

## General features for MPHR series battery

- ★ MPHR stands for "High Rate Discharge." The series is a modern hi-tech energy application product;
- ★ Lead-calcium alloy grids and the use of high purity lead account for superior shelf-life characteristics;
- ★ Precision plate pasting for higher consistency with 100% load testing to ensure uniform capacity;
- ★ When it is used in safe surroundings, the battery is maintenance free, and you never need to add electrolyte, it can be recycled repeatedly;
- ★ High energy, high intensity, high quality output electrical energy product series.



**Maxton Power Tech Co., Ltd**  
www.maxtonpower.com  
info@maxtonpower.com

**MPHR12-540W (12V140Ah)**

## Specifications

Nominal Voltage		12V
Number of cell		6 cells
Rated capacity (25°C)	Rated capacity/cell (15 minutes rate to 1.67V/cell)	540W
	Rated capacity (10 hour rate)	140Ah
Dimensions (±2mm)	Total Height	T50 241mm (9.49 inches)
		T12 241mm (9.49 inches)
	Height	241mm (9.49 inches)
	Length	484mm (19.1 inches)
	Width	171mm (6.73 inches)
Weight Approx (±3%)		42.0Kg (92.5 lbs)

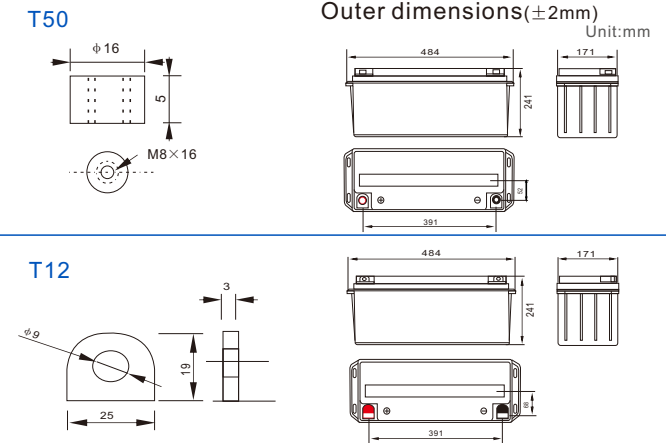
## Battery picture and construction



### 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



## Characteristics

Capacity 25°C(77°F)	30 minutes rate(174.1A, 1.70V/cell) 15 minutes rate(294.8A, 1.67V/cell) 5 minutes rate(504A, 1.67V/cell)	1953W 3240W 5473W
Internal Resistance	Full charged battery at 25°C(77°F)	Approx 3mΩ
Capacity affected by Temperature (20hour rate)	40°C (104°F)	102%
	25°C (77°F)	100%
	0°C (32°F)	85%
	-15°C (5°F)	65%
Remaining capacity Self-Discharge At 25°C(77°F)	Capacity after 3 month storage	91%
	Capacity after 6 month storage	82%
	Capacity after 12 month storage	64%
Terminal type	T19 (Option T12)	
Max. Discharge current 25°C/(77°F)	1120A (5Seconds)	
Nominal operating temperature	25°C ±5°C(77°F ±9°F)	
Operating Temperature Range	Discharge	-15°C ~50°C (5°F ~122°F)
	Charge	-10°C ~50°C (14°F ~122°F)
	Storage	-20°C ~50°C (-4°F ~122°F)
Charge methods (constant Voltage) At 25°C(77°F)	Cycle use	Initial Charging Current less than 35 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)

Unit:A

Time F.V/cell	5min	15min	30min	45min	60min	90min	5hours	10hours
1.60V	532.2	307.0	187.9	137.3	107.2	79.6	23.7	15.4
1.67V	504.0	294.8	180.2	130.3	102.5	75.4	23.4	15.1
1.70V	468.7	284.1	174.1	127.4	99.1	72.2	23.2	14.8
1.75V	433.4	265.7	161.9	117.0	90.4	67.8	22.9	14.4
1.80V	413.3	235.2	146.3	105.7	83.2	63.5	22.7	14.0
1.85V	362.9	215.3	136.5	99.1	78.0	60.3	22.2	13.6

Note:  
the end voltage means Voltage per cell.  
(Above characteristics data are average values obtained within three charge/discharge cycles, not the minimum values.)

