

# MU 660

## 2V 660Ah

MU-660 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	660Ah @ 10hr-rate to 1.80V per cell @25 °C (77°F)
Weight	Approx. 42.0kg(90.4 lbs)
Maximum Discharge Current	3960A(5sec)
Internal Resistance	Approx. 0.2~0.5 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	198A
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.

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)

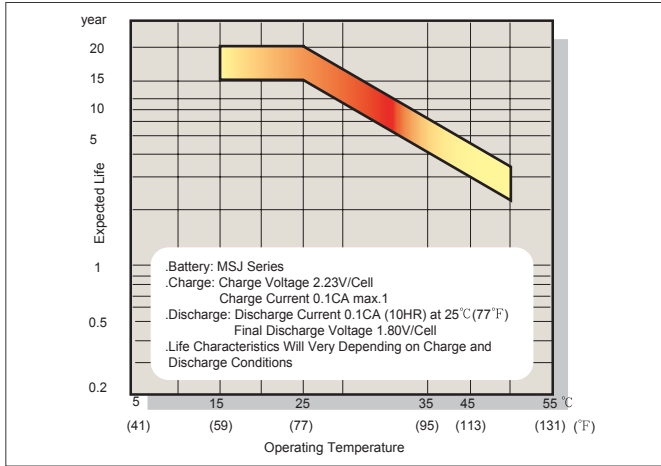
F.V/Time	30MIN	60MIN	90MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR
1.60V	682.00	426.00	322.00	267.00	203.00	163.00	137.00	117.00	90.00	74.00
1.65V	653.00	415.00	315.00	261.00	198.00	159.00	134.00	115.00	88.00	73.00
1.70V	614.00	399.00	306.00	252.00	190.00	154.00	129.00	111.00	86.00	71.00
1.75V	554.00	371.00	287.00	239.00	181.00	147.00	124.00	106.00	83.00	68.00
1.80V	505.00	346.00	271.00	228.00	173.00	141.00	119.00	102.00	81.00	66.00
1.83V	450.00	336.00	267.00	219.00	165.00	132.00	108.00	93.00	75.00	63.00

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

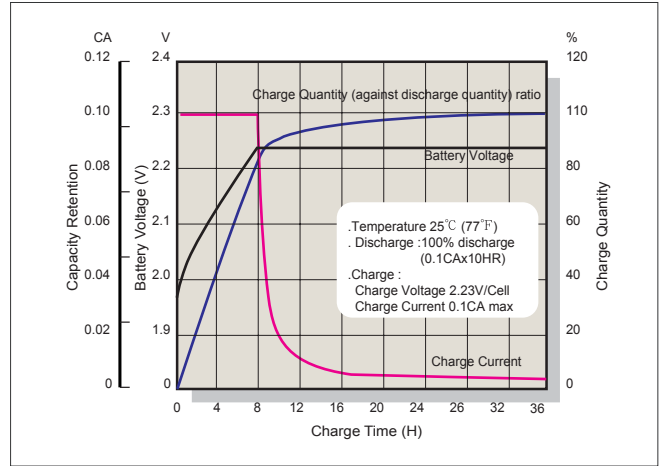
F.V/Time	30MIN	60MIN	90MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR
1.60V	1,073.00	735.00	560.00	469.00	360.00	286.00	244.00	210.00	164.00	135.00
1.65V	1,062.00	723.00	554.00	464.00	354.00	286.00	241.00	209.00	163.00	134.00
1.70V	1,031.00	703.00	542.00	455.00	344.00	282.00	235.00	206.00	161.00	132.00
1.75V	953.00	660.00	513.00	435.00	331.00	272.00	228.00	198.00	156.00	128.00
1.80V	889.00	622.00	488.00	417.00	320.00	263.00	222.00	191.00	152.00	125.00
1.83V	803.00	608.00	483.00	402.00	307.00	248.00	203.00	175.00	141.00	120.00

