

# LL SERIES-Long Life

## LL12018 (12V18AH)

### Specification

Nominal Voltage	12V	
Nominal Capacity(20HR)	18.0AH	
Dimension	Length	181.5±2mm (7.14 inches)
	Width	76.5±1mm (3.01 inches)
	Container Height	167.5±2mm (6.59 inches)
	Total Height (with Terminal)	167.5±2mm (6.59 inches)
Approx Weight	Approx 5.7 Kg (12.57 lbs)	
Terminal	T12-I	
Container Material	ABS	
Rated Capacity	17.80AH/0.890A	(20hr, 1.80V/cell, 25°C/77°F)
	16.90AH/1.69A	(10hr, 1.80V/cell, 25°C/77°F)
	15.80AH/3.16A	(5hr, 1.75V/cell, 25°C/77°F)
	14.52AH/4.84A	(3hr, 1.75V/cell, 25°C/77°F)
	12.1AH/12.1A	(1hr, 1.60V/cell, 25°C/77°F)
Max. Discharge Current	270A (5s)	
Internal Resistance	Approx 16.0mΩ	
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 5.4A. 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	LL 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

- ◆ UPS and EPS
- ◆ Emergency light
- ◆ Railway signal and aircraft signal system
- ◆ Marine and powerstations
- ◆ Alarm and security system
- ◆ Electronic apparatus and equipment
- ◆ Communication power supply, DC power supply

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

F.V/Time	10min	15min	20min	30min	45min	1h	2h	3h	4h	5h	6h	8h	10h	20h
1.85V/cell	36.0	29.0	24.3	18.3	13.6	11.1	6.43	4.70	3.70	3.08	2.64	2.07	1.67	0.88
1.80V/cell	37.8	30.1	25.1	18.7	13.8	11.3	6.53	4.77	3.76	3.12	2.67	2.10	1.69	0.89
1.75V/cell	39.6	31.2	25.8	19.2	14.1	11.5	6.63	4.84	3.81	3.16	2.70	2.12	1.71	0.90
1.70V/cell	41.5	32.3	26.6	19.6	14.4	11.7	6.73	4.91	3.86	3.21	2.74	2.15	1.73	0.91
1.65V/cell	42.6	33.0	27.0	19.9	14.5	11.8	6.80	4.95	3.89	3.23	2.76	2.17	1.74	0.92
1.60V/cell	45.2	34.5	28.1	20.5	14.9	12.1	6.93	5.05	3.97	3.29	2.81	2.20	1.77	0.93

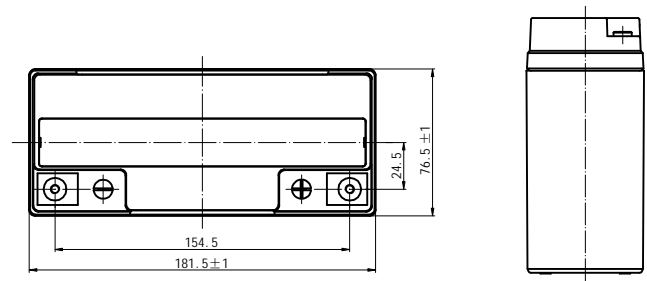
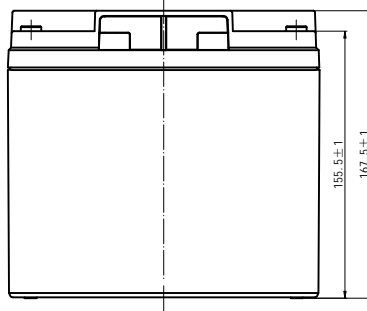
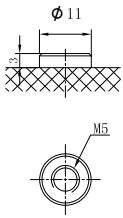
### Constant Power Discharge (Watts/cell) at 25 °C (77°F)

F.V/Time	10min	15min	20min	30min	45min	1h	2h	3h	4h	5h	6h	8h	10h	20h
1.85V/cell	68.8	55.6	46.8	35.3	26.3	21.6	12.6	9.2	7.30	6.09	5.22	4.11	3.31	1.76
1.80V/cell	71.9	57.5	48.0	36.0	26.7	21.9	12.7	9.4	7.39	6.16	5.28	4.16	3.35	1.78
1.75V/cell	75.0	59.3	49.2	36.7	27.2	22.2	12.9	9.5	7.48	6.23	5.34	4.20	3.39	1.80
1.70V/cell	78.1	61.1	50.4	37.4	27.6	22.5	13.1	9.6	7.57	6.30	5.40	4.25	3.43	1.82
1.65V/cell	79.9	62.2	51.2	37.8	27.8	22.7	13.2	9.7	7.62	6.34	5.44	4.28	3.45	1.83
1.60V/cell	84.1	64.5	52.8	38.8	28.4	23.1	13.4	9.8	7.74	6.44	5.52	4.34	3.50	1.86

