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MSB 350 ▶ 48V 350Ah

MSB 350 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

Nominal voltage	48v
Nominal voltage per cell	2v
Capacity	350Ah @ 10hr-rate to 1.80V per cell @25 °C (77°F)
Weight	Approx. 22.3 kg(49.16 lbs)
Maximum Discharge Current	2100A(5sec)
Internal Resistance	Approx. 0.87m Ω
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	105A
Equalization / Cycle Use Charging Voltage	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) specifications. The oxygen index level is higher than 28 (LOi>28)



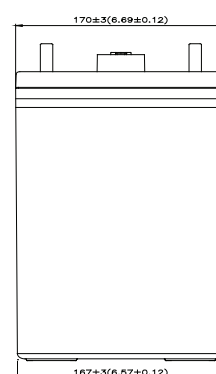
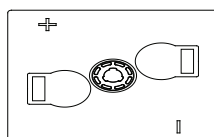
CSB-manufactured **VRLA** (Absorbent Glass Mat type) batteries are UL-recognized components under UL1989.

CSB is also certified by ISO 9001 and ISO 14001.

► Dimensions : Unit: mm (inch)

Overall Height (H)	Container height (h)	Length (L)	Width (W)
365±3 (14.37±0.12)	331±3 (13.03±0.12)	170±3 (6.69±0.12)	150±3 (5.91±0.12)

Transparent plastic cover for protection of cell terminals and interconnections



includes: stacking auto assembly accessories made of steel finished with epoxy paint, certified to operate in seismic zone 4, stainless steel fasteners, interconnection plates intercells

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

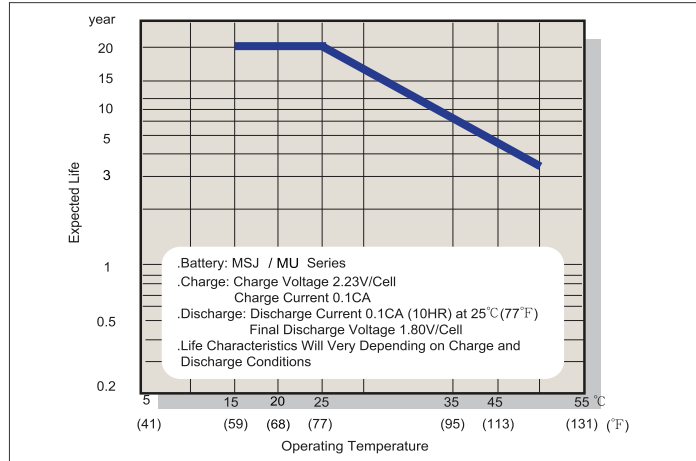
F.V/Time	15MIN	30MIN	60MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR
1.60V	555	369	226	134	100	79.0	68.0	58.0	47.0	40.0
1.67V	529	354	216	130	96.0	77.0	65.0	56.0	46.0	38.0
1.70V	494	334	212	127	95.0	76.0	64.0	55.0	44.0	37.0
1.75V	438	296	196	120	89.0	72.0	61.0	53.0	43.0	36.0
1.80V	377	273	184	116	85.0	71.0	58.0	51.0	42.0	35.0
1.83V	319	246	170	109	82.0	65.0	56.0	49.0	40.0	34.0

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

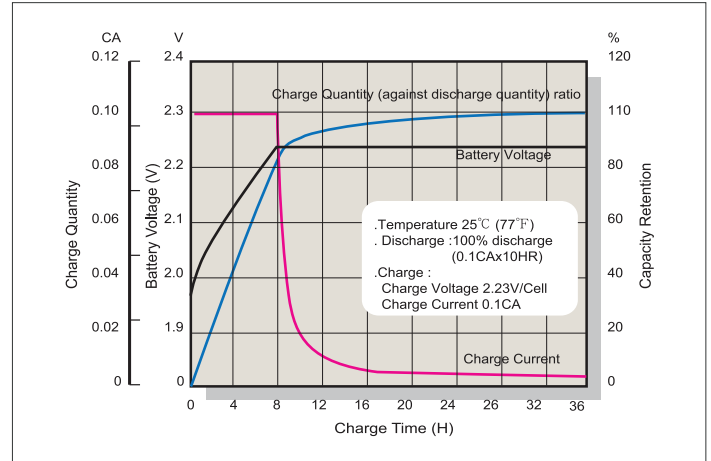
F.V/Time	15MIN	30MIN	60MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR
1.60V	973	656	404	243	182	146	124	109	88.0	74.0
1.67V	964	652	403	240	180	145	123	107	86.0	73.0
1.70V	887	607	390	236	176	144	121	106	85.0	72.0
1.75V	798	547	364	225	169	138	117	102	83.0	70.0
1.80V	686	504	343	216	162	134	113	99.0	81.0	69.0
1.83V	580	454	316	203	155	123	107	95.0	77.0	67.0

Ratings presented herein are subject to revision without notice. Please refer to www.csb-battery.com to confirm the latest version.

