

## WP1.2-6 6V 1.2Ah

### Specifications

Nominal Voltage(V) **6V**

#### Nominal Capacity

20 hour rate	(0.06A to 5.25V)	1.2Ah
10 hour rate	(0.114A to 5.25V)	1.14Ah
5 hour rate	(0.204A to 5.1V)	1.02Ah
1 C	(1.2A to 4.8V)	0.68Ah
3 C	(3.6A to 4.8V)	0.48Ah

Weight **Approx. 297g(0.65Lbs.)**

Internal Resistance (at 1KHz) **Approx. 41 mΩ**

Maximum Discharge Current for 5 seconds: **18A**

#### Charging Methods at 25 (77 )

Cycle use:	
Charging Voltage	<b>7.20 to 7.50V</b>
Coefficient -5.0mV/ /cell	
Maximum Charging Current :	<b>0.36A</b>
Standby use:	
Float Charging Voltage	<b>6.75 to 6.90V</b>
Coefficient -3.0mV/ /cell	

#### Operating Temperature Range

Charge	<b>-15 (5 ) to 40 (104 )</b>
Discharge	<b>-15 (5 ) to 50 (122 )</b>
Storage	<b>-15 (5 ) to 40 (104 )</b>

#### Charge Retention (shelf life) at 20 (68 )

1 month	<b>92%</b>
3 month	<b>90%</b>
6 month	<b>80%</b>

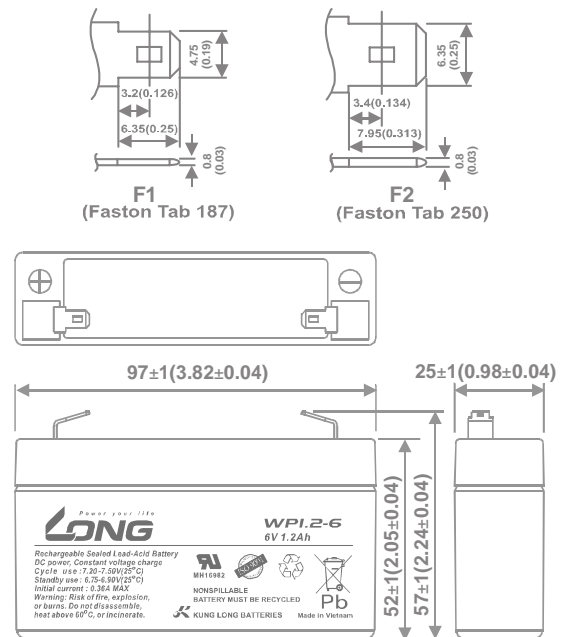
Case Material **ABS UL94 HB**  
Option: Flammability resistance of (UL94 V-0)

Terminal **F1 or F2 (Faston Tab 187 or 250)**

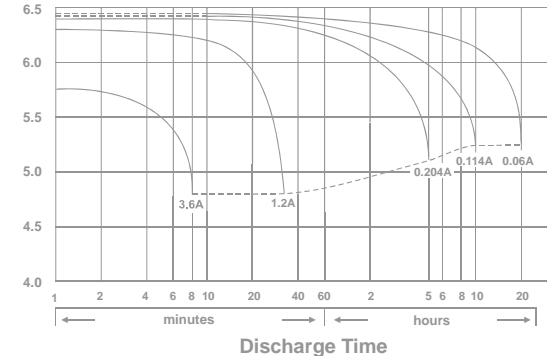


### Dimensions

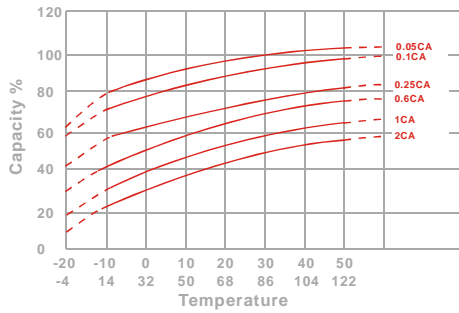
mm(inch)



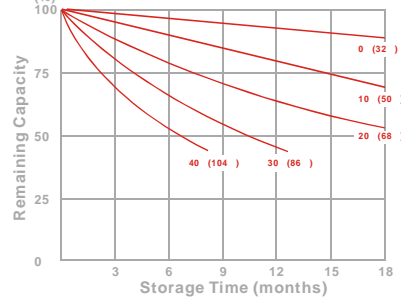
#### Discharge Time VS. Discharge Current (25 )



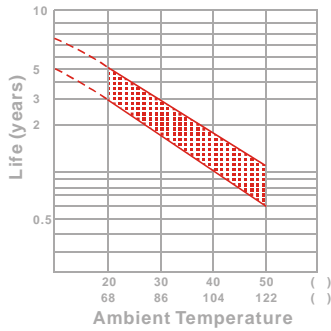
Effect of Temperature on Capacity 25 (77 )



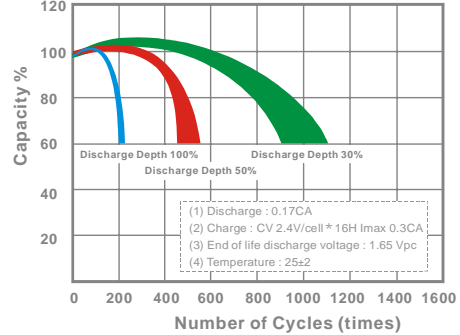
Capacity Retention Characteristic



Trickle (or float) Service Life



Cycle Service Life



## - PERFORMANCE DATA

Discharge Rates in Watts to Various End Voltages at 25 (77 )

End Voltage		1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
Time								
5	min	7.18	7.82	8.27	8.65	8.80	8.98	9.28
10	min	4.62	5.00	5.30	5.52	5.58	5.67	5.77
15	min	3.65	3.87	4.05	4.20	4.25	4.32	4.38
30	min	2.15	2.25	2.32	2.37	2.38	2.42	2.45
60	min	1.32	1.39	1.43	1.47	1.48	1.50	1.52
120	min	0.747	0.808	0.847	0.875	0.887	0.900	0.915
180	min	0.533	0.573	0.602	0.623	0.633	0.645	0.657
240	min	0.435	0.470	0.495	0.513	0.520	0.528	0.537
300	min	0.420	0.442	0.457	0.468	0.472	0.477	0.482
600	min	0.220	0.233	0.243	0.250	0.252	0.255	0.258
1200	min	0.123	0.126	0.129	0.130	0.131	0.131	0.132

- Discharge Rates in Amperes to Various End Voltages at 25 (77 )

End Voltage		1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
Time								
5	min	3.49	4.11	4.57	4.94	5.09	5.26	5.51
10	min	2.12	2.43	2.63	2.81	2.88	2.96	3.11
15	min	1.71	1.95	2.09	2.20	2.24	2.29	2.35
30	min	0.931	1.06	1.17	1.24	1.26	1.29	1.32
60	min	0.680	0.716	0.735	0.759	0.765	0.772	0.779
120	min	0.392	0.415	0.429	0.440	0.444	0.449	0.456
180	min	0.272	0.291	0.302	0.311	0.314	0.318	0.324
240	min	0.223	0.238	0.247	0.254	0.257	0.260	0.264
300	min	0.207	0.219	0.226	0.231	0.233	0.236	0.238
600	min	0.112	0.117	0.121	0.124	0.125	0.126	0.127
1200	min	0.0615	0.0624	0.0631	0.0637	0.0639	0.0642	0.0646

All data on the spec. sheet is an average value:

The tolerance range : X<6min(+15%~-15%), 6min X<10min(+12%~-12%),10min X < 60min(+8%~-8%), X 60min(+5%~-5%)

211016-1F



Head Quarter Service - TEL: +886-49-2254-777 FAX: +886-49-2255-139 E-mail: sales@mail.klb.com.tw  
 USA Customer Service - TEL: +1-949-328-7936 FAX: +1-949-266-9917 E-mail: sales@kunglong.com  
 Vietnam Customer Service - TEL: +84-72-3779666 FAX: +84-72-3779476 E-mail: sales@mail.klb.com.tw

## WP4.5-6 6Volt 4.5Ah

### Specifications

Nominal Voltage(V) **6V**

#### Nominal Capacity

20 hour rate	(0.225A to	5.25V)	<b>4.5Ah</b>
10 hour rate	(0.428A to	5.25V)	<b>4.275Ah</b>
5 hour rate	(0.765A to	5.1V)	<b>3.825Ah</b>
1 C	(4.5A to	4.8V)	<b>2.55Ah</b>
3 C	(13.5A to	4.8V)	<b>1.8Ah</b>

