



# LP SERIES-General Purpose

(- %\* \$&\* \$(12V33AH)

## Specification

Nominal Voltage	12V	
Nominal Capacity(20HR)	33.0AH	
Dimension	Length	195 ± 2mm (7.68 inches)
	Width	130 ± 2mm (5.12 inches)
	Container Height	164 ± 2mm (6.46 inches)
	Total Height (with Terminal)	180 ± 2mm (7.09 inches)
Approx Weight	Approx 10.5 kg (23.15lbs)	
Terminal	T5 / T2 / T6 / T12	
Container Material	ABS	
Rated Capacity	33.0 AH/1.65A	(20hr, 1.80V/cell, 25°C/77°F)
	30.7 AH/3.07A	(10hr, 1.80V/cell, 25°C/77°F)
	28.1 AH/5.61A	(5hr, 1.75V/cell, 25°C/77°F)
	25.9 AH/8.65A	(3hr, 1.75V/cell, 25°C/77°F)
	20.7 AH/20.7A	(1hr, 1.60V/cell, 25°C/77°F)
Max. Discharge Current	495A (5s)	
Internal Resistance	Approx 12mΩ	
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 9.9A. Voltage 14.4V~15.0V at 25°C(77°F)Temp. Coefficient -30mV/°C	
	Standby Use No limit on Initial Charging Current Voltage 13.5V~13.8V at 25°C(77°F)Temp. Coefficient -20mV/°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	62.8	48.3	40.0	34.6	26.7	19.69	16.6	9.81	7.68	6.24	5.09	4.42	3.56	2.98	1.63
1.80V/cell	84.4	61.7	48.3	40.9	31.5	22.9	18.6	10.7	8.26	6.67	5.46	4.74	3.78	3.07	1.65
1.75V/cell	95.1	67.8	52.8	44.0	32.7	23.8	19.4	11.1	8.42	6.81	5.61	4.87	3.84	3.15	1.67
1.70V/cell	104.7	73.9	56.3	46.2	34.1	24.7	20.1	11.4	8.65	7.00	5.75	4.97	3.90	3.21	1.70
1.65V/cell	115.5	79.7	59.9	49.1	35.9	25.3	20.5	11.6	9.02	7.24	5.91	5.08	3.96	3.28	1.72
1.60V/cell	127.4	86.5	64.1	52.3	38.0	26.4	20.7	12.0	9.29	7.46	6.11	5.19	4.00	3.32	1.73

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

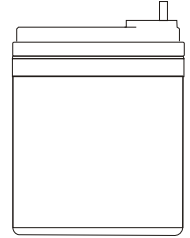
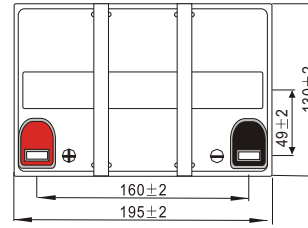
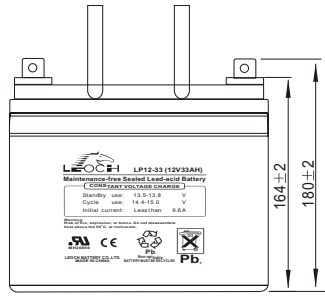
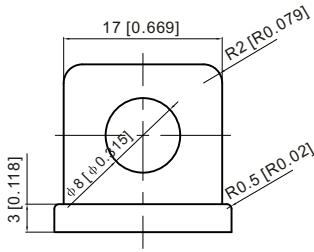
F.V/Time	5min	10min	15min	20min	30min	45min	1h	2h	3h	4h	5h	6h	8h	10h	20h
1.85V/cell	114.9	89.1	74.6	65.2	50.9	37.8	32.0	19.1	15.0	12.2	10.0	8.69	7.03	5.89	3.24
1.80V/cell	152.6	112.6	88.9	75.9	59.2	43.7	35.7	20.7	16.0	13.0	10.7	9.28	7.44	6.06	3.26
1.75V/cell	168.4	121.7	95.9	80.9	60.9	44.9	37.1	21.3	16.2	13.2	10.9	9.50	7.55	6.22	3.29
1.70V/cell	180.3	129.6	101.0	84.3	63.1	46.5	38.2	21.8	16.7	13.5	11.2	9.69	7.65	6.34	3.35
1.65V/cell	196.0	138.6	106.6	88.9	66.0	47.2	38.8	22.0	17.3	13.9	11.4	9.87	7.75	6.46	3.39
1.60V/cell	211.2	147.1	112.1	93.7	69.2	49.0	39.0	22.9	17.7	14.3	11.8	10.0	7.81	6.52	3.40