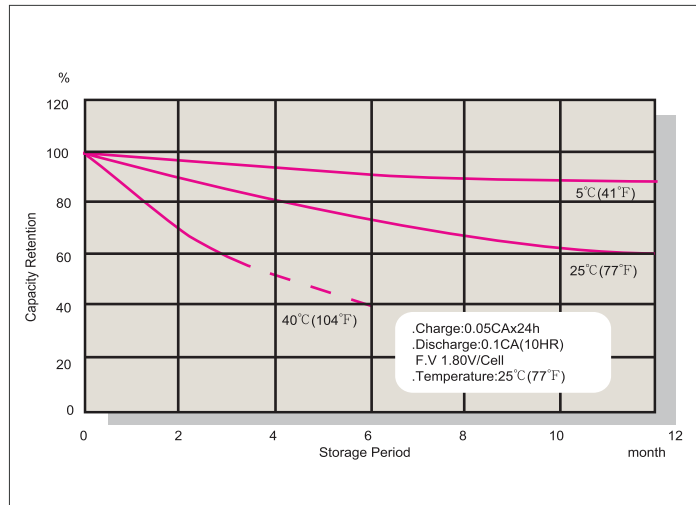
Expected Life V.S Operating Temperature



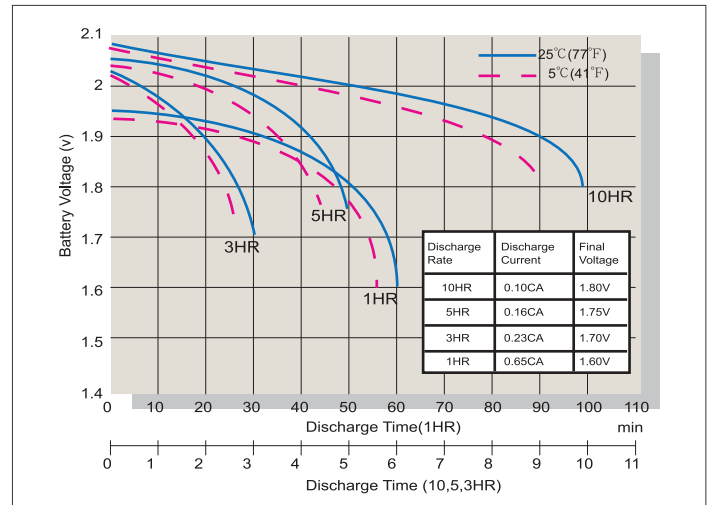
Typical Constant Voltage Charge Characteristics



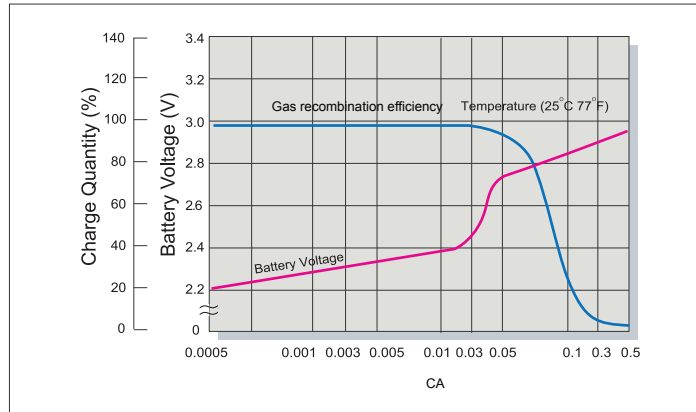
Capacity Retention Characteristics



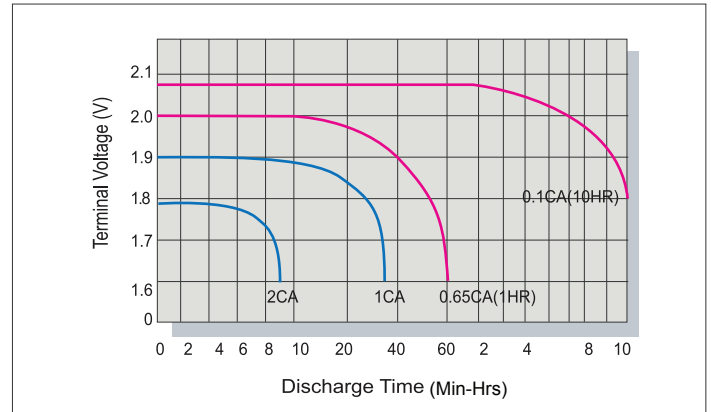
Discharge Characteristics



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

Positive plates of lead feed with purity greater than 99.9%

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