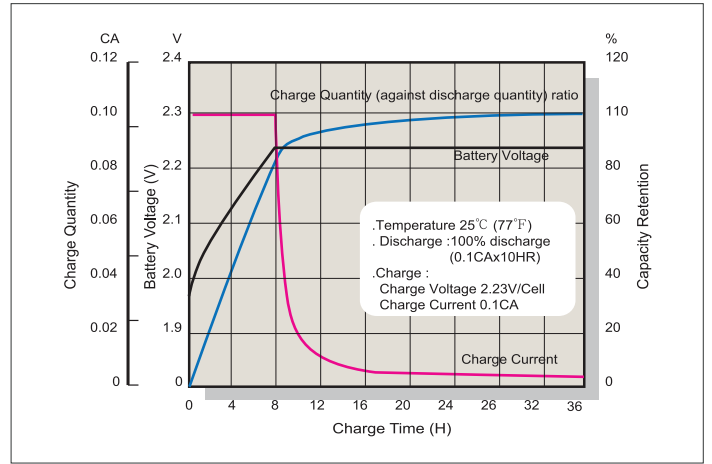
F.V/Time	15MIN	30MIN	60MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR
1.60V	466	344	231	139	104	83.5	70.5	62.0	50.0	42.0
1.67V	427	330	230	138	103	82.5	70.0	61.5	49.5	41.5
1.70V	407	319	223	135	101	82.0	69.5	60.5	48.5	41.0
1.75V	368	298	208	129	96.5	78.5	66.5	58.0	47.5	40.0
1.80V	336	267	196	124	92.5	75.5	64.5	56.5	46.0	39.5
1.83V	286	231	181	116	88.5	71.9	61.5	54.0	44.0	38.0

Ratings presented herein are subject to revision without notice. Please refer to [www.csb-battery.com](http://www.csb-battery.com) to confirm the latest version.

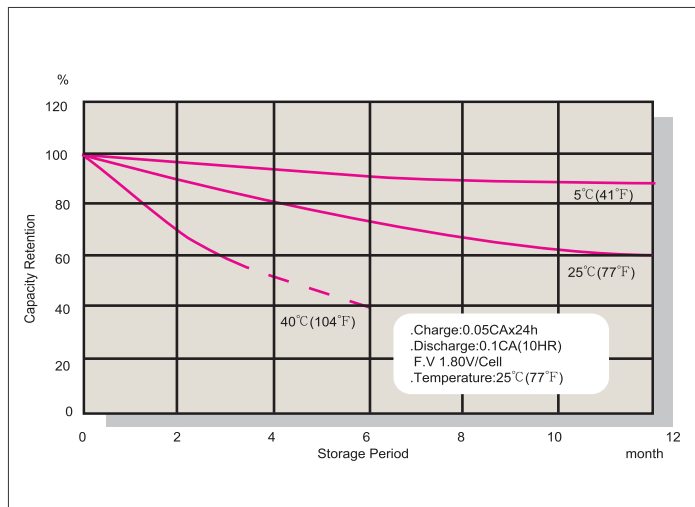
### Expected Life V.S Operating Temperature



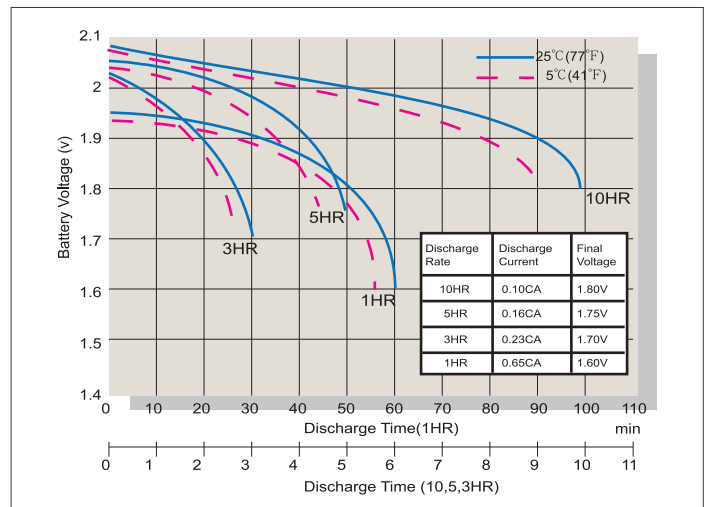
### Typical Constant Voltage Charge Characteristics



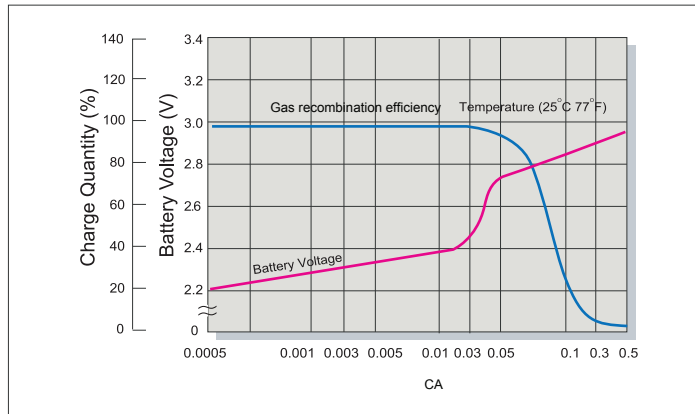
### Capacity Retention Characteristics



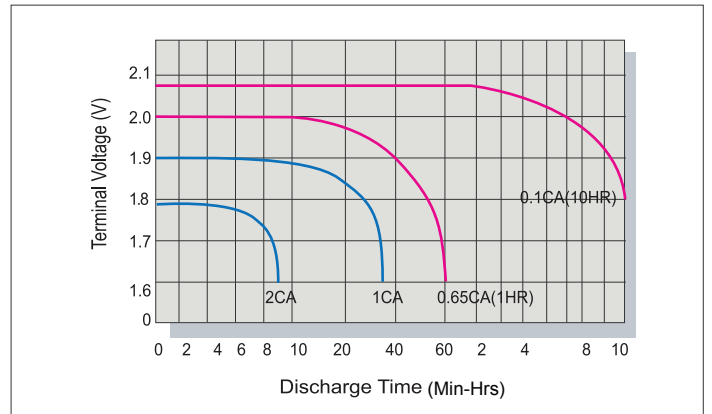
### Discharge Characteristics



### 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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