

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

MPHR12-520W (12V140Ah)

Specifications

Nominal Voltage		12V
Number of cell		6 cells
Rated capacity (25°C)	Rated capacity/cell (15 minutes rate to 1.67V/cell)	520W
	Rated capacity (10 hour rate)	140Ah
Dimensions (±2mm)	Total Height	288mm (11.33 inches)
	Height	283mm (11.14 inches)
	Length	341mm (13.42 inches)
	Width	173mm (6.81 inches)
Weight Approx (±3%)		44.0Kg (96.8lbs)

Battery picture and construction



Battery Construction

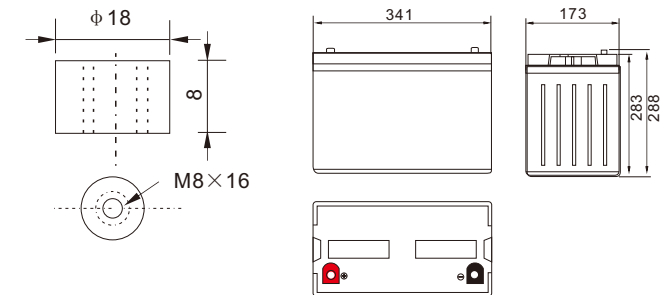
Component	Positive plate	Negative plate	Container	Cover
Raw material	Lead dioxide	Lead	ABS	ABS
Component	Electrolyte	Separator	Safety valve	Terminal
Raw material	Dilute sulfuric acid	Fiberglass	Rubber	Copper

Outer dimension and terminal

Terminal: T85

Outer dimensions (±2mm)

Unit:mm



Characteristics

Capacity 25°C (77°F)	30 minutes rate(169.3A, 1.70V/cell) 15 minutes rate(286.6A, 1.67V/cell) 5 minutes rate(517.4A, 1.60V/cell)	1881W 3120W 5506W
Internal Resistance	Full charged battery at 25°C (77°F)	Approx 3.3mΩ
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	T85	
Max. Discharge current 25°C/(77°F)	1100A (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 35A 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	517.4	298.5	182.6	133.5	104.2	77.4	23.0	15.0
1.67V	490.0	286.6	175.2	126.7	99.6	73.4	22.8	14.7
1.70V	455.7	276.2	169.3	123.8	96.4	70.2	22.6	14.4
1.75V	421.4	258.4	157.4	113.7	87.9	65.9	22.3	14.0
1.80V	401.8	228.7	142.2	102.8	80.9	61.8	22.1	13.6
1.85V	352.8	209.4	132.7	96.4	75.9	58.7	21.6	13.2

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	5506	4118	3191	2630	1961	1444	1132	842
1.67V	5271	3985	3120	2585	1917	1391	1105	813
1.70V	5035	3833	3049	2523	1881	1373	1079	785
1.75V	4805	3744	2968	2478	1845	1328	1034	748
1.80V	4569	3352	2630	2300	1640	1186	936	718
1.85V	4069	2995	2389	2122	1524	1114	880	683

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 MPHR12-520W (High rate discharge)

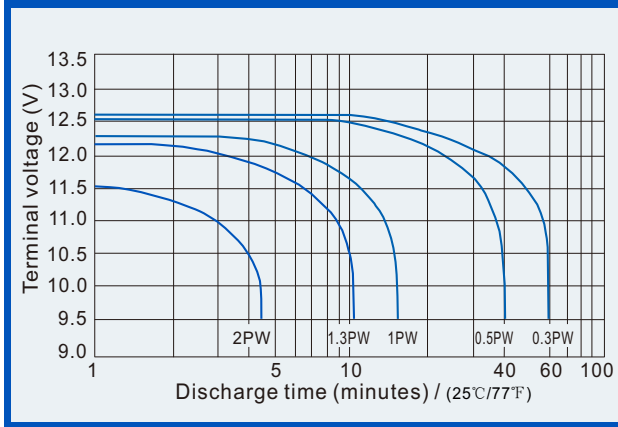
- * Positive and negative plates in lead-calcium tin alloy
- * Superior energy density
- * Operates at a low internal pressure.
- * Gas Recombination
- * Very high power output
- * Application specific designs
- * Six months self-life at 25°C (77°F), then a freshening charge is required.
- * Design life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



