

### General features for MPa Series (AGM) battery

- \* Stable quality & high reliability.
- \* Unique construction and sealing technique guarantees.
- \* Design life 5years in float service; Long service life ,float or cyclic, which is shown in the specification sheet.
- \* Maintenance-free operation. UL-recognized component.
- \* Heavy duty grids: The heavy-duty lead calcium-alloy grids ,provide an extra margin of performance and service life in float & cyclic.
- \* Case and cover are available in both standard and flame retardant ABS.
- \* Low self discharge; low pressure venting system.



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**MP12-2 (12V2Ah)**

### Specifications

Nominal Voltage		12V
Rated capacity (20 hour rate)		2.0 Ah
Dimensions (±1mm)	Total Height	103 mm (4.06 inches)
	Height	98 mm (3.86 inches)
	Length	70.7 mm (2.78 inches)
	Width	48 mm (1.89 inches)
Weight Approx (±3%)		0.70 Kg (1.54 lbs)

### Battery picture and construction



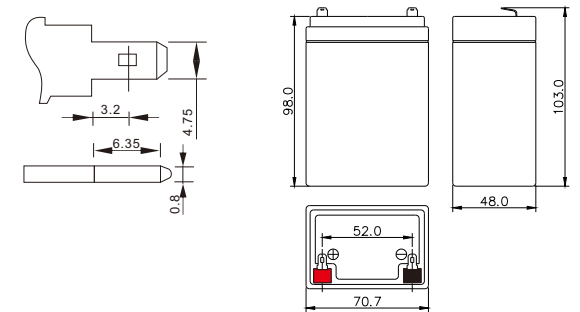
#### Battery Construction

Component	Positive plate	Negative plate	Container	Cover
Raw material	Lead dioxide	Lead	ABS	ABS
Component	Electrolyte	Separator	Safety valve	Terminal
Raw material	Dilute sulfuric acid	Fiberglass	Rubber	Copper

### Outer dimension and terminal

Outer dimensions(±1mm)  
Unit:mm

Terminal: T1



### Characteristics

Capacity 25°C(77°F)	20 hour rate(0.1 A, 10.5V) 10 hour rate(0.18A, 10.5V) 5 hour rate(0.34A, 10.5V) 1 hour rate(1.2 A, 9.6V)	2.0Ah 1.8Ah 1.7Ah 1.2 Ah
Internal Resistance	Full charged battery at 25°C(77°F)	Approx 65 mΩ
Capacity affected by Temperature (20hour rate)	40°C (104°F) 25°C (77°F) 0°C (32°F) -15°C (5°F)	102% 100% 85% 65%
Remaining capacity Self-Discharge At 25°C(77°F)	Capacity after 3 month storage Capacity after 6 month storage Capacity after 12 month storage	91% 82% 64%
Terminal type	T1	
Max. Discharge current 25°C/(77°F)	30A (5Seconds)	
Nominal operating temperature	25°C ±5°C(77°F ±9°F)	
Operating Temperature Range	Discharge Charge Storage	-15°C ~50°C (5°F ~122°F) -10°C ~50°C (14°F ~122°F) -20°C ~50°C (-4°F ~122°F)
Charge methods (constant Voltage) At 25°C(77°F)	Cycle use	Initial Charging Current less than 0.6 A Voltage 14.10-14.40V Temperature compensation:-30mV/°C
	Standby use	Voltage 13.50-13.80V Temperature compensation:-18mV/°C

### Constant current discharge (25°C , 77 °F)

### Constant power discharge (25°C , 77 °F)

Unit:A

Unit:watts

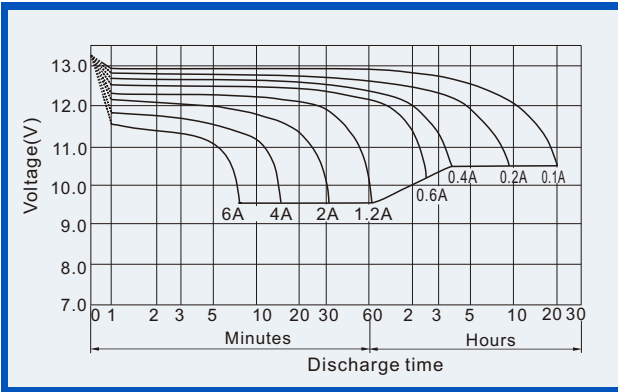
#### Constant Current(Amp) and Constant Power(Watt) Discharge Table at 25°C(77°F)