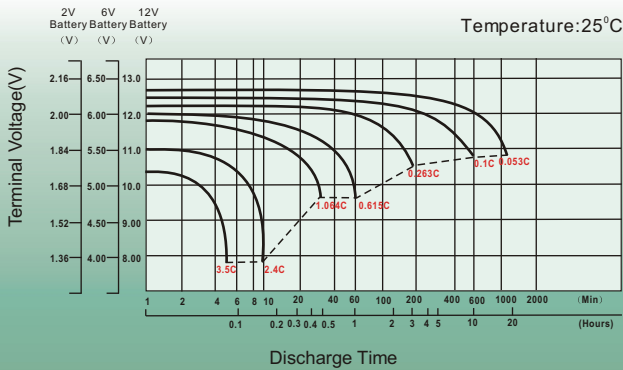
## Dimensions

### T12-I Terminal

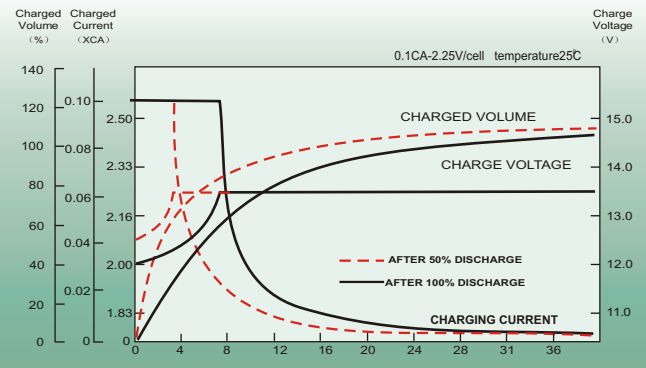
Unit: mm



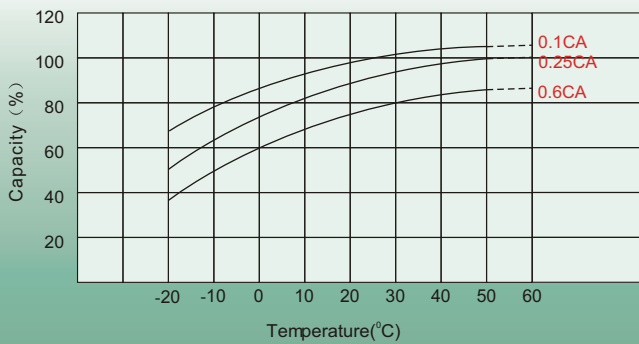
## Discharge Characteristics



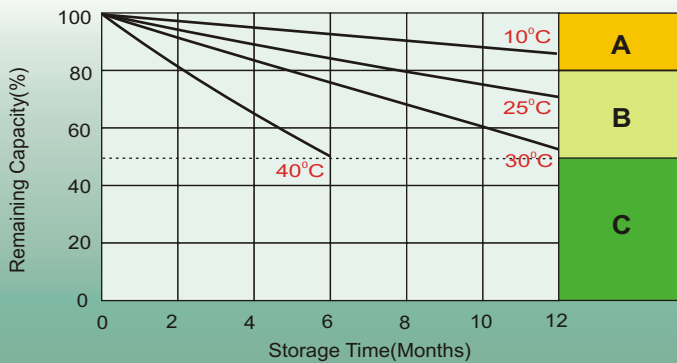
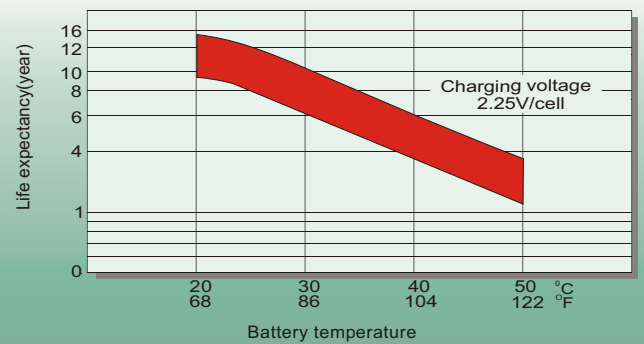
## Float Charging Characteristics



## Temperature Effects in Relation to Battery Capacity



## Effect of Temperature on Long Term Float Life



## 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 volatge 2.25V/cell.
  2. Charged for above 20hours at limited current 0.25CA and constant volatge 2.45V/cell.
  3. Charged for 8-10hours 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.