

## General features for MPE Series (Deep-cycle) battery

- \* Absorbent Glass Mat (AGM) technology for efficient gas recombination of up to 99% and freedom from electrolyte maintenance or water adding.
- \* Computer designed lead, calcium tin alloy grid for high power density.
- \* UL-recognized component.
- \* Long service life, float or cyclic applications.
- \* Maintenance-free operation.
- \* Low self discharge.
- \* Case and cover are available in both standard and flame retardant ABS (Standard : UL94V0).



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**MPE12-20 (12V20Ah)**

## Specifications

Nominal Voltage		12V
Rated capacity (20 hour rate)		20Ah
Dimensions (±2mm)	Total Height	167 mm (6.57 inches)
	Height	167 mm (6.57 inches)
	Length	181 mm (7.13 inches)
	Width	77 mm (3.03 inches)
Weight Approx(±3%)		5.80Kg (12.77 lbs)

## Battery picture and construction

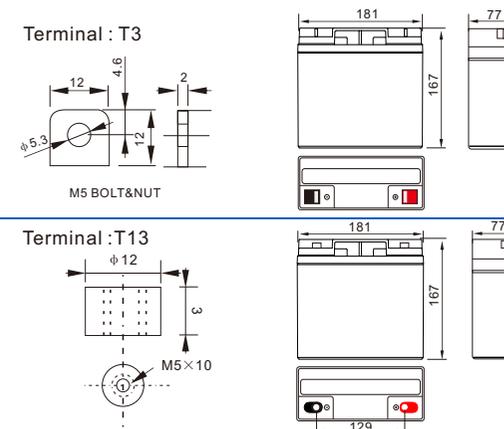


### Battery Construction

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(±2mm)



## Characteristics

Capacity 25°C(77°F)	20 hour rate(1.0 A, 10.5V) 10 hour rate(1.84A, 10.5V) 5 hour rate(3.43A, 10.5V) 1 hour rate(12.8 A, 9.6V)	20.0Ah 18.4Ah 17.1Ah 12.8Ah
Internal Resistance	Full charged battery at 25°C(77°F)	Approx 9mΩ
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	T3 (Option T13)	
Max. Discharge current 25°C/(77°F)	300A (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 6.0 A Voltage 14.50-15.00V 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

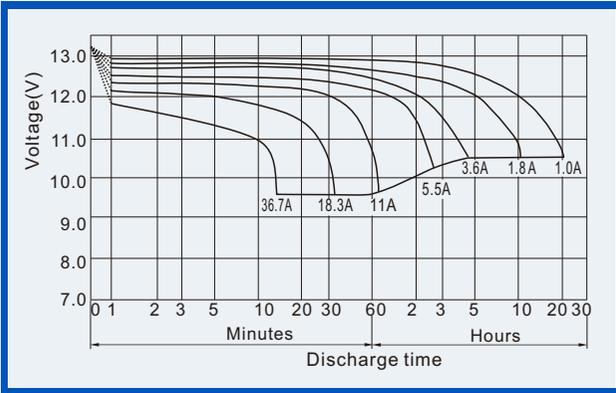
### Constant Current(Amp) and Constant Power(Watt) Discharge Table at 25°C(77°F)

Time	5min	10min	15min	30min	1h	2h	3h	4h	5h	8h	10h	20h	
9.60V	A	74.00	45.00	35.00	23.00	12.80	8.40	5.15	4.13	3.51	2.32	1.82	1.03
	W	784.4	479.3	374.5	248.40	139.52	91.56	56.65	45.47	38.59	25.71	20.19	11.57
10.20V	A	68.00	44.00	32.00	21.83	12.00	8.06	5.00	4.00	3.44	2.28	1.86	1.01
	W	751.4	488.4	356.8	245.63	135.00	91.08	56.50	45.40	39.06	25.82	21.09	11.44
10.50V	A	64.00	42.00	30.00	21.17	11.80	7.90	4.92	3.80	3.43	2.25	1.84	1.00
	W	720.0	472.5	336.0	241.30	134.52	90.46	56.30	43.70	39.39	25.88	21.16	11.50
10.80V	A	58.00	40.00	28.00	20.20	11.20	7.70	4.83	3.73	3.25	2.19	1.79	0.98
	W	658.3	456.0	320.6	233.31	129.36	88.93	56.07	43.49	37.86	25.53	20.87	11.36
11.10V	A	48.00	38.00	26.00	18.00	10.60	7.50	4.58	3.67	3.11	2.13	1.75	0.95
	W	552.0	438.9	301.6	210.60	124.02	87.75	53.85	43.27	36.68	25.17	20.65	11.21

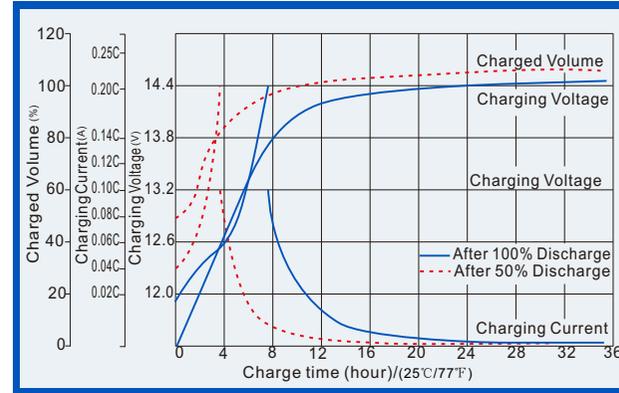
(Above characteristics data are average values obtained within three charge/discharge cycles, not the minimum values.)