Time	5min	10min	15min	30min	1h	2h	3h	4h	5h	8h	10h	20h	
9.60V	A	7.20	4.72	3.50	2.30	1.20	0.70	0.52	0.41	0.35	0.23	0.19	0.10
	W	84.9	53.3	40.3	24.4	13.8	8.1	5.96	4.78	4.06	2.68	2.19	1.20
10.20V	A	6.60	4.52	3.22	2.18	1.13	0.67	0.50	0.40	0.34	0.23	0.19	0.10
	W	79.9	50.5	37.9	24.3	13.0	7.8	5.79	4.63	3.98	2.63	2.15	1.17
10.50V	A	6.01	4.22	3.00	2.12	1.09	0.66	0.49	0.38	0.34	0.23	0.18	0.10
	W	77.2	49.0	36.3	24.0	12.6	7.6	5.69	4.40	3.96	2.61	2.13	1.16
10.80V	A	5.77	4.03	2.80	2.06	1.05	0.64	0.48	0.37	0.33	0.22	0.18	0.10
	W	67.7	47.5	34.9	23.9	12.3	7.5	5.63	4.35	3.78	2.50	2.08	1.13
11.10V	A	5.34	3.80	2.60	2.00	1.02	0.63	0.46	0.37	0.31	0.21	0.18	0.10
	W	65.4	45.9	33.3	23.8	12.1	7.4	5.46	4.33	3.70	2.42	2.04	1.13

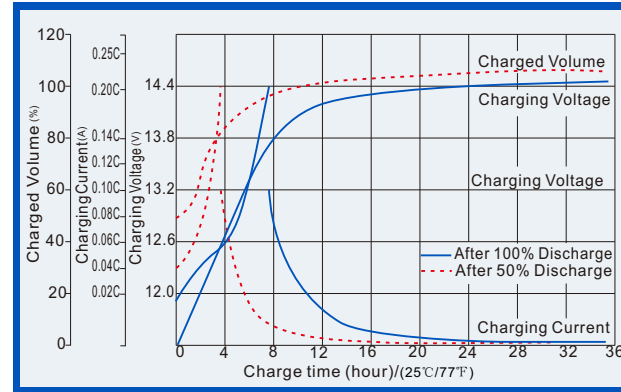
(Above characteristics data are average values obtained within three charge/discharge cycles, not the minimum values.)

# VRLA Battery (AGM technology) Maintenance-free Sealed Lead Acid Rechargeable Battery

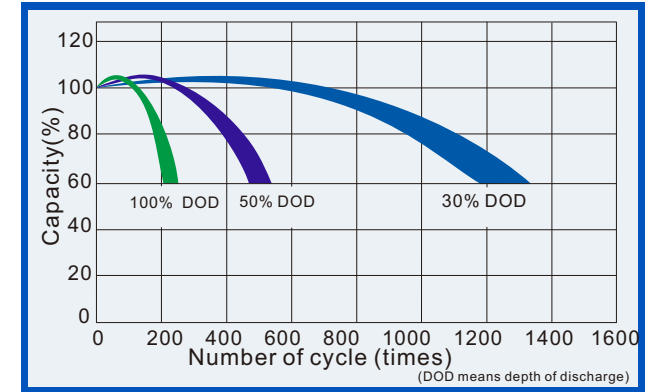
**Discharge characteristics (25°C, 77°F)**