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

Unit:watts

Time F.V/cell	5min	10min	15min	20min	30min	45min	60min	90min
1.60V	5718	4277	3314	2731	2037	1500	1176	874
1.67V	5473	4138	3240	2685	1990	1444	1148	844
1.70V	5229	3981	3166	2620	1953	1426	1120	816
1.75V	4990	3888	3083	2573	1916	1379	1074	777
1.80V	4745	3481	2731	2388	1703	1231	972	746
1.85V	4226	3110	2481	2203	1583	1157	914	709

Note:  
the end voltage means Voltage per cell.  
(Above characteristics data are average values obtained within three charge/discharge cycles, not the minimum values.)

## General features for MPHR12-535W (High rate discharge)

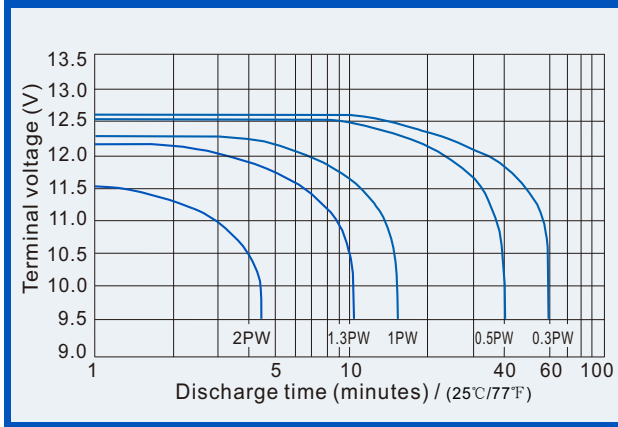
- \* Positive and negative plates in lead-calcium tin alloy
- \* Superior energy density
- \* Operates at a low internal pressure.
- \* Gas Recombination
- \* Very high power output
- \* Application specific designs
- \* Six months self-life at 25°C (77°F), then a freshening charge is required.
- \* Design life 10 years @ floating service at 25°C (77°F).



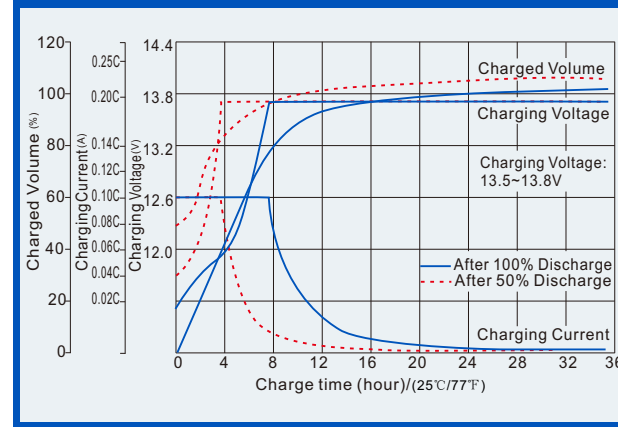
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## MPHR12-540W (12V140Ah)

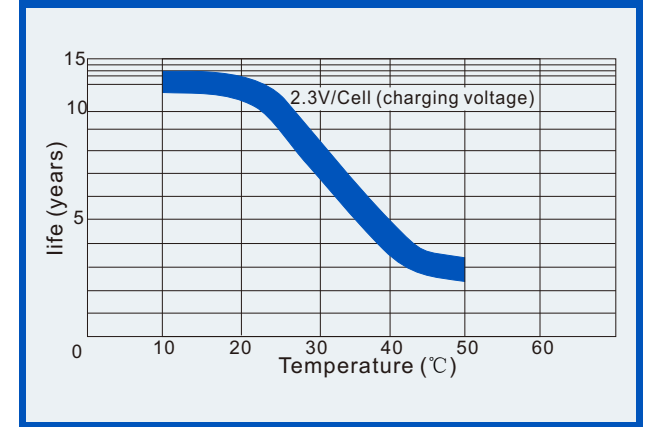
### Terminal voltage(V) and discharge time