Weight **Approx. 820g(1.80Lbs.)**

Internal Resistance (at 1KHz) **Approx. 19 mΩ**

Maximum Discharge Current for 5 seconds: **67.5A**

#### Charging Methods at 25 (77 )

Cycle use:	
Charging Voltage	<b>7.20 to 7.50V</b>
Coefficient -5.0mV/ /cell	
Maximum Charging Current :	<b>1.35A</b>
Standby use:	
Float Charging Voltage	<b>6.75 to 6.90V</b>
Coefficient -3.0mV/ /cell	

#### Operating Temperature Range

Charge	<b>-15 (5 ) to 40 (104 )</b>
Discharge	<b>-15 (5 ) to 50 (122 )</b>
Storage	<b>-15 (5 ) to 40 (104 )</b>

#### Charge Retention (shelf life) at 20 (68 )

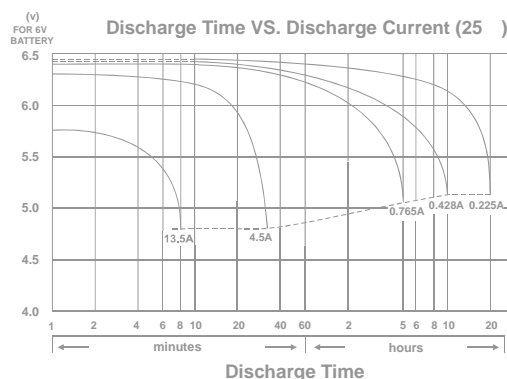
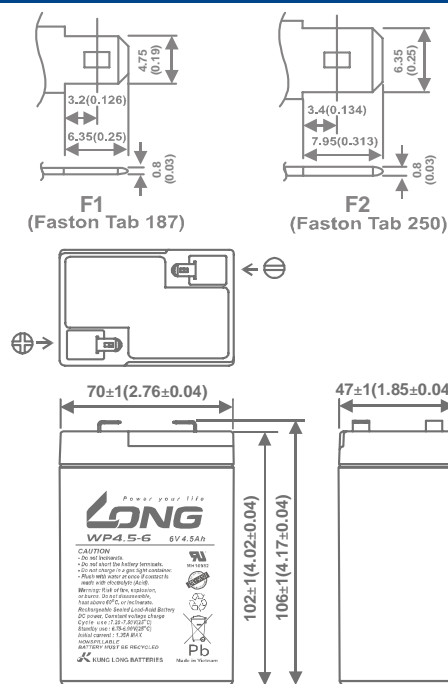
1 month	<b>92%</b>
3 month	<b>90%</b>
6 month	<b>80%</b>

Case Material **ABS UL94 HB**  
Option: Flammability resistance of (UL94 V-0)

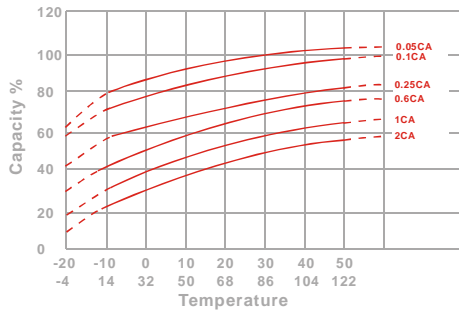
Terminal **F1 or F2 (Faston Tab 187 or 250)**



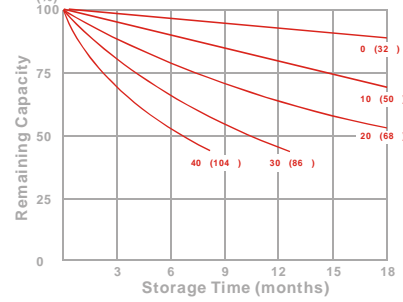
### Dimensions mm(inch)



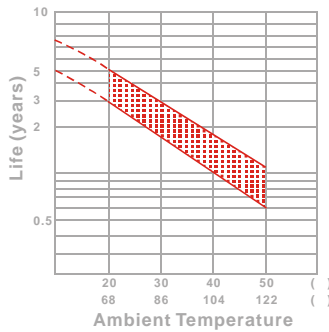
Effect of Temperature on Capacity 25 (77 )



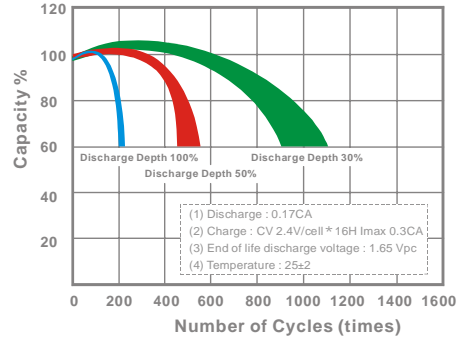
Capacity Retention Characteristic



Trickle (or float) Service Life



Cycle Service Life



## - PERFORMANCE DATA

Discharge Rates in Watts to Various End Voltages at 25 (77 )

End Voltage		1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
Time								
5	min	23.8	26.8	29.0	31.0	31.8	32.8	34.0
10	min	17.0	19.2	20.5	21.5	22.0	22.5	23.0
15	min	14.1	15.6	16.2	16.5	16.7	16.8	17.0
30	min	8.18	9.15	9.52	9.70	9.80	9.92	10.0
60	min	4.20	4.77	5.13	5.43	5.53	5.65	5.73
120	min	2.48	2.77	2.90	3.00	3.05	3.12	3.18
180	min	1.97	2.17	2.27	2.35	2.38	2.43	2.48
240	min	1.60	1.73	1.80	1.85	1.88	1.92	1.95
300	min	1.46	1.56	1.60	1.64	1.65	1.68	1.72
600	min	0.855	0.913	0.940	0.960	0.968	0.978	0.992
1200	min	0.432	0.468	0.498	0.510	0.513	0.520	0.527

- Discharge Rates in Amperes to Various End Voltages at 25 (77 )

End Voltage		1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
Time								
5	min	15.3	17.6	18.9	19.5	19.7	19.9	20.2
10	min	10.5	11.7	11.9	12.1	12.2	12.3	12.4
15	min	7.56	8.22	8.71	8.92	8.99	9.07	9.15
30	min	4.39	4.94	5.11	5.25	5.30	5.35	5.41
60	min	2.36	2.61	2.73	2.84	2.87	2.91	2.94
120	min	1.32	1.44	1.50	1.54	1.55	1.57	1.59
180	min	1.09	1.15	1.18	1.20	1.21	1.22	1.23
240	min	0.835	0.891	0.916	0.942	0.948	0.955	0.963
300	min	0.776	0.812	0.825	0.837	0.841	0.846	0.852
600	min	0.435	0.452	0.464	0.473	0.477	0.481	0.486
1200	min	0.219	0.233	0.241	0.247	0.250	0.253	0.257

All data on the spec. sheet is an average value:

The tolerance range : X<6min(+15%~-15%), 6min X<10min(+12%~-12%),10min X < 60min(+8%~-8%), X 60min(+5%~-5%)

211016-11



Head Quarter Service - TEL: +886-49-2254-777  
 USA Customer Service - TEL: +1-949-328-7936  
 Vietnam Customer Service - TEL: +84-72-3779666

FAX: +886-49-2255-139  
 FAX: +1-949-266-9917  
 FAX: +84-72-3779476

E-mail: sales@mail.klb.com.tw  
 E-mail: sales@kunglong.com  
 E-mail: sales@mail.klb.com.tw



## WP7-6 6Volt 7Ah

### Specifications

Nominal Voltage(V) **6V**

#### Nominal Capacity

20 hour rate	(0.35A to 5.25V)	7Ah
10 hour rate	(0.665A to 5.25V)	6.65Ah
5 hour rate	(1.19A to 5.1V)	5.95Ah
1 C	(7A to 4.8V)	3.97Ah
3 C	(21A to 4.8V)	2.8Ah

Weight **Approx. 1.2kg(2.64Lbs.)**

Internal Resistance (at 1KHz) **Approx. 12 mΩ**

Maximum Discharge Current for  
5 seconds: **105A**

#### Charging Methods at 25 (77 )

Cycle use:	
Charging Voltage	<b>7.20 to 7.50V</b>
Coefficient -5.0mV/ /cell	
Maximum Charging Current :	<b>2.1A</b>
Standby use:	
Float Charging Voltage	<b>6.75 to 6.90V</b>
Coefficient -3.0mV/ /cell	

#### Operating Temperature Range

Charge	<b>-15 (5 ) to 40 (104 )</b>
Discharge	<b>-15 (5 ) to 50 (122 )</b>
Storage	<b>-15 (5 ) to 40 (104 )</b>

