

## General features for MPPS Series battery (OPzS)

- \* Tubular positive plate; separator with the combined application of porous rubber and porous PVC, separator is with a high porosity & good corrosion resistance.
- \* Computer designed lead, calcium tin alloy grid for high power density.
- \* Long service life, float or cyclic applications: designed floating life is 20 years at 25°C; Designed cycle life more than 1200 cycles at 80% DOD at 25°C/77°F.
- \* Acid-proof bolt: It is of a special shape of funnel having the function of filtering acid smog and retarding flame, it can measure the density and temperature of electrolyte.
- \* Ensuring sufficient electrolyte for battery discharge.
- \* Battery container is transparent, easy checks electrolyte.



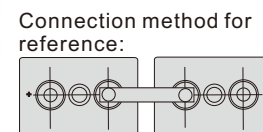
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**MPPS2-420 (2V420Ah)**

## Specifications

Nominal Voltage		2 V
Rated capacity (10 hour rate)		420 Ah
Dimensions (±3mm)	Total Height (Include terminal)	525mm (20.7 inches)
	Height	470mm (18.5 inches)
	Length	145mm (5.7 inches)
	Width	206mm (8.1 inches)
Approx Weight (±5%)	Without electrolyte	24.5Kg (54.0lbs)
	With Electrolyte	33.0Kg (72.7lbs)
	Electrolyte weight (d=1.25kg/l)	Approx 8.5Kg (18.7lbs)

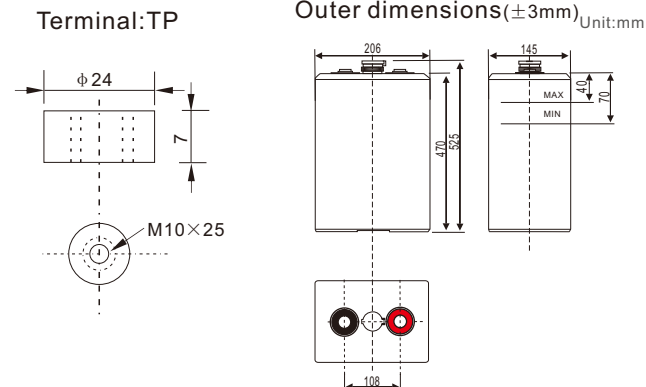
## Battery picture and construction



### Battery Construction

Component	Positive plate	Negative plate	Container	Cover
Raw material	Lead dioxide	Lead	SAN transparent	ABS
Component	Electrolyte	Separator	Safety valve	Terminal
Raw material	Dilute sulfuric acid	PVC	Porous rubber	Copper

## Outer dimension and terminal



## Characteristics

Capacity 25°C(77°F)	10 hour rate(42A, 1.8V) 3 hour rate(107.9A, 1.75V) 1 hour rate(234A, 1.60V)	420Ah 323Ah 234Ah
Internal Resistance	Full charged battery at 25°C(77°F)	Approx 0.8 mΩ
Capacity affected by Temperature (10hour rate)	40°C (104°F) 25°C (77°F) 0°C (32°F) -15°C (5°F)	103% 100% 85% 65%
Remaining capacity Self-Discharge At 25°C(77°F)	Capacity after 3 month storage Capacity after 6 month storage	≥ 88% ≥ 76%
Terminal type	TP (copper)	
Max. Discharge current 25°C/(77°F)	2000A (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) 0°C ~45°C (32°F ~113°F) -15°C ~45°C (5°F ~113°F)
Charge methods (constant Voltage) At 25°C(77°F)	Boost charge Floating charge	Initial Charging Current less than 105 A Voltage 2.35-2.45V Temperature compensation:-3mV/°C Voltage 2.25-2.30V Temperature compensation:-3mV/°C

