



valve regulated  
sealed lead acid type  
rechargeable battery

⊕⊖ sun battery®

# MB 12-5HR(12V5.4AH)

## Specification

Nominal Voltage	12V	
Nominal Capacity(8HR)	5.4AH	
Dimension	Length	90 ± 1mm (3.54 inches)
	Width	70 ± 1mm (2.76 inches)
	Container Height	101 ± 1mm (3.98 inches)
	Total Height (with Terminal)	107 ± 1mm (4.21 inches)
	Approx Weight	Approx 1.80 kg (3.97lbs)
Terminal	T2	
Container Material	ABS	
Rated Capacity	5.64 AH/0.564A	(10hr, 1.80V/cell, 25°C/77°F)
	5.40 AH/0.675A	(8hr, 1.75V/cell, 25°C/77°F)
	4.80 AH/0.96A	(5hr, 1.75V/cell, 25°C/77°F)
	4.44 AH/1.48A	(3hr, 1.75V/cell, 25°C/77°F)
	3.85 AH/3.85A	(1hr, 1.60V/cell, 25°C/77°F)
Max. Discharge Current	81A (5s)	
Internal Resistance	Approx 25mΩ	
Operating Temp. Range	Discharge	-15 ~ 50°C (5 ~ 122°F)
	Charge	0 ~ 40°C (32 ~ 104°F)
	Storage	-15 ~ 40°C (5 ~ 104°F)
Nominal Operating Temp. Range	25 ± 3°C (77 ± 5°F)	
Cycle Use	Initial Charging Current less than 1.62A. Voltage	
	14.4V ~ 15.0V at 25°C (77°F) Temp. Coefficient -30mV/°C	
Standby Use	No limit on Initial Charging Current Voltage	
	13.5V ~ 13.8V at 25°C (77°F) Temp. Coefficient -20mV/°C	
Capacity affected by Temperature	40°C (104°F)	103%
	25°C (77°F)	100%
	0°C (32°F)	86%
Self Discharge	MB series batteries may be stored for up to 6 months at 25°C (77°F) and then a freshening charge is required. For higher temperatures the time interval will be shorter.	
Life expectancy	3~5 years at 25°C with charge voltage 2.25V/cell	



## Applications

- ◆ All purpose
- ◆ Uninterruptable Power Supply (UPS)
- ◆ Electric Power System (EPS)
- ◆ Emergency backup power supply
- ◆ Emergency light
- ◆ Railway signal
- ◆ Aircraft signal
- ◆ Alarm and security system
- ◆ Electronic apparatus and equipment
- ◆ Communication power supply
- ◆ DC power supply
- ◆ Auto control system



Conform to:  
IEC60896-21&22 and/or IEC61427

## Constant Current Discharge (Amperes) at 25°C (77°F)

F.V/Time	5min	10min	15min	20min	30min	45min	1h	2h	3h	4h	5h	6h	8h	10h	20h
1.85V/cell	10.5	8.59	6.91	6.11	4.76	3.60	2.98	1.76	1.35	1.06	0.85	0.76	0.625	0.532	0.304
1.80V/cell	14.2	11.0	8.35	7.22	5.62	4.19	3.34	1.92	1.45	1.14	0.91	0.81	0.664	0.564	0.307
1.75V/cell	16.0	12.1	9.12	7.76	5.83	4.35	3.49	1.99	1.48	1.16	0.96	0.83	0.675	0.570	0.309
1.70V/cell	17.6	13.1	9.73	8.16	6.07	4.52	3.60	2.07	1.52	1.19	0.98	0.85	0.684	0.576	0.315
1.65V/cell	19.4	14.2	10.4	8.67	6.40	4.64	3.72	2.12	1.58	1.23	0.99	0.87	0.695	0.588	0.320
1.60V/cell	21.4	15.4	11.1	9.23	6.76	4.83	3.85	2.20	1.63	1.27	1.02	0.89	0.702	0.593	0.321

## Constant Power Discharge (Watts) at 25°C (77°F)

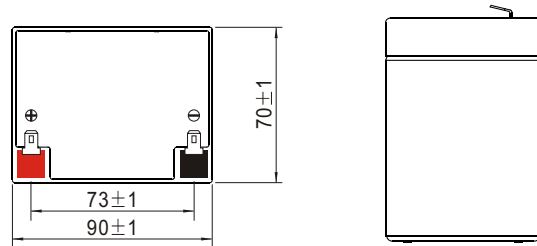
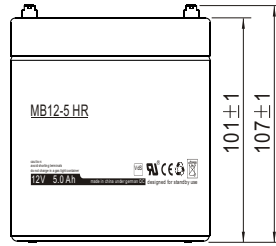
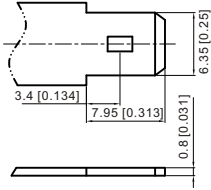
F.V/Time	5min	10min	15min	20min	30min	45min	1h	2h	3h	4h	5h	6h	8h	10h	20h
1.85V/cell	19.3	15.9	12.9	11.5	9.07	6.93	5.74	3.41	2.63	2.08	1.67	1.49	1.235	1.054	0.602
1.80V/cell	25.6	20.0	15.4	13.4	10.5	8.00	6.40	3.70	2.82	2.21	1.78	1.59	1.306	1.115	0.607
1.75V/cell	28.3	21.7	16.6	14.3	10.9	8.22	6.67	3.82	2.86	2.25	1.87	1.63	1.326	1.124	0.611
1.70V/cell	30.3	23.1	17.5	14.9	11.2	8.51	6.85	3.96	2.93	2.31	1.91	1.66	1.343	1.135	0.623
1.65V/cell	32.9	24.7	18.4	15.7	11.8	8.65	7.03	4.05	3.04	2.38	1.92	1.69	1.361	1.157	0.630
1.60V/cell	35.4	26.2	19.4	16.6	12.3	8.97	7.24	4.16	3.12	2.45	1.97	1.72	1.371	1.167	0.633