#### Charge Retention (shelf life) at 20 (68 )

1 month	<b>92%</b>
3 month	<b>90%</b>
6 month	<b>80%</b>

Case Material **ABS UL94 HB**

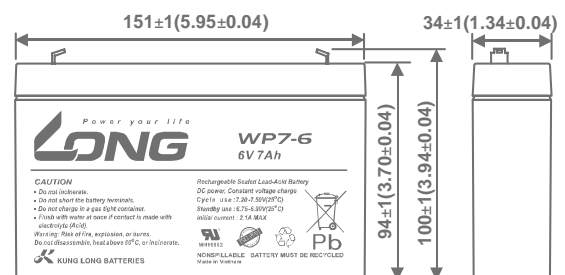
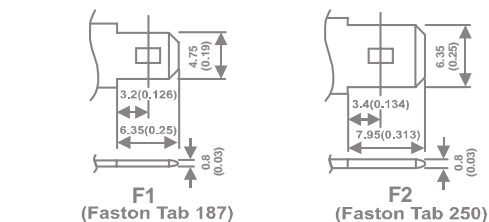
Option: Flammability resistance of (UL94 V-0)

Terminal **F1 or F2 (Faston Tab 187 or 250)**

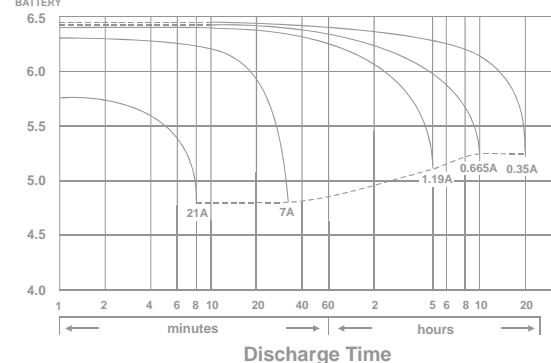


### Dimensions

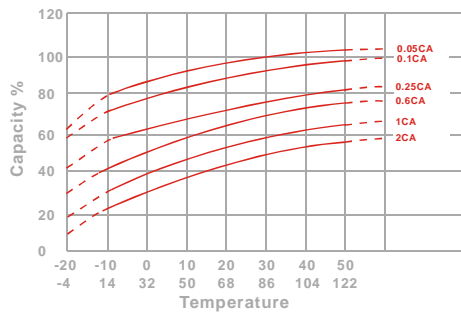
mm(inch)



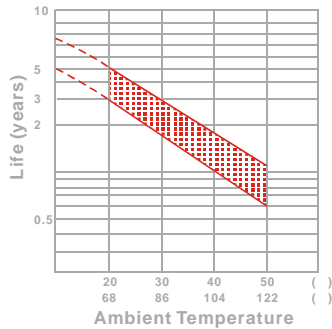
#### Discharge Time VS. Discharge Current (25 )



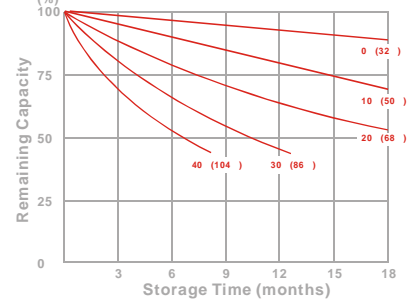
Effect of Temperature on Capacity 25 (77 )



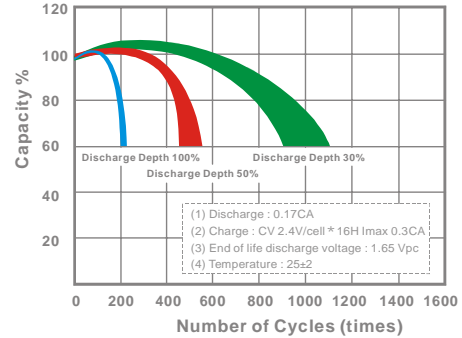
Trickle (or float) Service Life



Capacity Retention Characteristic



Cycle Service Life



## - PERFORMANCE DATA

Discharge Rates in Watts to Various End Voltages at 25 (77 )

End Voltage		1.85V	1.8V	1.75V	1.70V	1.67V	1.65V	1.60V
Time								
5	min	45.2	50.3	52.7	54.8	55.8	56.7	58.2
10	min	30.7	32.2	33.7	34.8	35.7	36.2	37.2
15	min	24.5	25.5	26.2	26.8	27.0	27.5	28.2
30	min	13.0	13.7	14.1	14.5	14.6	14.7	14.9
60	min	8.43	8.73	8.97	9.15	9.22	9.30	9.45
120	min	4.21	4.39	4.63	5.22	5.27	5.32	5.40
180	min	3.27	3.45	3.60	3.73	3.77	3.82	3.87
240	min	2.87	3.01	3.10	3.15	3.17	3.20	3.23
300	min	2.47	2.54	2.63	2.68	2.70	2.72	2.73
600	min	1.45	1.50	1.53	1.55	1.56	1.56	1.57
1200	min	0.694	0.718	0.737	0.750	0.755	0.760	0.770

- Discharge Rates in Amperes to Various End Voltages at 25 (77 )

End Voltage		1.85V	1.8V	1.75V	1.70V	1.67V	1.65V	1.60V
Time								
5	min	23.5	26.4	28.1	29.7	30.5	31.3	32.6
10	min	16.2	17.0	18.2	18.6	18.8	19.1	19.8
15	min	12.5	13.1	13.6	13.9	14.0	14.2	14.5
30	min	6.61	6.92	7.14	7.30	7.38	7.45	7.61
60	min	3.98	4.13	4.25	4.36	4.39	4.42	4.48
120	min	2.05	2.14	2.21	2.27	2.29	2.32	2.35
180	min	1.63	1.69	1.75	1.80	1.82	1.84	1.87
240	min	1.30	1.37	1.42	1.45	1.46	1.47	1.49
300	min	1.11	1.16	1.23	1.25	1.26	1.27	1.28
600	min	0.650	0.680	0.721	0.728	0.732	0.737	0.747
1200	min	0.341	0.357	0.377	0.382	0.384	0.387	0.392

All data on the spec. sheet is an average value:

The tolerance range : X<6min(+15%~-15%), 6min X<10min(+12%~-12%),10min X < 60min(+8% ~-8%), X 60min(+5%~-5%)

211016-1F



Head Quarter Service - TEL: +886-49-2254-777 FAX: +886-49-2255-139 E-mail: sales@mail.klb.com.tw  
USA Customer Service - TEL: +1-949-328-7936 FAX: +1-949-266-9917 E-mail: sales@kunglong.com  
Vietnam Customer Service - TEL: +84-72-3779666 FAX: +84-72-3779476 E-mail: sales@mail.klb.com.tw

## WP1.2-12 12Volt 1.2Ah

### Specifications

Nominal Voltage(V) **12V**

#### Nominal Capacity

20 hour rate	(0.06A to 10.50V)	<b>1.2Ah</b>
10 hour rate	(0.114A to 10.50V)	<b>1.14Ah</b>
5 hour rate	(0.204A to 10.20V)	<b>1.02Ah</b>
1 C	(1.2A to 9.60V)	<b>0.68Ah</b>
3 C	(3.6A to 9.60V)	<b>0.48Ah</b>

Weight **Approx. 564g(1.24Lbs.)**

Internal Resistance (at 1KHz) **Approx. 75.4 mΩ**

#### Maximum Discharge Current for

5 seconds: **18A**

#### Charging Methods at 25 (77 )

Cycle use:

Charging Voltage **14.4 to 15.0V**

Coefficient -5.0mV/ /cell

Maximum Charging Current : **0.36A**

Standby use:

Float Charging Voltage **13.5 to 13.8V**

Coefficient -3.0mV/ /cell

#### Operating Temperature Range

Charge **-15 (5 ) to 40 (104 )**

Discharge **-15 (5 ) to 50 (122 )**

Storage **-15 (5 ) to 40 (104 )**

#### Charge Retention (shelf life) at 20 (68 )

1 month **92%**

3 month **90%**

6 month **80%**

Case Material **ABS UL94 HB**

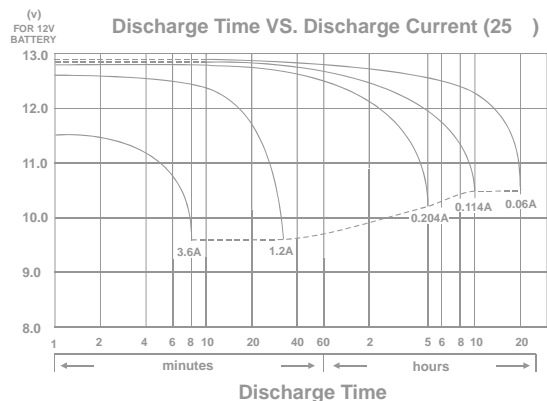
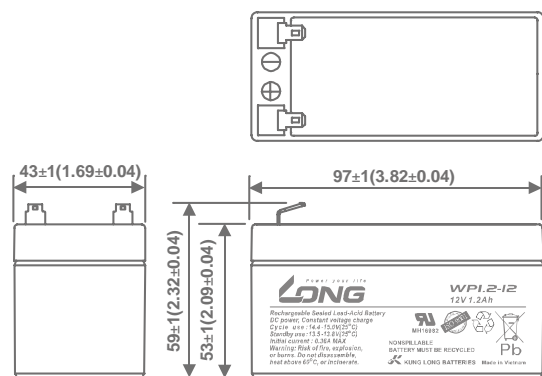
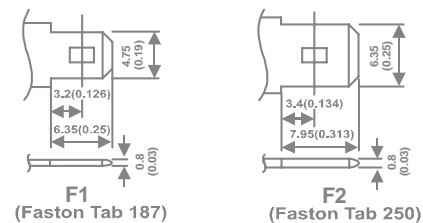
Option: Flammability resistance of (UL94 V-0)