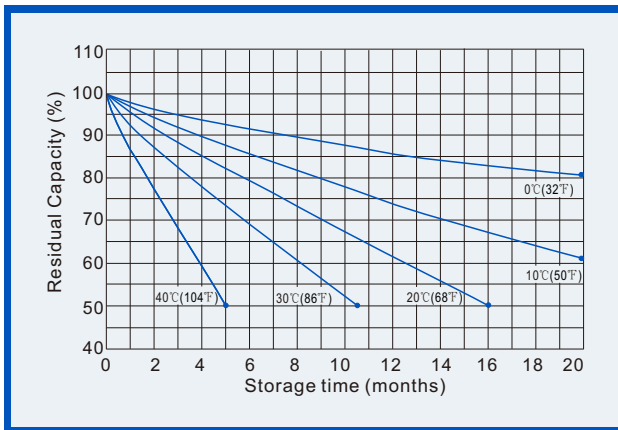
### Battery voltage and charge time for standby use



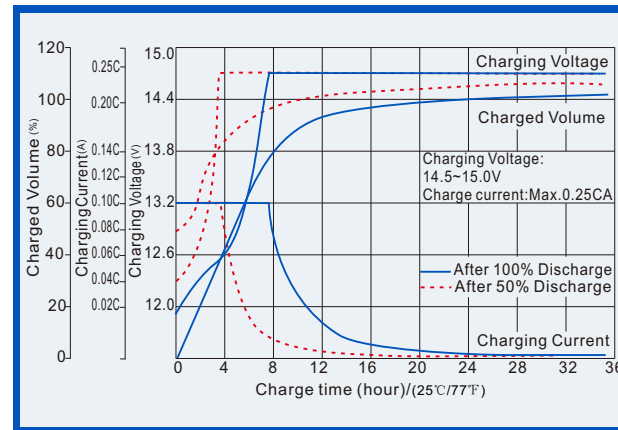
### Life Characteristics of float service



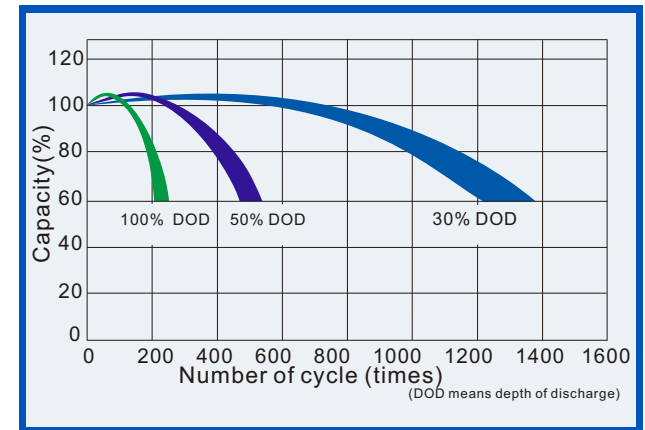
### Self-discharge characteristics



### Battery voltage and charge time for cycle use



### Life characteristics of Cyclic Use



### Charging procedures

Application	Charging voltage(V)			Max Charging current
	Temperature	Set Point	Allowable range	
Cycle Use	25°C(77°F)	14.70	14.50~15.00	35.0A
Standby Use		13.70	13.50~13.80	

### Discharging current & discharging voltage

Final Discharging Voltage (V)	10.50	10.20	9.60	7.80
Discharging Power (W)	0.1P > (W)	0.1P ≥ (W) < 0.25P	0.25P ≤ (W) < 1.0P	W ≥ 1.0P