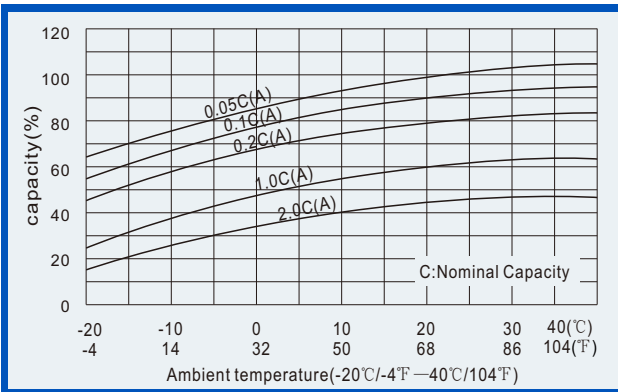
**Charge characteristics (25°C, 77°F)**



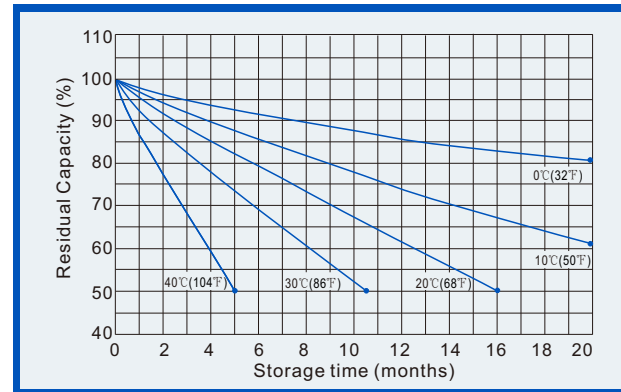
**Life characteristics of Cyclic Use (25°C, 77°F)**



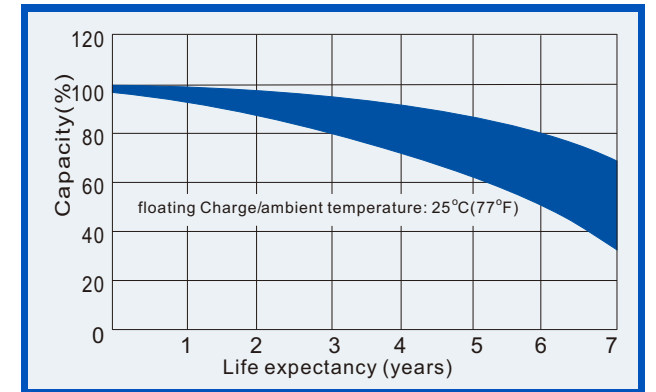
**Effect of Temperature on capacity**



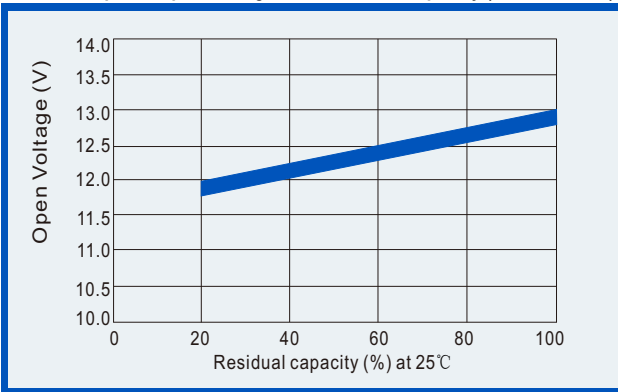
**Self-discharge characteristics**



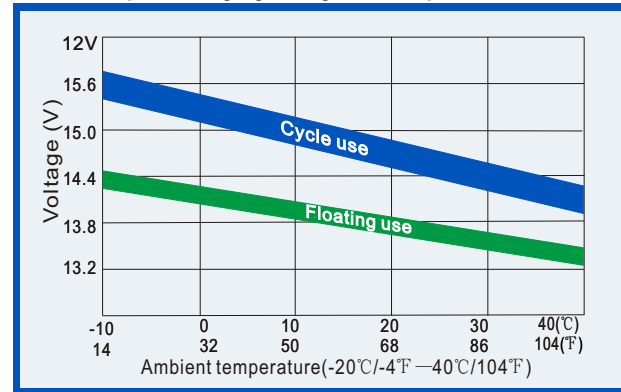
**Life Characteristics of standby use (25°C, 77°F)**



**Relationships for open voltage and remained capacity (for reference)**



**Relationship for charging voltage and temperature**



**Temperature effects on floating life**