Terminal **F1 or F2 (Faston Tab 187 or 250)**

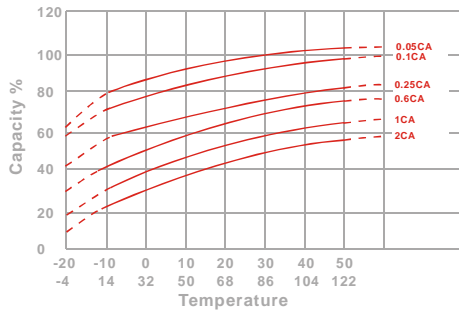


### Dimensions

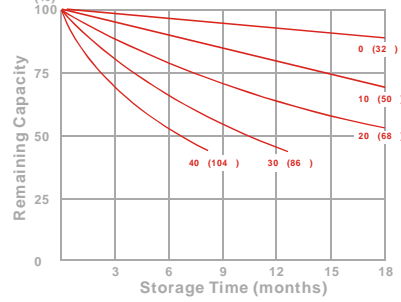
mm(inch)



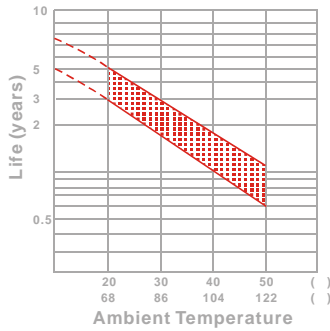
Effect of Temperature on Capacity 25 (77 )



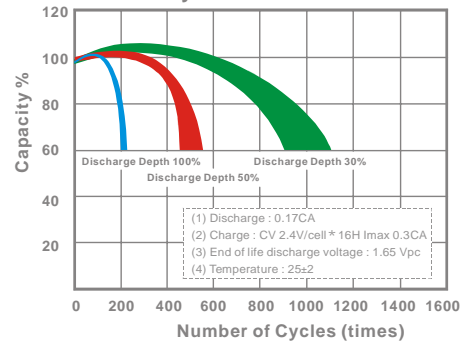
Capacity Retention Characteristic



Trickle (or float) Service Life



Cycle Service Life



## - PERFORMANCE DATA

### Discharge Rates in Watts to Various End Voltages at 25 (77 )

End Voltage		1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
Time								
5	min	7.18	7.82	8.27	8.65	8.80	8.98	9.28
10	min	4.62	5.00	5.30	5.52	5.58	5.67	5.77
15	min	3.65	3.87	4.05	4.20	4.25	4.32	4.38
30	min	2.15	2.25	2.32	2.37	2.38	2.42	2.45
60	min	1.32	1.39	1.43	1.47	1.48	1.50	1.52
120	min	0.747	0.808	0.847	0.875	0.887	0.900	0.915
180	min	0.533	0.573	0.602	0.623	0.633	0.645	0.657
240	min	0.435	0.470	0.495	0.513	0.520	0.528	0.537
300	min	0.420	0.442	0.457	0.468	0.472	0.477	0.482
600	min	0.220	0.233	0.243	0.250	0.252	0.255	0.258
1200	min	0.123	0.126	0.129	0.130	0.131	0.131	0.132

### - Discharge Rates in Amperes to Various End Voltages at 25 (77 )

End Voltage		1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
Time								
5	min	3.49	4.11	4.57	4.94	5.09	5.26	5.51
10	min	2.12	2.43	2.63	2.81	2.88	2.96	3.11
15	min	1.71	1.95	2.09	2.20	2.24	2.29	2.35
30	min	0.931	1.06	1.17	1.24	1.26	1.29	1.32
60	min	0.680	0.716	0.735	0.759	0.765	0.772	0.779
120	min	0.392	0.415	0.429	0.440	0.444	0.449	0.456
180	min	0.272	0.291	0.302	0.311	0.314	0.318	0.324
240	min	0.223	0.238	0.247	0.254	0.257	0.260	0.264
300	min	0.207	0.219	0.226	0.231	0.233	0.236	0.238
600	min	0.112	0.117	0.121	0.124	0.125	0.126	0.127
1200	min	0.0615	0.0624	0.0631	0.0637	0.0639	0.0642	0.0646

All data on the spec. sheet is an average value:

The tolerance range : X<6min(+15%~-15%), 6min X<10min(+12%~-12%), 10min X < 60min(+8%~-8%), X 60min(+5%~-5%)



## WP2.3-12 12Volt 2.3Ah

### Specifications

Nominal Voltage(V) **12V**

#### Nominal Capacity

20 hour rate	(0.115A to 10.50V)	<b>2.3Ah</b>
10 hour rate	(0.219A to 10.50V)	<b>2.185Ah</b>
5 hour rate	(0.39A to 10.20V)	<b>1.955Ah</b>
1 C	(2.3A to 9.60V)	<b>1.303Ah</b>
3 C	(6.9A to 9.60V)	<b>0.92Ah</b>

Weight **Approx. 1.04kg(2.29Lbs.)**

Internal Resistance (at 1KHz) **Approx. 37 mΩ**

#### Maximum Discharge Current for

5 seconds: **34.5A**

#### Charging Methods at 25 (77 )

Cycle use:

Charging Voltage **14.4 to 15.0V**

Coefficient -5.0mV/ /cell

Maximum Charging Current : **0.69A**

Standby use:

Float Charging Voltage **13.5 to 13.8V**

Coefficient -3.0mV/ /cell

#### Operating Temperature Range

Charge **-15 (5 ) to 40 (104 )**

Discharge **-15 (5 ) to 50 (122 )**

Storage **-15 (5 ) to 40 (104 )**

#### Charge Retention (shelf life) at 20 (68 )

1 month **92%**

3 month **90%**

6 month **80%**

Case Material **ABS UL94 HB**

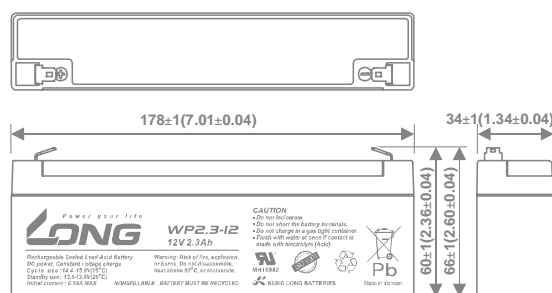
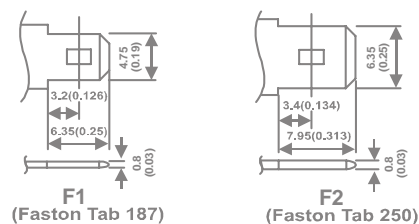
Option: Flammability resistance of (UL94 V-0)

Terminal **F1 or F2 (Faston Tab 187 or 250)**

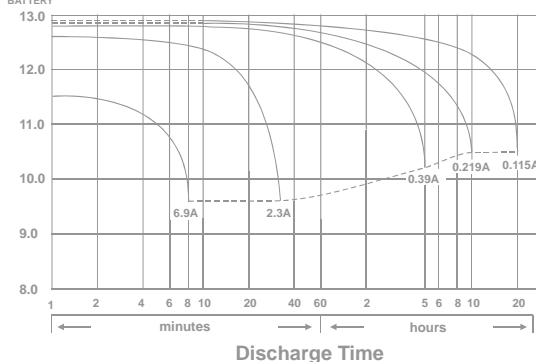


### Dimensions

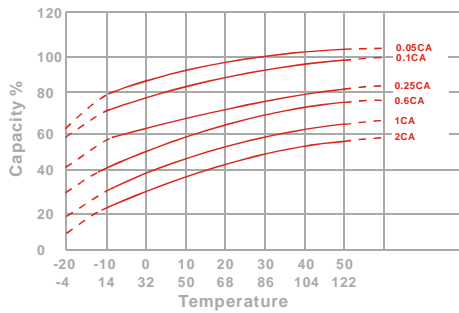
mm(inch)



