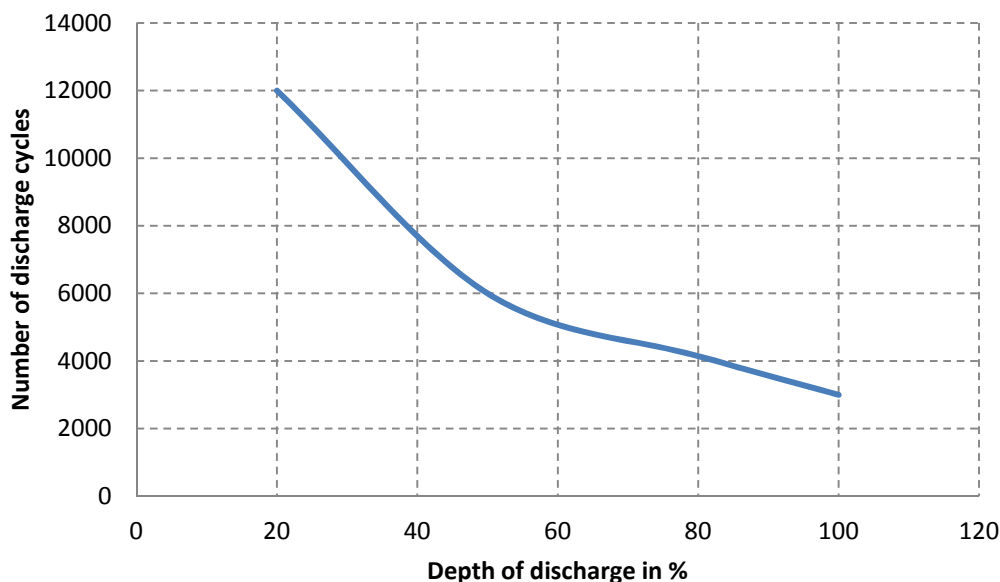




BATTERY CYCLIC PERFORMANCE CALCULATION AND ESTIMATION

1. Cyclic Performance

1.1 Cyclic Test Result



Graph 1, Cycle life vs. DOD

Table 1, data of cycle number

	Depth of Discharge/DOD			
	20%	50%	80%	100%
Cycle life	12000	6000	4150	3000

1.2 Discharge & Charge Scenario (20%DOD)

1) Cycle method: Discharge with 1C A for 0.2 hour (20% DOD), charge with 1C A and constant voltage of 3.6V, until the charging current is reduced to 0.02C A. This is one cycle.

2) Residue Capacity determination: The battery is discharged at 1 hour rate after certain cycles to test battery capacity. When residue capacity of 1 hour rate capacity is lower than 80%, test is ended.

3) Temperature: 25°C

1.3 Affect of DOD

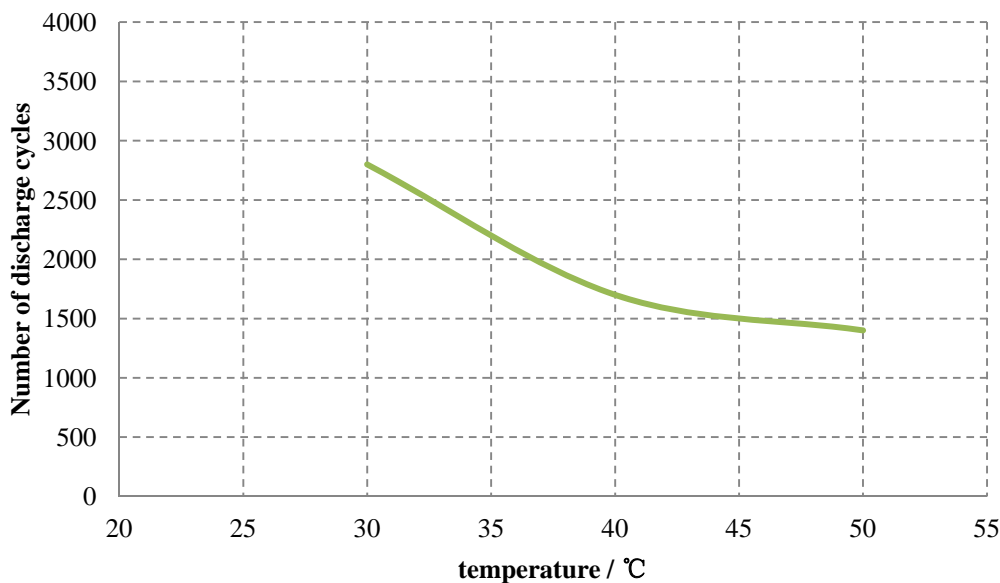
Different depth of discharge will have different battery circling life performance, more discharge depth, worse circling life performance.

According to the test data, the circling life of 20% DOD will be better than 12000(estimated).



2. Cyclic Performance vs. Ambient Temperature

2.1 Cyclic Test Result



Graph 2, Cycle life vs. Ambient Temperature at 100%DOD

Table 2, data of cycle number

Depth of Discharge/DOD	Cycle life		
	30°C	40°C	50°C
100%	2800	1700	1400

2.2 Discharge & Charge Scenario (100%DOD)

- 1) Cycle method:** Discharge with 1C A to 2.5V (100% DOD), charge with 1C A and constant voltage of 3.6V, until the charging current is reduced to 0.02C A. This is one cycle.
- 2) Residue Capacity determination:** When residue capacity of 1 hour rate capacity is lower than 80%, test is ended.
- 3) Temperature:** 30°C, 40°C, 50°C

2.3 Affect of Ambient Temperature

High temperature accelerates battery secondary reaction to shorten battery cycle life.