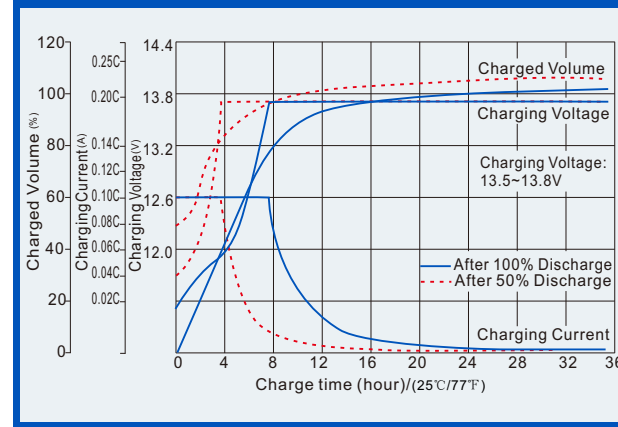
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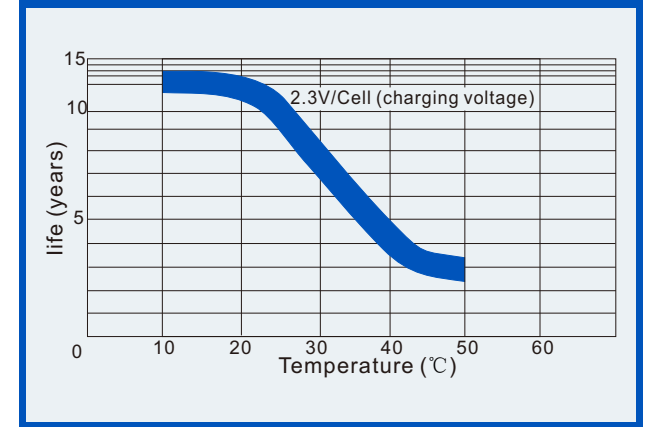
Terminal voltage(V) and discharge time



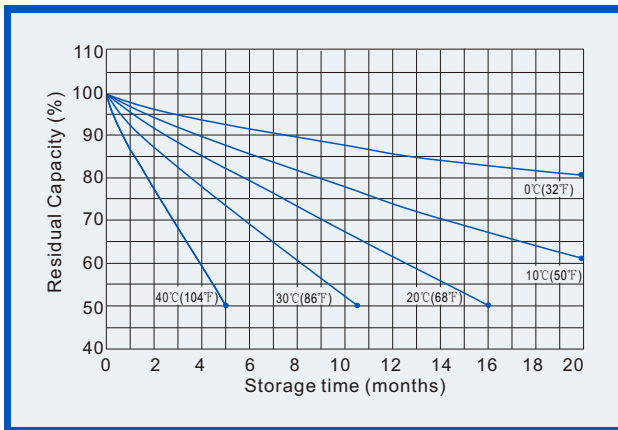
Battery voltage and charge time for standby use



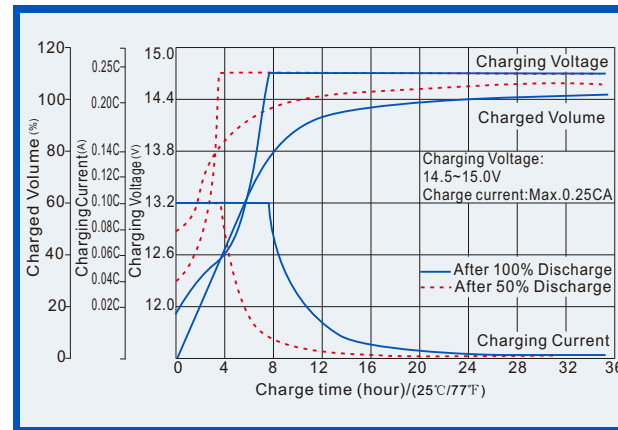
Life Characteristics of float service



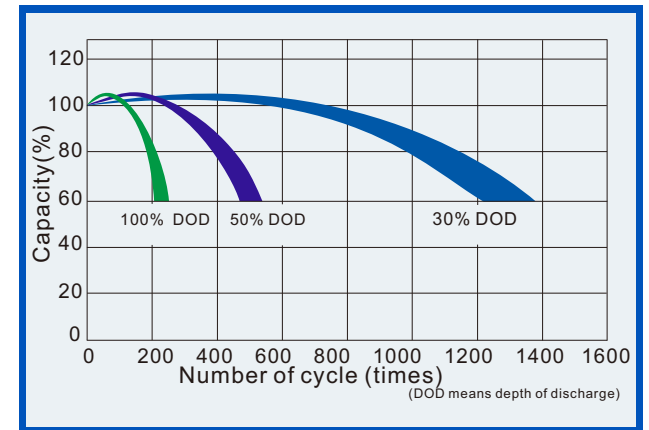
Self-discharge characteristics



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