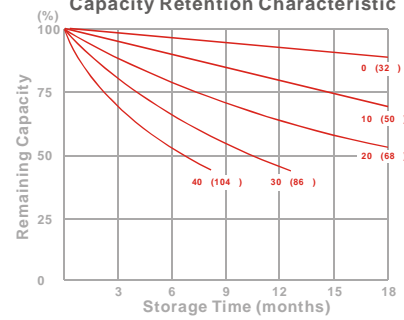
(v) FOR 12V BATTERY Discharge Time VS. Discharge Current (25 )



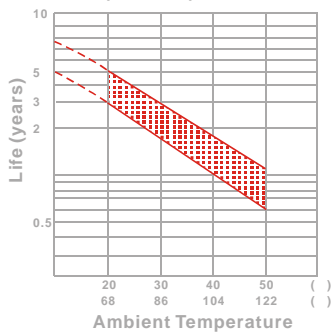
Effect of Temperature on Capacity 25 (77 )



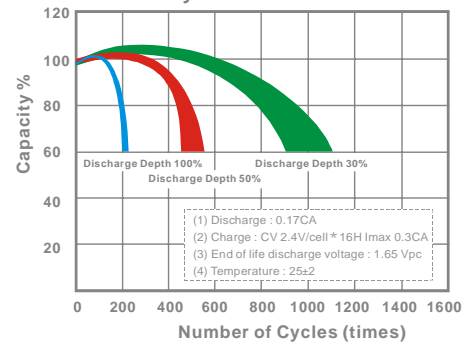
Capacity Retention Characteristic



Trickle (or float) Service Life



Cycle Service Life



## - PERFORMANCE DATA

### Discharge Rates in Watts to Various End Voltages at 25 (77 )

End Voltage		1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
Time								
5	min	11.8	13.9	15.3	16.4	16.7	17.2	17.8
10	min	7.82	9.38	10.1	10.6	10.8	11.1	11.4
15	min	6.87	7.90	8.28	8.53	8.63	8.75	8.90
30	min	3.95	4.25	4.43	4.58	4.63	4.70	4.78
60	min	2.27	2.45	2.60	2.72	2.75	2.80	2.85
120	min	1.36	1.50	1.56	1.62	1.64	1.67	1.70
180	min	1.08	1.21	1.24	1.27	1.28	1.29	1.30
240	min	0.863	0.960	0.988	1.01	1.02	1.03	1.04
300	min	0.702	0.777	0.808	0.837	0.848	0.858	0.869
600	min	0.415	0.453	0.468	0.480	0.483	0.488	0.493
1200	min	0.230	0.242	0.248	0.253	0.255	0.257	0.258

### - Discharge Rates in Amperes to Various End Voltages at 25 (77 )

End Voltage		1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
Time								
5	min	9.08	9.36	9.62	9.82	9.95	10.1	10.4
10	min	4.76	5.45	5.68	5.87	5.94	6.03	6.15
15	min	3.89	4.15	4.27	4.38	4.42	4.47	4.53
30	min	2.02	2.17	2.24	2.30	2.32	2.35	2.39
60	min	1.23	1.34	1.39	1.42	1.43	1.45	1.47
120	min	0.668	0.731	0.765	0.796	0.809	0.826	0.849
180	min	0.508	0.562	0.587	0.609	0.618	0.628	0.643
240	min	0.411	0.449	0.472	0.491	0.497	0.505	0.513
300	min	0.364	0.383	0.396	0.405	0.409	0.414	0.419
600	min	0.217	0.226	0.232	0.237	0.238	0.240	0.242
1200	min	0.114	0.118	0.121	0.123	0.124	0.125	0.126

All data on the spec. sheet is an average value:

The tolerance range : X<6min(+15%~-15%), 6min X<10min(+12%~-12%),10min X < 60min(+8%~-8%), X 60min(+5%~-5%)

211016-1H

## WP3-12 12Volt 3Ah

### Specifications

Nominal Voltage(V) **12V**

#### Nominal Capacity

20 hour rate	(0.15A to 10.50V)	<b>3Ah</b>
10 hour rate	(0.285A to 10.50V)	<b>2.85Ah</b>
5 hour rate	(0.51A to 10.20V)	<b>2.55Ah</b>
1 C	(3A to 9.60V)	<b>1.6Ah</b>
3 C	(9A to 9.60V)	<b>1.05Ah</b>

Weight **Approx. 1.3kg(2.86Lbs.)**

Internal Resistance (at 1KHz) **Approx. 45 mΩ**

Maximum Discharge Current for 5 seconds: **45A**

#### Charging Methods at 25 (77 )

Cycle use:

Charging Voltage **14.4 to 15.0V**

Coefficient -5.0mV/ /cell

Maximum Charging Current : **0.9A**

Standby use:

Float Charging Voltage **13.5 to 13.8V**

Coefficient -3.0mV/ /cell

#### Operating Temperature Range

Charge **-15 (5 ) to 40 (104 )**

Discharge **-15 (5 ) to 50 (122 )**

Storage **-15 (5 ) to 40 (104 )**

#### Charge Retention (shelf life) at 20 (68 )

1 month **92%**

3 month **90%**

6 month **80%**

Case Material **ABS UL94 HB**

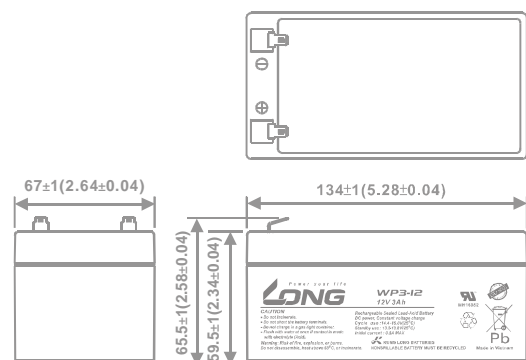
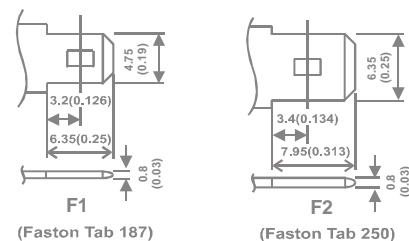
Option: Flammability resistance of (UL94 V-0)

Terminal **F1 or F2 (Faston Tab 187 or 250)**

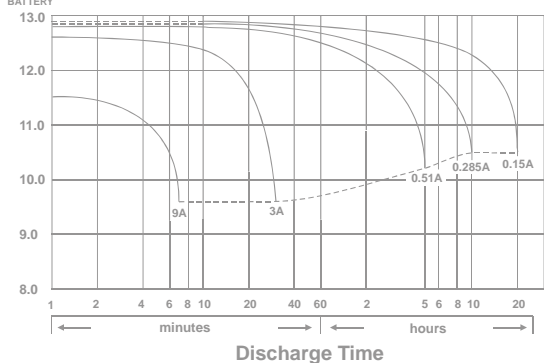


### Dimensions

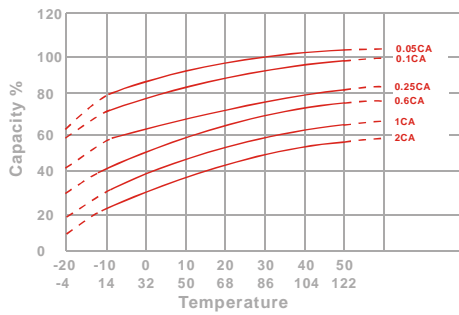
mm(inch)



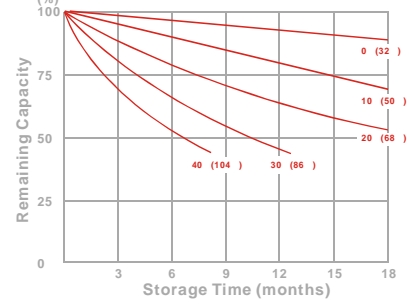
(v) FOR 12V BATTERY Discharge Time VS. Discharge Current (25 )



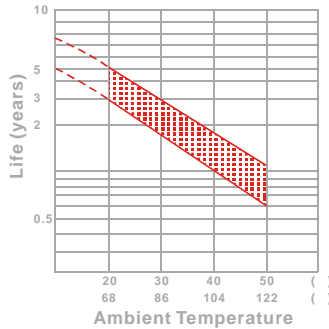
Effect of Temperature on Capacity 25 (77 )



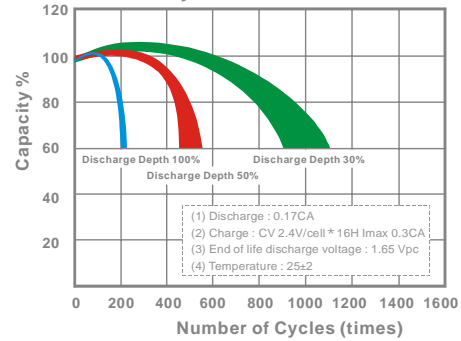
Capacity Retention Characteristic



Trickle (or float) Service Life



Cycle Service Life



## - PERFORMANCE DATA

Discharge Rates in Watts to Various End Voltages at 25 (77 )

