

# LP SERIES-General Purpose

## LP4-4.5 (4V4.5AH)

### Specification

Nominal Voltage	4V	
Nominal Capacity(20HR)	4.5AH	
Dimensions	Length	52.5±1mm (2.07 inches)
	Width	48±1mm (1.89 inches)
	Container Height	94±1mm (3.70 inches)
	Total Height (with Terminal)	100±1mm (3.94 inches)
Approx Weight	Approx 0.60 kg (1.32lbs)	
Terminal	T1	
Container Material	ABS	
Rated Capacity	4.50 AH/0.225A	(20hr, 1.80V/cell, 25°C/77°F)
	4.19 AH/0.419A	(10hr, 1.80V/cell, 25°C/77°F)
	3.78 AH/0.756A	(5hr, 1.75V/cell, 25°C/77°F)
	3.30 AH/1.10A	(3hr, 1.75V/cell, 25°C/77°F)
	2.73 AH/2.73A	(1hr, 1.60V/cell, 25°C/77°F)
Max. Discharge Current	67.5A (5s)	
Internal Resistance	Approx 15mΩ	
Operating Temp. Range	Discharge	-15~50°C (5~122°F)
	Charge	0~40°C (32~104°F)
	Storage	-15~40°C (5~104°F)
Nominal Operating Temp. Range	25±3°C (77±5°F)	
Cycle Use	Initial Charging Current less than 1.35A. Voltage	
	4.8V~5.0V at 25°C(77°F)Temp. Coefficient -10mV/°C	
Standby Use	No limit on Initial Charging Current Voltage	
	4.5V~4.6V at 25°C(77°F)Temp. Coefficient -6mV/°C	
Capacity affected by Temperature	40°C (104°F)	103%
	25°C (77°F)	100%
	0°C (32°F)	86%
Self Discharge	Leoch LP series batteries may be stored for up to 6 months at 25°C(77°F) and then a freshening charge is required. For higher temperatures the time interval will be shorter.	



### Applications

- ◆ All purpose
- ◆ Uninterruptable Power Supply (UPS)
- ◆ Electric Power System (EPS)
- ◆ Emergency backup power supply
- ◆ Emergency light
- ◆ Railway signal
- ◆ Aircraft signal
- ◆ Alarm and security system
- ◆ Electronic apparatus and equipment
- ◆ Communication power supply
- ◆ DC power supply
- ◆ Auto control system



### Constant Current Discharge (Amperes) at 25 °C (77°F)

F.V/Time	5min	10min	15min	20min	30min	45min	1h	2h	3h	4h	5h	6h	8h	10h	20h
1.85V/cell	8.64	6.02	4.97	4.31	3.46	2.66	2.17	1.33	1.01	0.831	0.706	0.611	0.486	0.404	0.223
1.80V/cell	10.6	7.19	5.76	4.87	3.83	2.90	2.34	1.41	1.06	0.874	0.736	0.638	0.504	0.419	0.225
1.75V/cell	12.6	8.13	6.35	5.31	4.09	3.08	2.46	1.47	1.10	0.901	0.756	0.654	0.518	0.427	0.227
1.70V/cell	14.3	8.96	6.88	5.70	4.29	3.20	2.57	1.53	1.14	0.924	0.775	0.670	0.525	0.434	0.231
1.65V/cell	15.7	9.64	7.27	5.98	4.47	3.32	2.67	1.58	1.17	0.943	0.792	0.683	0.534	0.440	0.234
1.60V/cell	16.5	10.0	7.58	6.17	4.60	3.40	2.73	1.63	1.19	0.966	0.808	0.696	0.545	0.447	0.236

### Constant Power Discharge (Watts/cell) at 25 °C (77°F)

F.V/Time	5min	10min	15min	20min	30min	45min	1h	2h	3h	4h	5h	6h	8h	10h	20h
1.85V/cell	16.3	11.5	9.55	8.35	6.74	5.21	4.28	2.63	2.01	1.66	1.41	1.23	0.977	0.815	0.450
1.80V/cell	19.8	13.6	11.0	9.37	7.41	5.65	4.58	2.78	2.10	1.73	1.46	1.27	1.007	0.838	0.452
1.75V/cell	23.2	15.2	12.0	10.1	7.86	5.96	4.80	2.88	2.16	1.78	1.49	1.30	1.03	0.849	0.453
1.70V/cell	26.0	16.6	12.9	10.8	8.20	6.16	4.97	2.98	2.22	1.81	1.52	1.32	1.04	0.858	0.459
1.65V/cell	28.3	17.6	13.4	11.2	8.48	6.36	5.15	3.05	2.27	1.84	1.55	1.34	1.05	0.866	0.463
1.60V/cell	29.2	18.1	13.9	11.4	8.62	6.44	5.22	3.13	2.31	1.87	1.57	1.36	1.07	0.876	0.464

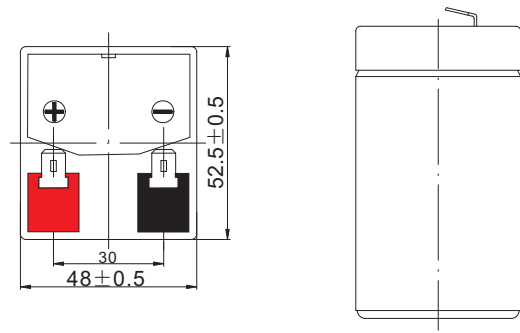
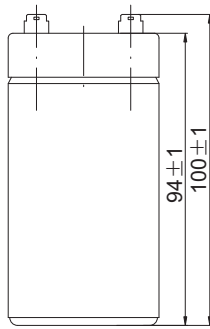
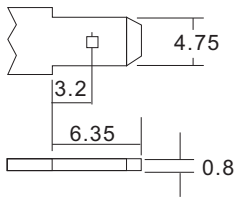
Specifications subject to change without notice.