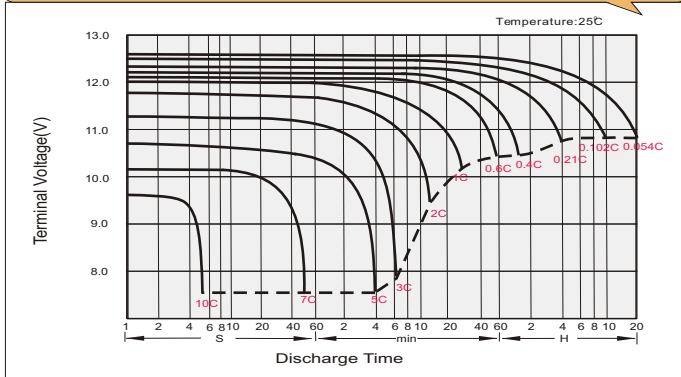
Updated: 17.10.2013

## Dimensions

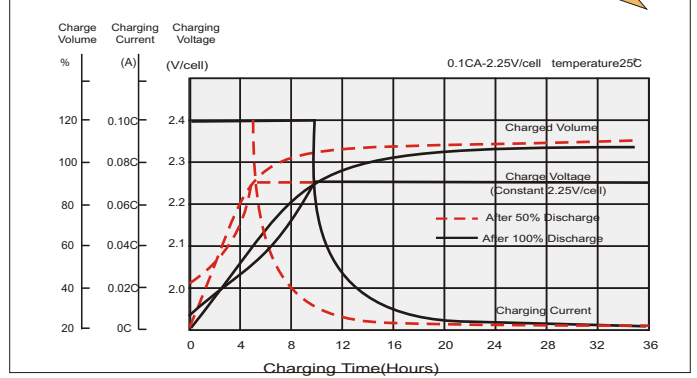
### T2 Terminal Unit: mm [inches]



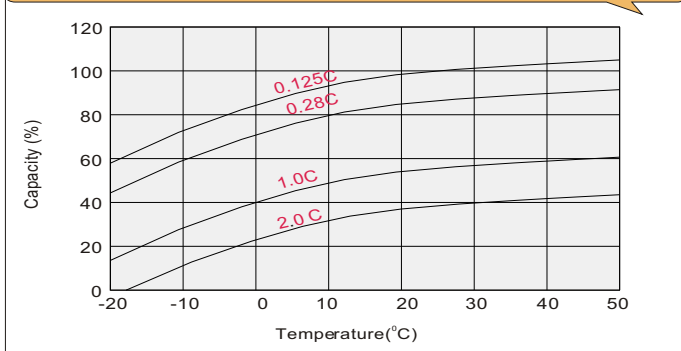
## Discharge Characteristics



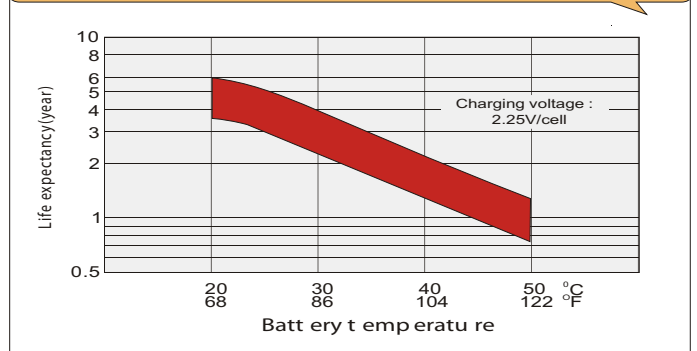
## Float Charging Characteristics



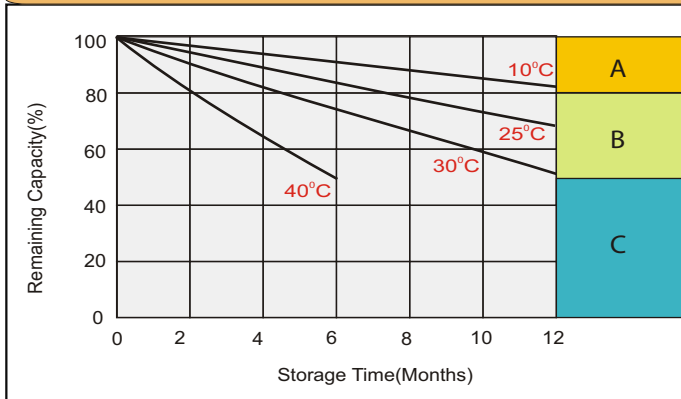
## Temperature Effects in Relation to Battery Capacity



## Effect of Temperature on Long Term Float Life



## Cycle Life in Relation to Depth of Discharge



- A** No supplementary charge required (Carry out supplementary charge before use if 100% capacity is required.)
- B** Supplementary charge required before use. Optional charging way as below:  
 1. Charged for above 3 days at limited current 0.25CA and constant voltage 2.25V/cell.  
 2. Charged for above 20 hours at limited current 0.25CA and constant voltage 2.45V/cell.  
 3. Charged for 8-10 hours at limited current 0.05CA.
- C** Supplementary charge may often fail to recover the capacity. The battery should never be left standing till this is reached.