

MSJ 400

2V 400Ah

MSJ-400 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	400Ah @ 10hr-rate to 1.80V per cell @25 °C (77°F)
Weight	Approx. 28 kg (61.7 lbs)
Maximum Discharge Current	2400A(5sec)
Internal Resistance	Approx. 0.41 mΩ
Operating Temperature Range	Discharge: -15°C~50°C (5°F~122°F) Charge: -15~40°C (5°F~104°F) Storage: -15°C~40°C (5°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	120A
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.

UL
MH14533(N)

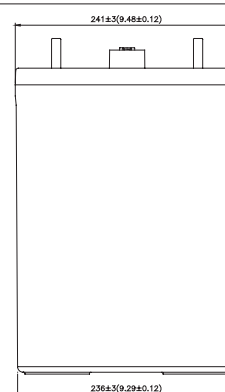
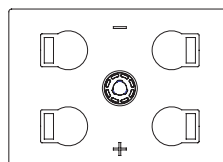
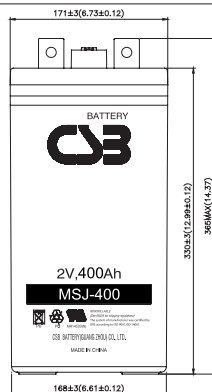
TÜV CERT
ISO9001
No :041005117

RWTV
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)

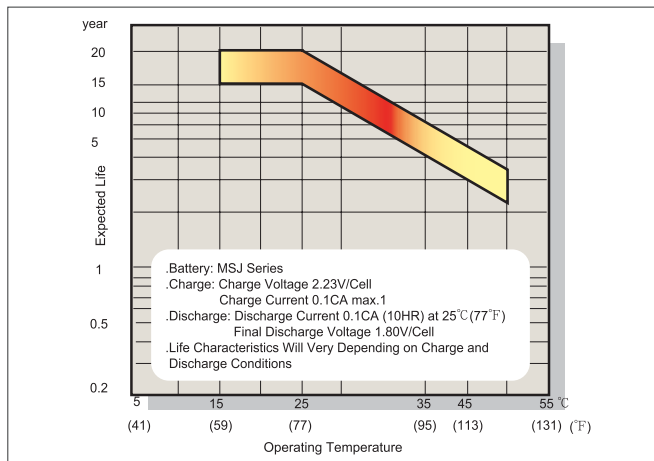
F.V/Time	15MIN	30MIN	60MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR
1.60V	529.28	351.30	215.31	127.99	95.32	75.99	63.99	55.33	44.66	37.33
1.65V	503.28	337.30	205.98	123.32	91.32	73.33	61.33	53.99	42.66	36.00
1.70V	469.29	317.97	201.98	121.32	89.32	72.66	60.66	52.66	42.00	35.33
1.75V	416.63	282.64	185.98	114.66	84.66	68.73	57.99	50.00	40.66	34.66
1.80V	358.63	260.64	175.32	109.32	81.33	67.99	55.99	49.33	40.00	33.33
1.83V	303.30	234.64	161.98	103.32	77.33	62.66	53.33	46.66	38.00	32.00

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

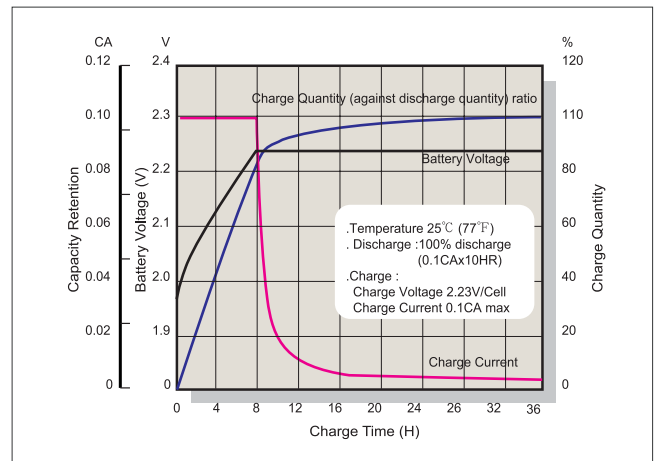
F.V/Time	15MIN	30MIN	60MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR
1.60V	926.57	624.60	384.63	231.31	173.32	139.32	117.99	104.66	83.33	70.66
1.65V	917.91	621.27	383.30	227.98	172.65	137.99	116.66	103.32	82.66	69.99
1.70V	844.58	577.94	371.30	224.64	167.32	135.99	115.32	101.32	81.33	69.33
1.75V	759.26	520.61	346.63	214.65	161.32	131.32	110.66	96.66	79.33	67.33
1.80V	653.27	479.95	326.63	205.31	154.65	127.32	107.32	94.66	76.66	65.33
1.83V	552.61	432.62	301.30	193.31	147.32	117.32	102.66	89.32	73.33	63.33