End Voltage		1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
Time								
5	min	15.7	17.7	19.0	20.2	20.8	21.4	22.1
10	min	11.4	12.4	13.3	14.0	14.4	14.7	15.0
15	min	8.63	9.61	10.1	10.6	10.9	11.2	11.5
30	min	5.03	5.51	5.82	6.18	6.32	6.43	6.53
60	min	2.88	3.20	3.43	3.63	3.73	3.79	3.88
120	min	1.70	1.85	1.98	2.12	2.18	2.25	2.35
180	min	1.27	1.46	1.56	1.63	1.66	1.70	1.77
240	min	0.968	1.09	1.17	1.21	1.23	1.27	1.33
300	min	0.823	0.926	0.994	1.03	1.05	1.07	1.10
600	min	0.547	0.582	0.597	0.608	0.615	0.620	0.628
1200	min	0.299	0.309	0.317	0.320	0.322	0.324	0.330

- Discharge Rates in Amperes to Various End Voltages at 25 (77 )

End Voltage		1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
Time								
5	min	7.95	9.24	10.3	11.1	11.5	12.0	12.6
10	min	5.87	6.52	7.07	7.46	7.62	7.79	8.08
15	min	4.49	5.03	5.37	5.71	5.86	6.02	6.23
30	min	2.56	2.87	3.03	3.10	3.12	3.14	3.17
60	min	1.54	1.72	1.81	1.88	1.92	1.94	1.99
120	min	0.945	0.993	1.04	1.08	1.10	1.12	1.15
180	min	0.679	0.718	0.752	0.786	0.807	0.826	0.861
240	min	0.556	0.581	0.604	0.625	0.634	0.646	0.663
300	min	0.472	0.493	0.511	0.526	0.533	0.542	0.554
600	min	0.273	0.289	0.301	0.306	0.308	0.311	0.313
1200	min	0.147	0.154	0.158	0.161	0.163	0.165	0.167

All data on the spec. sheet is an average value:

The tolerance range : X<6min(+15%~-15%), 6min X<10min(+12%~-12%),10min X < 60min(+8%~-8%), X 60min(+5%~-5%)

## WP4.5-12 12Volt 4.5Ah

### Specifications

Nominal Voltage(V) **12V**

#### Nominal Capacity

20 hour rate	(0.225A to 10.50V)	<b>4.5Ah</b>
10 hour rate	(0.428A to 10.50V)	<b>4.275Ah</b>
5 hour rate	(0.765A to 10.20V)	<b>3.825Ah</b>
1 C	(4.5A to 9.60V)	<b>2.55Ah</b>
3 C	(13.5A to 9.60V)	<b>1.8Ah</b>

Weight **Approx. 1.62kg(3.56Lbs.)**

Internal Resistance (at 1KHz) **Approx. 34.5 mΩ**

Maximum Discharge Current for 5 seconds: **67.5A**

#### Charging Methods at 25 (77 )

Cycle use:	
Charging Voltage	<b>14.4 to 15.0V</b>
Coefficient -5.0mV/ /cell	
Maximum Charging Current :	<b>1.35A</b>
Standby use:	
Float Charging Voltage	<b>13.5 to 13.8V</b>
Coefficient -3.0mV/ /cell	

#### Operating Temperature Range

Charge	<b>-15 (5 ) to 40 (104 )</b>
Discharge	<b>-15 (5 ) to 50 (122 )</b>
Storage	<b>-15 (5 ) to 40 (104 )</b>

#### Charge Retention (shelf life) at 20 (68 )

1 month	<b>92%</b>
3 month	<b>90%</b>
6 month	<b>80%</b>

Case Material **ABS UL94 HB**

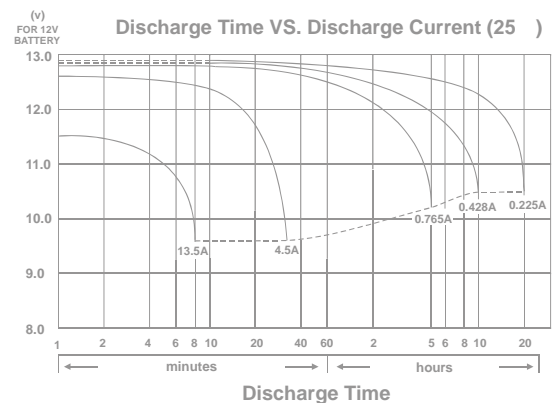
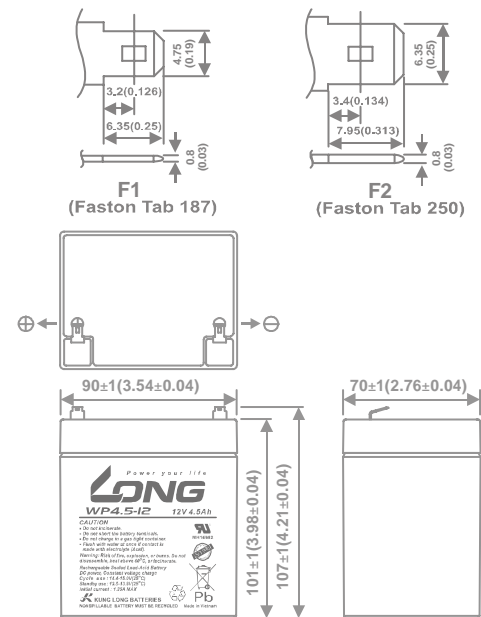
Option: Flammability resistance of (UL94 V-0)

Terminal **F1 or F2 (Faston Tab 187 or 250)**



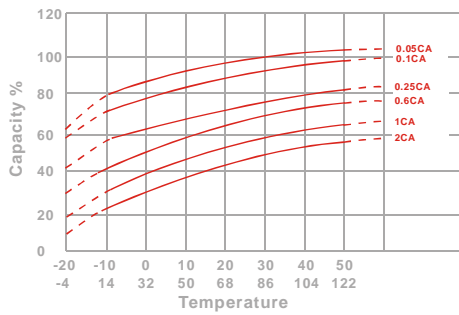
### Dimensions

mm(inch)

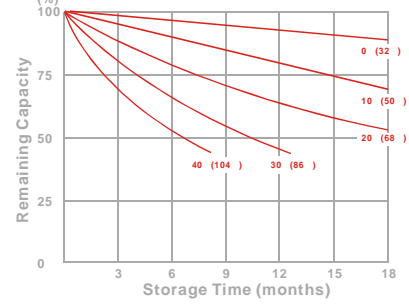




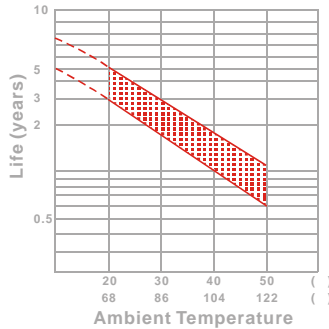
Effect of Temperature on Capacity 25 (77 )



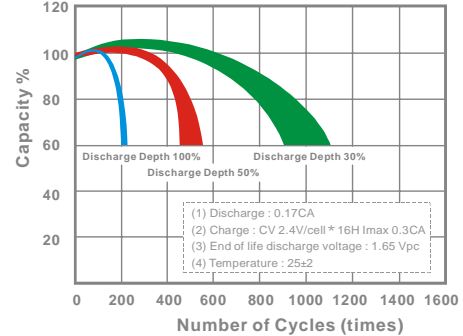
Capacity Retention Characteristic



Trickle (or float) Service Life



Cycle Service Life



## - PERFORMANCE DATA

Discharge Rates in Watts to Various End Voltages at 25 (77 )

End Voltage		1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
Time								
5	min	22.7	25.7	27.8	29.8	30.7	31.7	32.8
10	min	16.4	18.7	20.0	21.0	21.3	21.8	22.3
15	min	13.3	14.8	15.4	15.8	16.0	16.1	16.3
30	min	7.78	8.73	9.08	9.43	9.53	9.65	9.77
60	min	4.38	4.95	5.32	5.62	5.68	5.78	5.87
120	min	2.70	2.97	3.10	3.20	3.25	3.32	3.38
180	min	2.12	2.30	2.40	2.47	2.50	2.55	2.60
240	min	1.72	1.85	1.93	1.98	2.02	2.03	2.07
300	min	1.53	1.64	1.68	1.72	1.73	1.75	1.78
600	min	0.950	1.01	1.03	1.05	1.07	1.09	1.10
1200	min	0.490	0.518	0.538	0.552	0.555	0.562	0.568