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

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

Unit:A

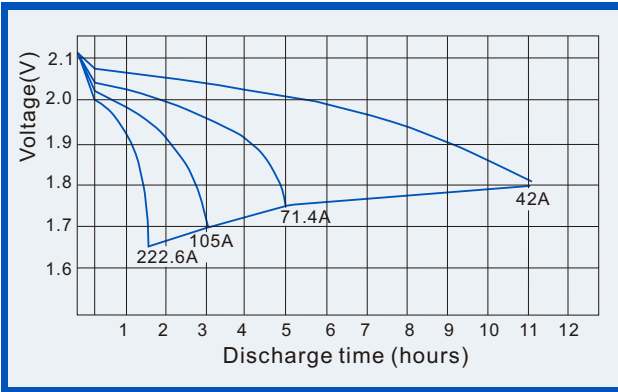
Unit:watts

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

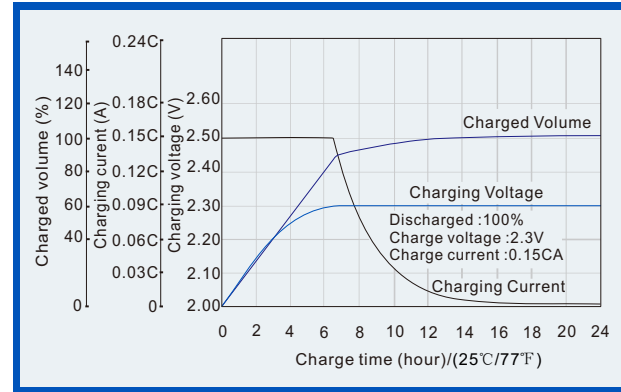
Time		30min	1h	2h	3h	5h	6h	8h	10h	20h	24h	48h	100h
1.65V	A	299.6	232.3	152.6	114.7	78.3	63.3	53.8	44.4	24.0	20.1	10.8	5.3
	W	629	475	343	229	154	143	122	88	45.7	41.1	27.2	14.1
1.70V	A	287.5	222.7	149.1	111.5	76.6	62.1	52.7	43.7	23.7	20.0	10.7	5.3
	W	583	462	340	228	151	139	120	87	45.2	40.7	27.1	14.0
1.75V	A	266.1	211.4	140.7	107.9	74.6	60.7	51.9	43.0	23.3	20.0	10.6	5.2
	W	522	447	337	225	149	136	118	86	44.8	40.3	27.1	14.0
1.80V	A	236.6	194.6	133.0	102.5	71.4	59.3	49.5	42.0	22.7	19.9	10.5	5.2
	W	429	405	330	217	147	134	113	84	44.4	39.9	27.0	13.9
1.85V	A	189.0	166.6	121.8	93.8	67.1	56.5	46.6	39.7	21.4	19.0	10.4	5.2
	W	315	356	301	201	142	132	109	82	43.7	38.1	26.9	13.8

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

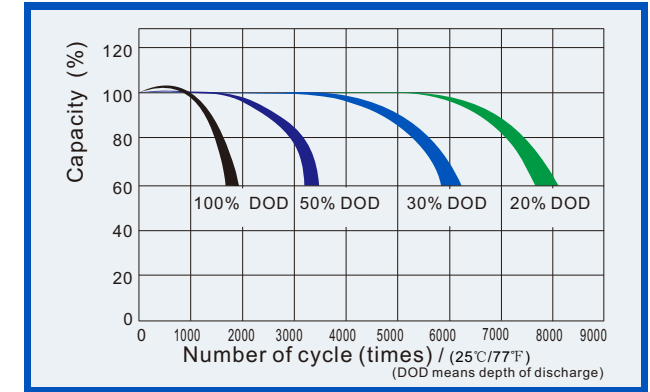
**Discharge characteristics (25°C, 77°F)**