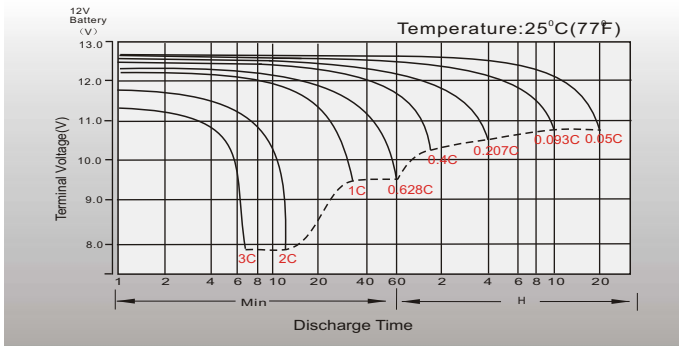
# Dimensions

## T5 Terminal

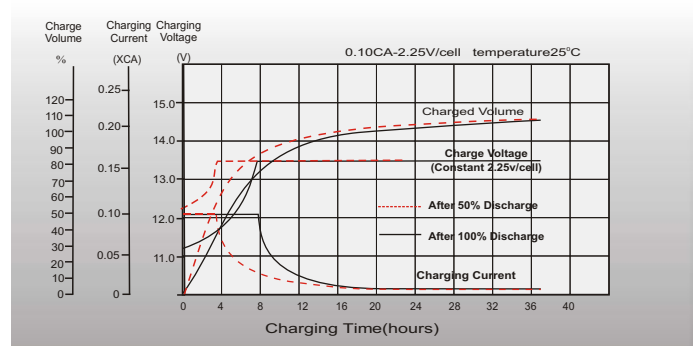
Unit: mm [inches]



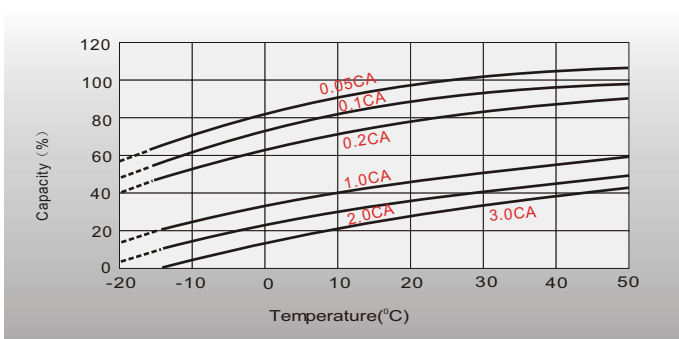
## Discharge Characteristics



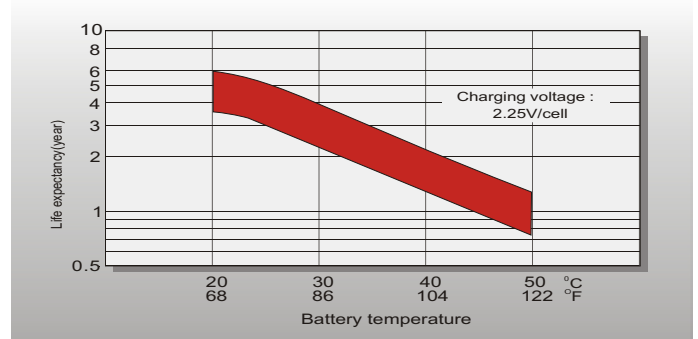
## Float Charging Characteristics



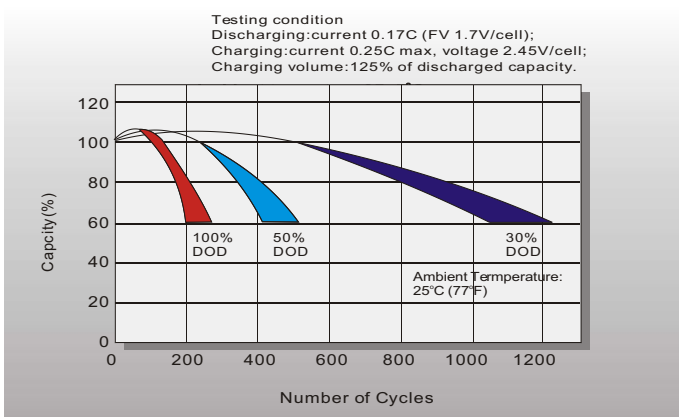
## Temperature Effects in Relation to Battery Capacity



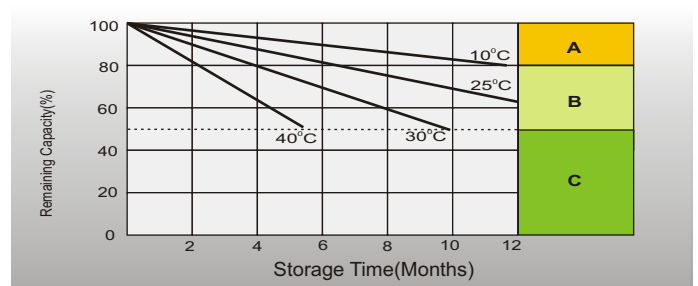
## Effect of Temperature on Long Term Float Life



## 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.)
- B** Supplementary charge required before use. Optional charging way as below:  
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.