- Discharge Rates in Amperes to Various End Voltages at 25 (77 )

End Voltage		1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
Time								
5	min	14.9	17.0	18.3	18.8	19.0	19.2	19.4
10	min	10.0	11.3	11.6	11.8	11.9	12.0	12.1
15	min	7.21	7.83	8.31	8.53	8.58	8.65	8.74
30	min	4.36	4.82	4.97	5.11	5.15	5.21	5.26
60	min	2.53	2.78	2.89	2.97	2.99	3.02	3.05
120	min	1.42	1.54	1.62	1.65	1.66	1.67	1.69
180	min	1.14	1.21	1.23	1.25	1.26	1.27	1.28
240	min	0.889	0.948	0.973	0.996	1.00	1.01	1.02
300	min	0.808	0.839	0.852	0.863	0.867	0.872	0.878
600	min	0.458	0.480	0.495	0.503	0.507	0.511	0.515
1200	min	0.231	0.245	0.257	0.265	0.268	0.272	0.276

All data on the spec. sheet is an average value:

The tolerance range : X < 6min(+15%~-15%), 6min X < 10min(+12%~-12%), 10min X < 60min(+8%~-8%), X < 60min(+5%~-5%)

## WP7-12(28W) 12Volt 28W

### Specifications

Nominal Voltage(V) **12V**

#### Nominal Power

15 mins rate: **28W/cell to 1.60V/cell**

#### Nominal Capacity

20 hour rate	(0.35A to 10.50V)	<b>7Ah</b>
10 hour rate	(0.665A to 10.50V)	<b>6.65Ah</b>
5 hour rate	(1.19A to 10.20V)	<b>5.95Ah</b>
1 C	(7A to 9.60V)	<b>4.43Ah</b>
3 C	(21A to 9.60V)	<b>2.8Ah</b>

Weight **Approx. 2.2kg(4.84Lbs.)**

Internal Resistance (at 1KHz) **Approx. 19 mΩ**

Maximum Discharge Current for 5 seconds: **105A**

#### Charging Methods at 25 (77 )

Cycle use:

Charging Voltage **14.4 to 15.0V**

Coefficient -5.0mV/ /cell

Maximum Charging Current : **2.1A**

Standby use:

Float Charging Voltage **13.5 to 13.8V**

Coefficient -3.0mV/ /cell

#### Operating Temperature Range

Charge **-15 (5 ) to 40 (104 )**

Discharge **-15 (5 ) to 50 (122 )**

Storage **-15 (5 ) to 40 (104 )**

#### Charge Retention (shelf life) at 20 (68 )

1 month **92%**

3 month **90%**

6 month **80%**

Case Material **ABS UL94 HB**

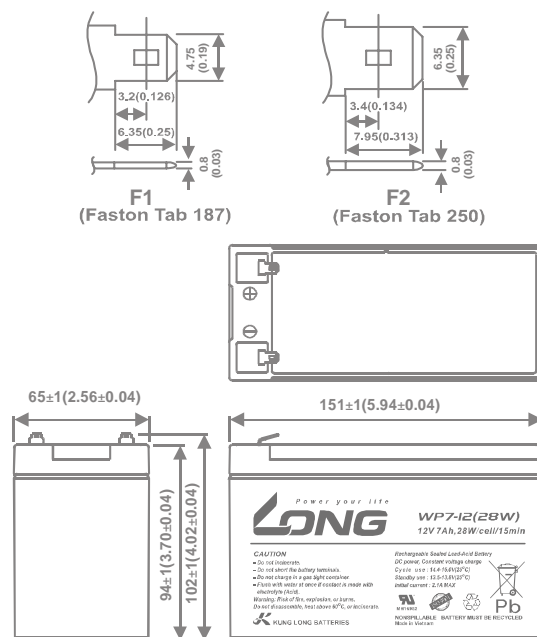
Option: Flammability resistance of (UL94 V-0)

Terminal **F1 or F2 (Faston Tab 187 or 250)**

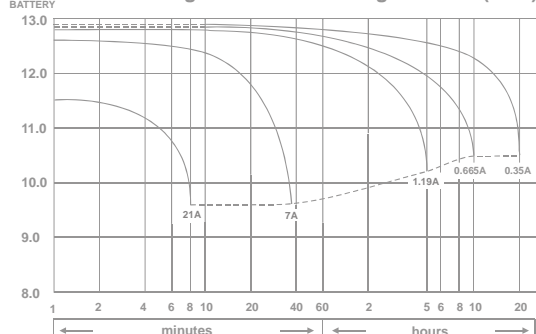


### Dimensions

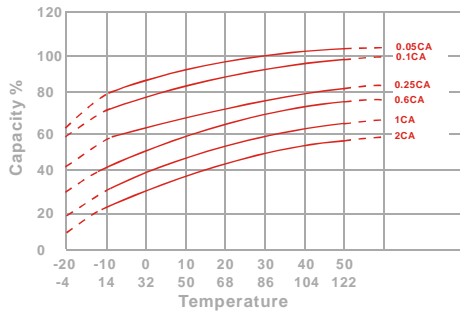
mm(inch)



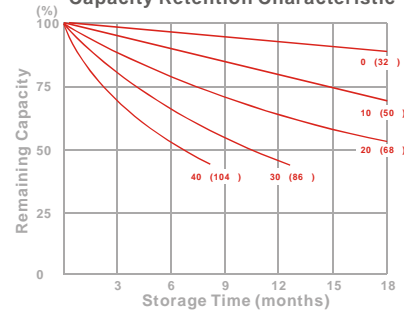
(V) Discharge Time VS. Discharge Current (25 )



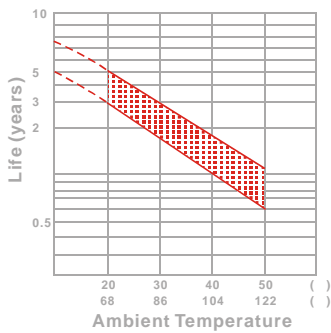
Effect of Temperature on Capacity 25 (77 )



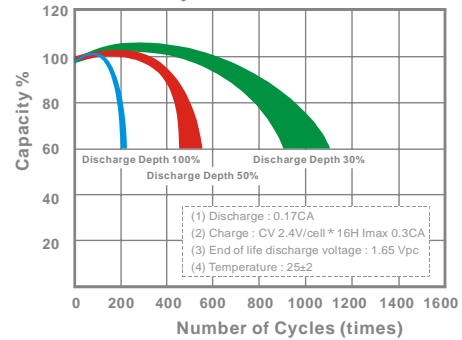
Capacity Retention Characteristic



Trickle (or float) Service Life



Cycle Service Life



## - PERFORMANCE DATA

### Discharge Rates in Watts to Various End Voltages at 25 (77 )

End Voltage		1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
Time								
5	min	43.8	47.0	49.0	51.0	51.8	52.8	54.3
10	min	30.0	31.8	33.2	34.3	34.8	35.5	36.5
15	min	24.0	25.2	25.8	26.5	26.8	27.3	28.0
30	min	12.1	12.9	13.6	14.1	14.3	14.4	14.6
60	min	7.70	8.38	8.63	8.87	8.97	9.08	9.23
120	min	4.10	4.52	4.72	4.92	4.98	5.07	5.20
180	min	3.08	3.32	3.48	3.62	3.67	3.72	3.80
240	min	2.85	2.93	3.00	3.05	3.07	3.10	3.15
300	min	2.47	2.53	2.58	2.62	2.63	2.65	2.68
600	min	1.36	1.40	1.42	1.43	1.44	1.44	1.45
1200	min	0.690	0.705	0.718	0.728	0.732	0.737	0.743

### - Discharge Rates in Amperes to Various End Voltages at 25 (77 )

End Voltage		1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
Time								
5	min	23.1	26.2	27.8	29.1	29.6	30.5	31.7
10	min	16.1	17.3	18.1	18.6	18.9	19.2	19.8
15	min	12.6	13.1	13.5	13.8	14.0	14.1	14.3
30	min	6.54	7.05	7.28	7.47	7.56	7.68	7.85
60	min	4.02	4.25	4.41	4.52	4.58	4.63	4.71
120	min	2.26	2.38	2.45	2.49	2.51	2.54	2.57
180	min	1.65	1.74	1.79	1.82	1.83	1.85	1.88
240	min	1.35	1.40	1.44	1.47	1.49	1.51	1.53
300	min	1.10	1.16	1.21	1.25	1.27	1.28	1.29
600	min	0.667	0.675	0.682	0.687	0.690	0.694	0.698
1200	min	0.339	0.346	0.350	0.353	0.355	0.357	0.359

All data on the spec. sheet is an average value:

The tolerance range : X<6min(+15%~-15%), 6min X<10min(+12%~-12%), 10min X < 60min(+8%~-8%), X > 60min(+5%~-5%)

260118-1C

### ⚡ Specifications

#### Nominal Voltage(V)

12V

#### Nominal Power

15 mins rate: 36W/cell to 1.60V/cell

#### Nominal Capacity

5 hour rate	(1.53A to 10.20V)	7.65Ah
1C	(9A to 9.60V)	5.7Ah
3C	(27A to 9.60V)	3.6Ah

#### Weight

Approx. 2.7kg(5.94Lbs.)