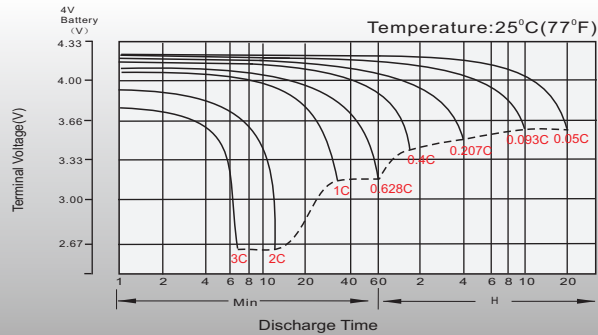
## Dimensions

### T1 Terminal

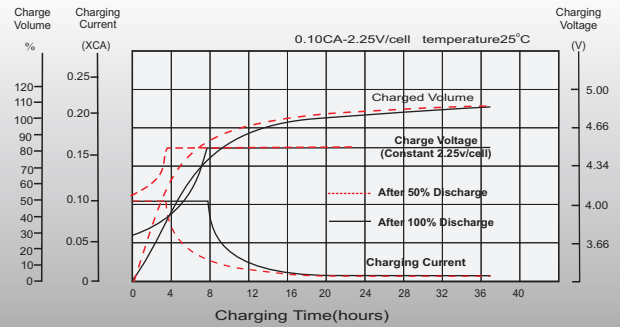
Unit: mm



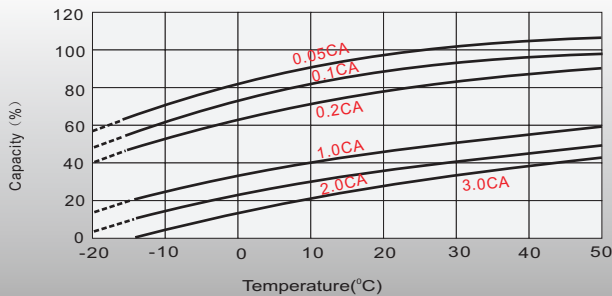
## Discharge Characteristics



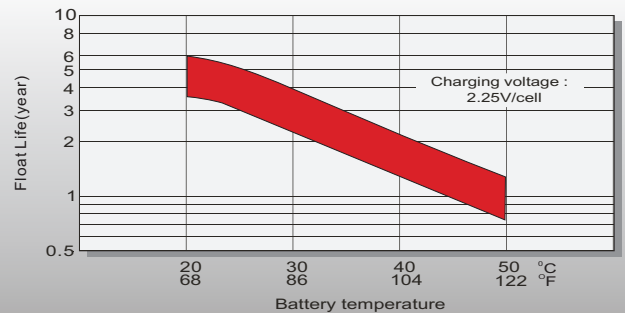
## Float Charging Characteristics



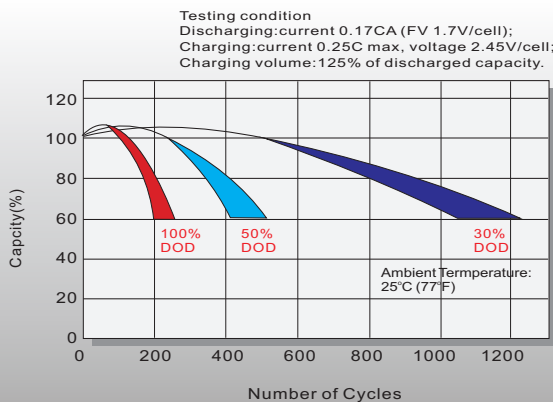
## Temperature Effects in Relation to Battery Capacity



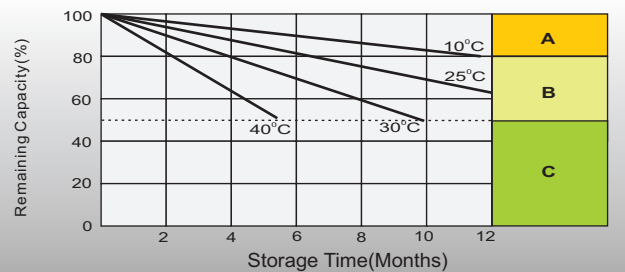
## Effect of Temperature on Long Term Float Life



## Cycle Life in Relation to Depth of Discharge



## Self Discharge Characteristics



**A** No supplementary charge required (Carry out supplementary charge before use if 100% capacity is required.)

Supplementary charge required before use. Optional charging way as below:  
**B** 1. Charged for above 3 days at limited current 0.25CA and constant voltage 2.25V/cell.  
 2. Charged for above 20 hours at limited current 0.25CA and constant voltage 2.45V/cell.  
 3. Charged for 8-10 hours at limited current 0.05CA.

**C** Supplementary charge may often fail to recover the capacity. The battery should never be left standing till this is reached.

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