

# LP SERIES-General Purpose

## 491460221 (12V 3.2AH)

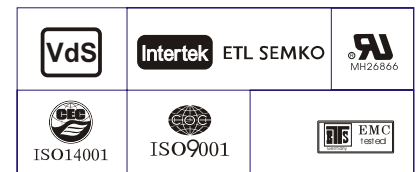
### Specification

Nominal Voltage	12V	
Nominal Capacity(20HR)	3.2AH	
Dimension	Length	134 ± 1mm (5.28 inches)
	Width	67 ± 1mm (2.64 inches)
	Container Height	60.5 ± 1mm (2.38 inches)
	Total Height (with Terminal)	66.5 ± 1mm (2.62 inches)
Approx Weight	Approx 1.35 kg (2.98lbs)	
Terminal	T1	
Container Material	ABS	
Rated Capacity	3.20 AH/0.16A	(20hr, 1.80V/cell, 25°C/77°F)
	2.98 AH/0.298A	(10hr, 1.80V/cell, 25°C/77°F)
	2.70 AH/0.54	(5hr, 1.75V/cell, 25°C/77°F)
	2.46 AH/0.82A	(3hr, 1.75V/cell, 25°C/77°F)
	2.01 AH/2.01A	(1hr, 1.60V/cell, 25°C/77°F)
Max. Discharge Current	48.0A (5s)	
Internal Resistance	Approx 45mΩ	
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 0.96A. 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	MKC 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	6.09	4.68	3.88	3.35	2.59	1.91	1.61	0.95	0.74	0.61	0.494	0.428	0.345	0.289	0.158
1.80V/cell	8.18	5.98	4.68	3.96	3.06	2.22	1.80	1.04	0.80	0.65	0.530	0.460	0.366	0.298	0.160
1.75V/cell	9.22	6.57	5.12	4.26	3.17	2.30	1.89	1.08	0.82	0.66	0.544	0.472	0.373	0.306	0.162
1.70V/cell	10.16	7.16	5.46	4.48	3.30	2.40	1.95	1.10	0.84	0.68	0.558	0.482	0.378	0.312	0.164
1.65V/cell	11.20	7.73	5.81	4.76	3.49	2.46	1.99	1.12	0.87	0.70	0.573	0.492	0.384	0.318	0.167
1.60V/cell	12.35	8.39	6.21	5.07	3.68	2.56	2.01	1.17	0.90	0.72	0.592	0.503	0.388	0.322	0.168

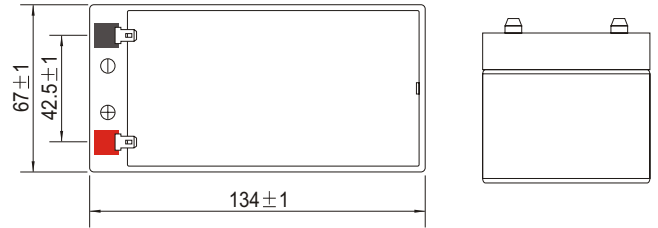
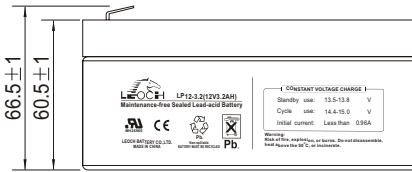
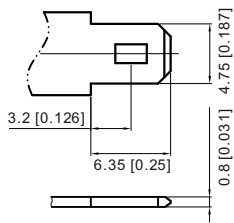
### Constant Power Discharge (Watts) at 25 °C (77°F)

F.V/Time	5min	10min	15min	20min	30min	45min	1h	2h	3h	4h	5h	6h	8h	10h	20h
1.85V/cell	11.14	8.64	7.23	6.32	4.94	3.67	3.10	1.85	1.45	1.18	0.968	0.842	0.682	0.571	0.314
1.80V/cell	14.80	10.92	8.62	7.36	5.74	4.23	3.46	2.00	1.55	1.26	1.034	0.900	0.721	0.588	0.316
1.75V/cell	16.33	11.80	9.30	7.84	5.91	4.35	3.60	2.07	1.58	1.28	1.058	0.921	0.732	0.603	0.319
1.70V/cell	17.48	12.57	9.79	8.18	6.12	4.51	3.70	2.12	1.62	1.31	1.083	0.939	0.742	0.615	0.325
1.65V/cell	19.00	13.44	10.3	8.62	6.40	4.58	3.76	2.14	1.68	1.35	1.109	0.957	0.751	0.626	0.329
1.60V/cell	20.48	14.26	10.9	9.08	6.71	4.75	3.78	2.22	1.72	1.39	1.141	0.974	0.757	0.632	0.330