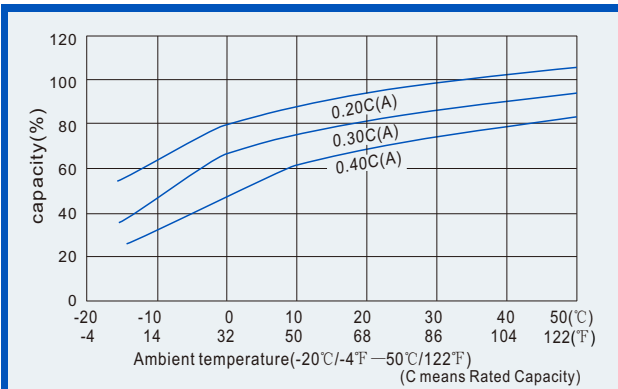
**Charge characteristics (25°C, 77°F)**



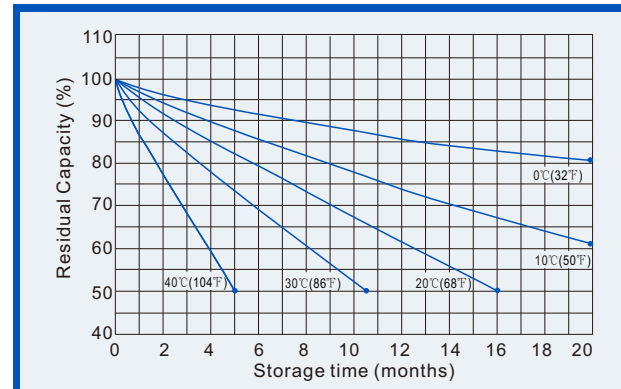
**Life characteristics of Cyclic Use (25°C, 77°F)**



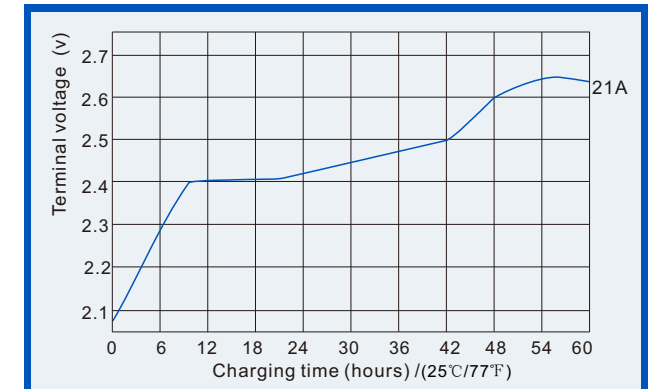
**Effect of Temperature on capacity**



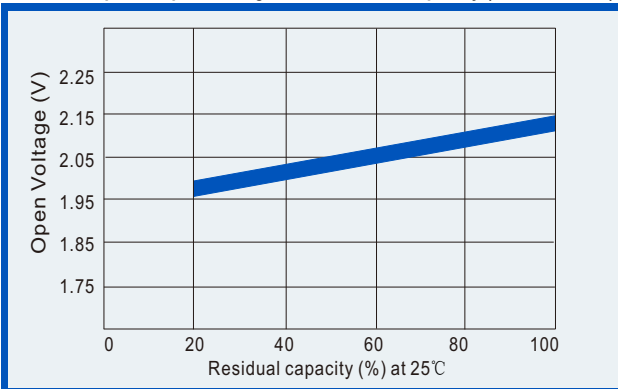
**Self-discharge characteristics (with full charging)**



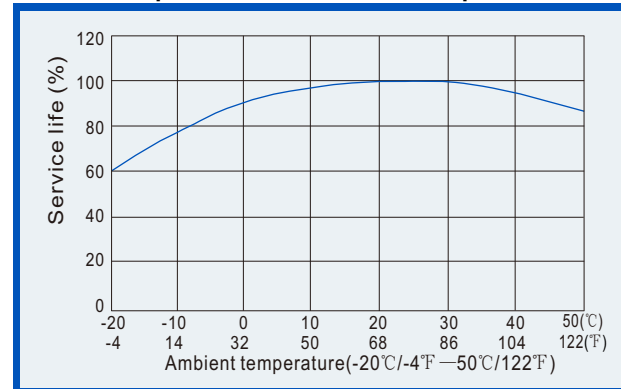
**Initial charging characteristics**



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



**Relationship for service life and temperature**



**Effect of discharge rate on capacity**