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

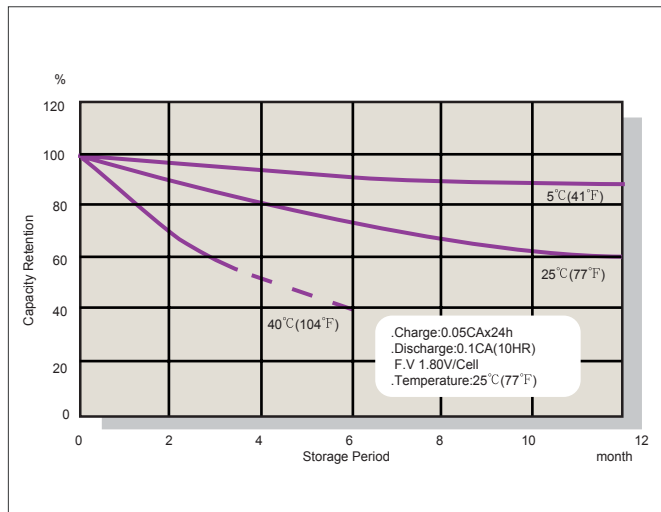
### Expected Life V.S Operating Temperature



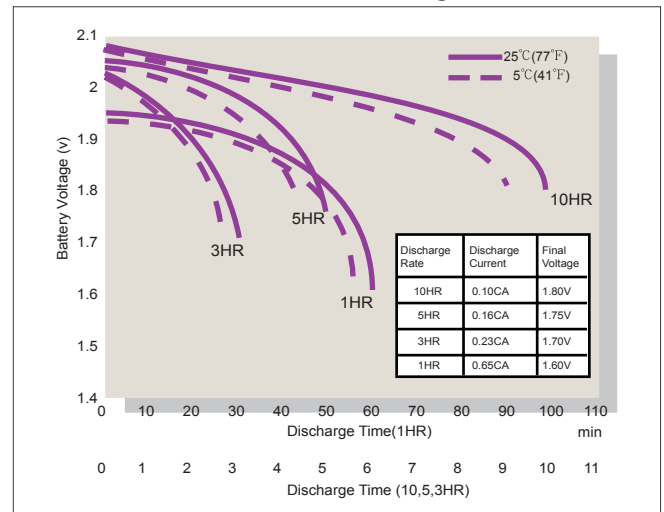
### Typical Constant Voltage Charge Characteristics



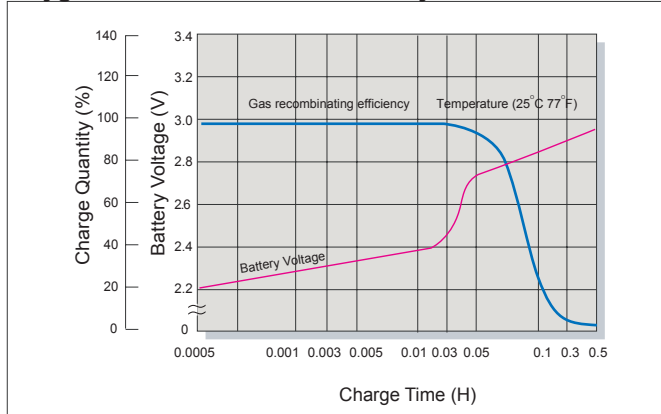
### Capacity Retention Characteristics



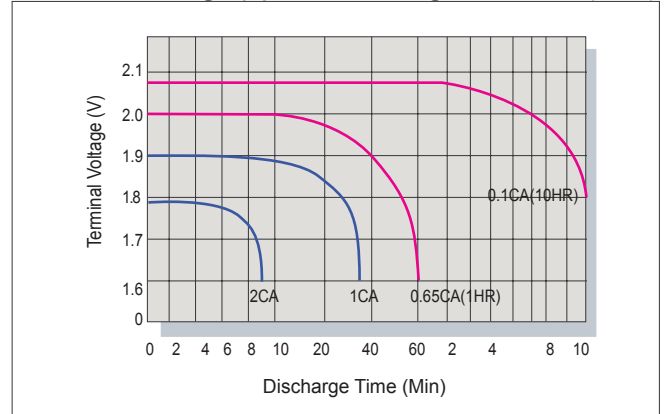
### Discharge Characteristics



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

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