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

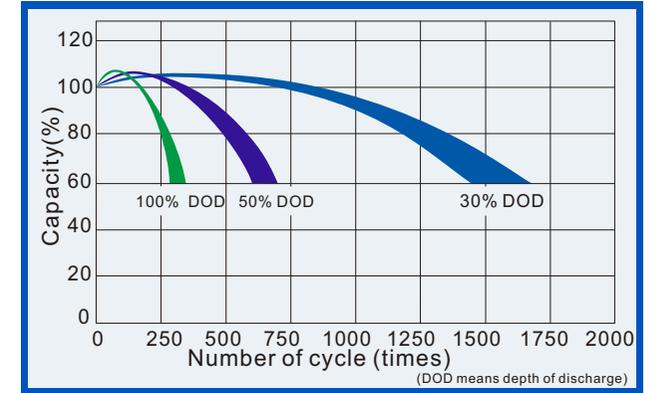
**Discharge characteristics (25°C, 77°F)**



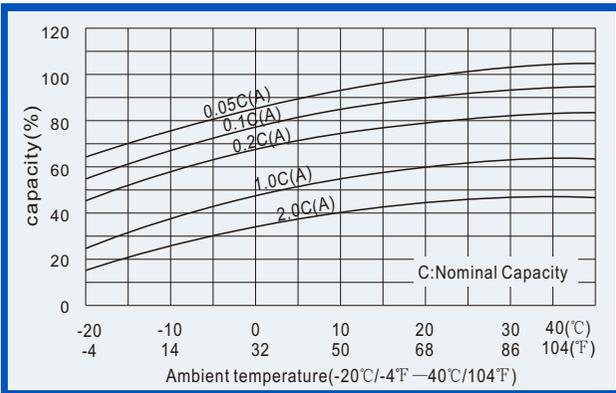
**Charge characteristics (25°C, 77°F)**



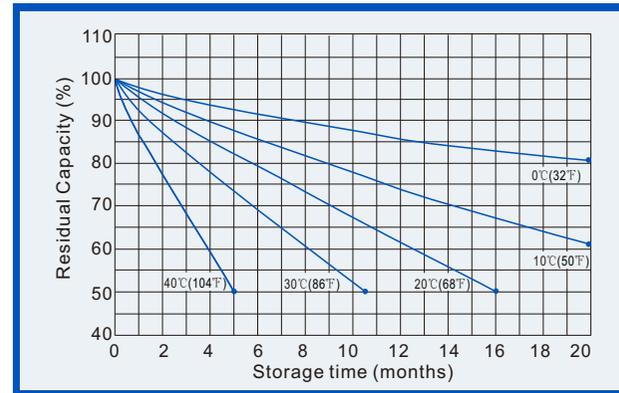
**Life characteristics of Cyclic Use (25°C, 77°F)**



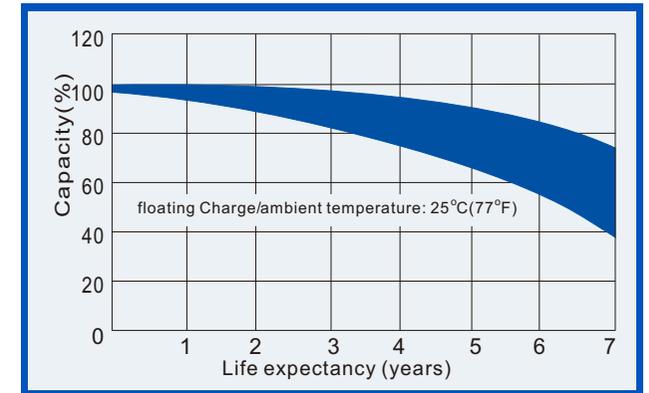
**Effect of Temperature on capacity**



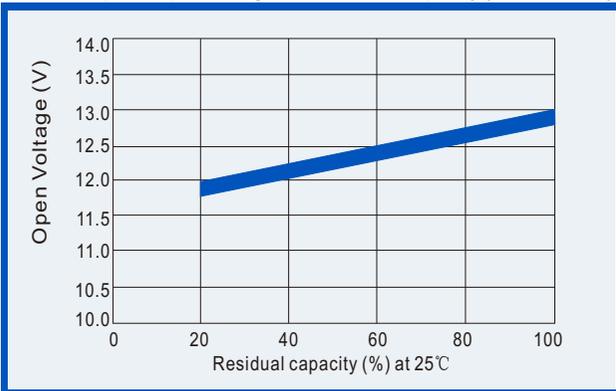
**Self-discharge characteristics**



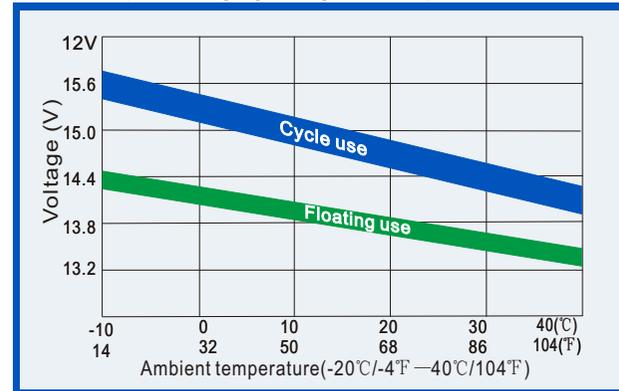
**Life Characteristics of standby use (25°C, 77°F)**



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



**Relationship for charging voltage and temperature**



**Temperature effects on floating life**