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

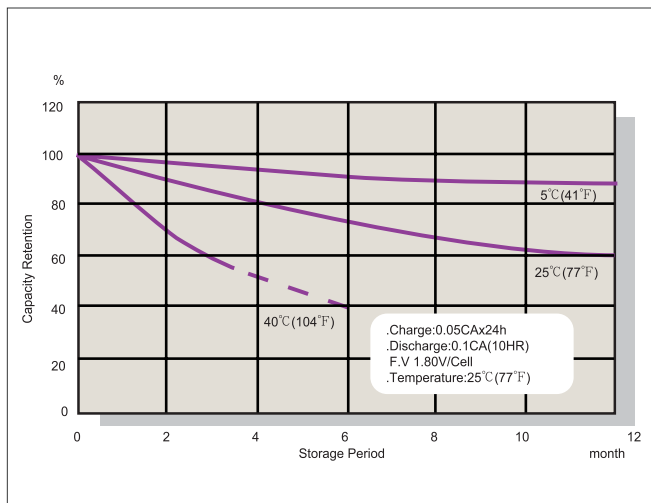
Expected Life V.S Operating Temperature



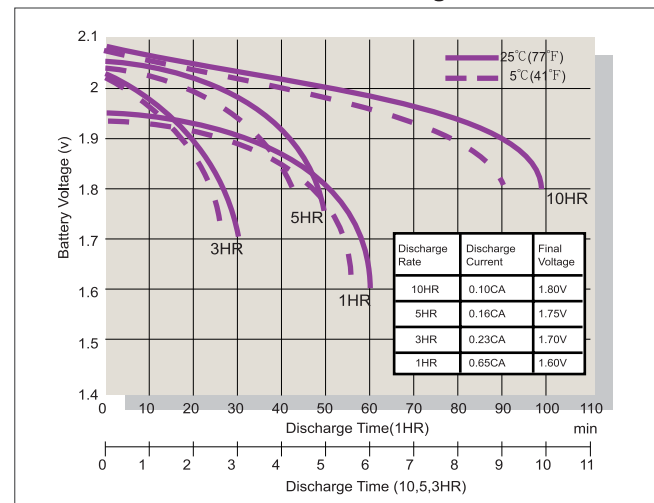
Typical Constant Voltage Charge Characteristics



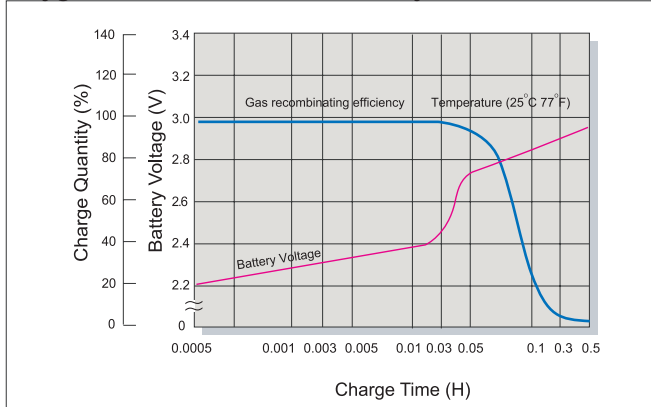
Capacity Retention Characteristics



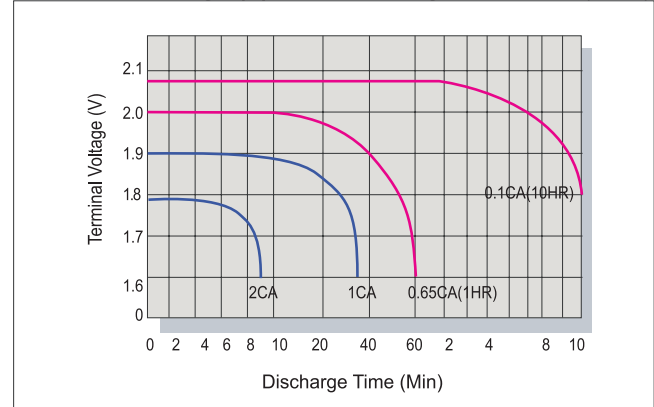
Discharge Characteristics



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

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