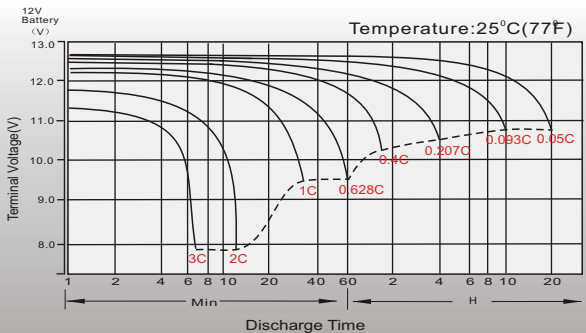
# Dimensions

## T1 Terminal

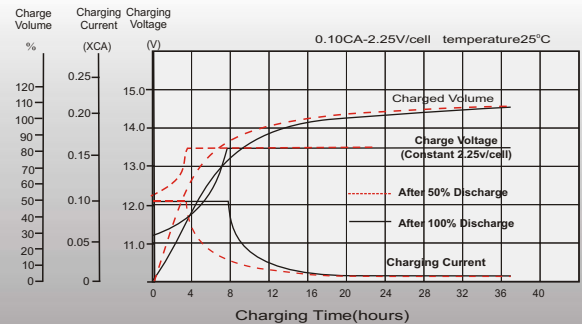
Unit: mm [inches]



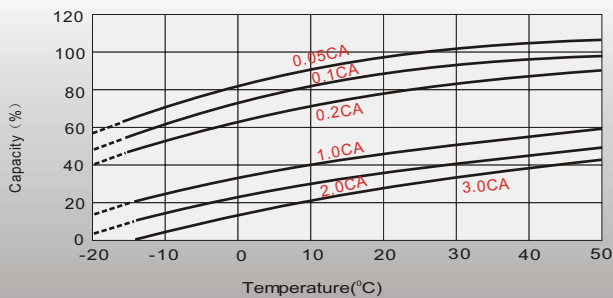
## Discharge Characteristics



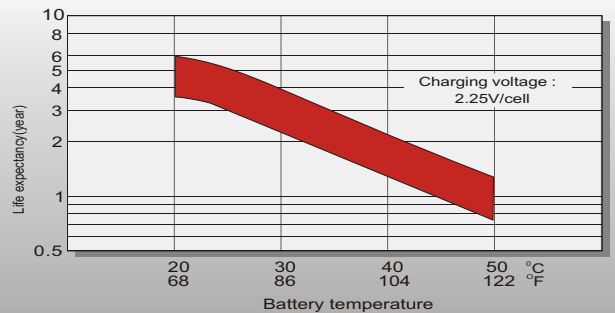
## Float Charging Characteristics



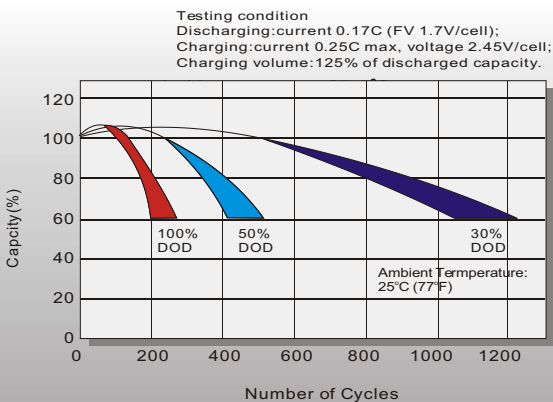
## Temperature Effects in Relation to Battery Capacity



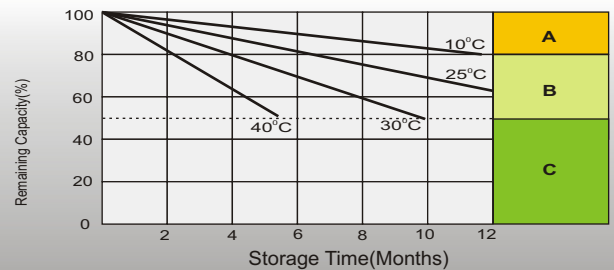
## Effect of Temperature on Long Term Float Life



## 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.