#### Internal Resistance (at 1KHz)

Approx. 14 mΩ

#### Maximum Discharge Current for

5 seconds: 135A

#### Charging Methods at 25°C(77°F)

Cycle use:	
Charging Voltage	14.4 to 15.0V
Coefficient	-5.0mV/°C/cell
Maximum Charging Current :	2.7A
Standby use:	
Float Charging Voltage	13.5 to 13.8V
Coefficient	-3.0mV/°C/cell

#### Operating Temperature Range

Charge	-15°C(5°F)	to	40°C(104°F)
Discharge	-15°C(5°F)	to	50°C(122°F)
Storage	-15°C(5°F)	to	40°C(104°F)

#### Charge Retention (shelf life) at 20°C(68°F)

1 month	92%
3 month	90%
6 month	80%

#### Case Material

ABS UL94 HB  
Option: Flammability resistance of (UL94 V-0)

#### Design Life

3-5 Years.

#### Terminal

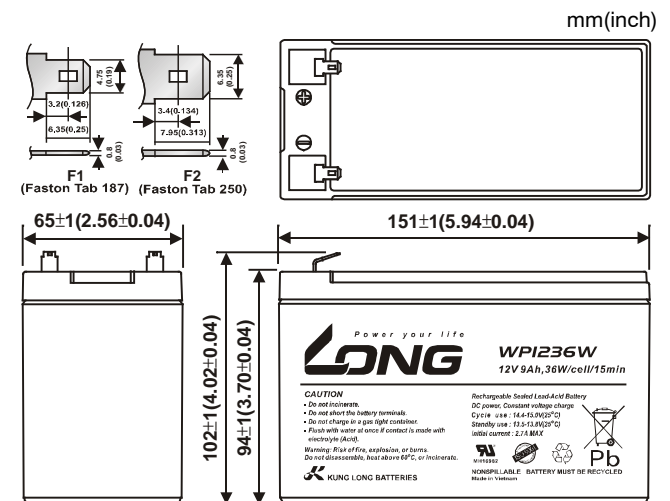
F1 or F2 (Faston Tab 187 or 250)



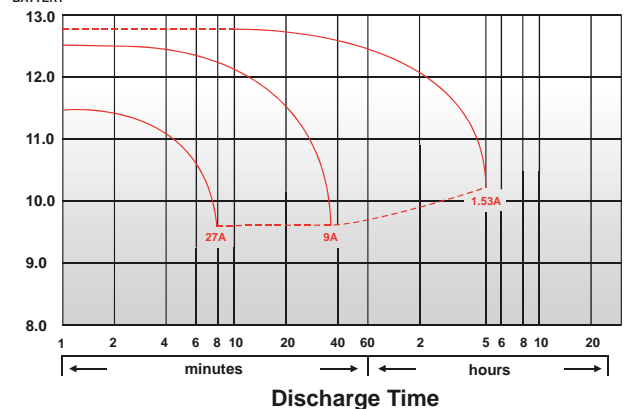
### ⚡ Dimensions

Length (L)	151±1 (5.94±0.04)
Width (W)	65±1 (2.56±0.04)
Height (H)	94±1 (3.70±0.04)
Overall Height (HT)	102±1 (4.02±0.04)

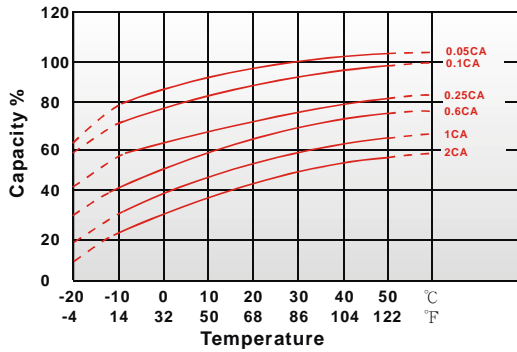
#### Description of torque value of hard ware for the terminals:



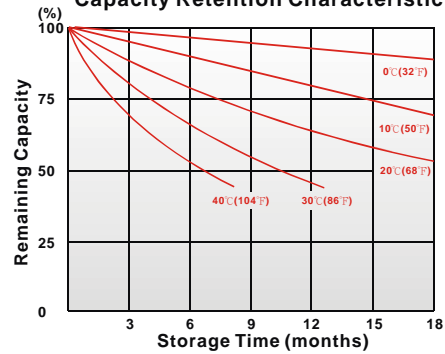
#### (V) FOR 12V BATTERY Discharge Time VS. Discharge Current (25°C)



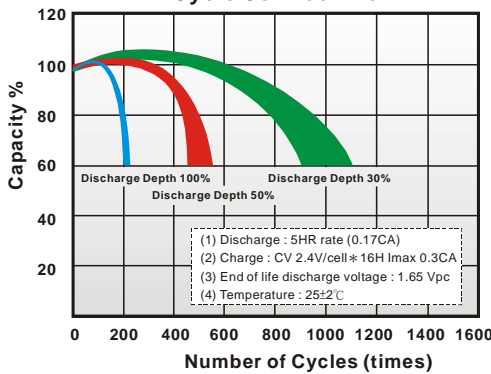
Effect of Temperature on Capacity 25°C(77°F)



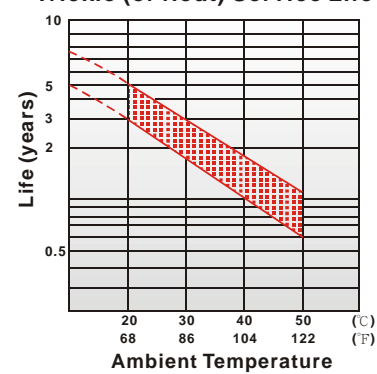
Capacity Retention Characteristic



Cycle Service Life



Trickle (or float) Service Life



**- PERFORMANCE DATA**

Discharge Rates in Watts to Various End Voltages at 25°C(77°F)

End Voltage		1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
Time	min	57.1	60.2	64.7	67.8	69.8	71.2	74.7
5	min	36.5	39.1	42.0	44.0	45.2	46.1	48.3
10	min	30.1	31.2	32.3	33.4	34.0	34.7	35.9
15	min	15.8	16.2	17.0	17.7	17.8	18.0	19.1
30	min	9.97	10.4	10.7	11.0	11.1	11.3	11.5
60	min	5.40	5.56	5.69	5.82	5.87	5.90	5.95
120	min	4.20	4.35	4.49	4.62	4.67	4.75	4.85
180	min	3.40	3.53	3.63	3.73	3.78	3.85	3.92
240	min	2.89	2.99	3.05	3.10	3.12	3.15	3.18
300	min	1.62	1.68	1.71	1.75	1.77	1.78	1.80
600	min	0.853	0.882	0.902	0.907	0.910	0.913	0.918
1200	min							

**- Discharge Rates in Amperes to Various End Voltages at 25°C(77°F)**

End Voltage		1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
Time	min	30.4	32.6	35.0	36.7	37.4	38.5	40.3
5	min	19.1	20.4	21.9	22.9	23.4	24.1	25.2
10	min	14.3	14.9	15.8	16.5	16.8	17.3	18.0
15	min	8.09	8.45	8.93	9.35	9.54	9.77	10.2
30	min	5.17	5.29	5.37	5.45	5.48	5.52	5.57
60	min	2.63	2.72	2.78	2.84	2.86	2.89	2.93
120	min	2.12	2.18	2.23	2.27	2.29	2.31	2.34
180	min	1.69	1.74	1.77	1.80	1.81	1.82	1.83
240	min	1.46	1.51	1.53	1.55	1.56	1.57	1.58
300	min	0.827	0.841	0.855	0.866	0.871	0.877	0.884
600	min	0.427	0.442	0.451	0.456	0.459	0.462	0.466
1200	min							

All data on the spec. sheet is an average value:

The tolerance range :  $X < 6\text{min}$ (+15%~-15%),  $6\text{min} \leq X < 10\text{min}$ (+12%~-12%),  $10\text{min} \leq X < 60\text{min}$ (+8%~-8%),  $X \geq 60\text{min}$ (+5%~-5%)



## WP12-12A 12Volt 12Ah

### Specifications

Nominal Voltage(V) **12V**

#### Nominal Capacity

20 hour rate (0.6A to 10.50V)	<b>12Ah</b>
10 hour rate (1.14A to 10.50V)	<b>11.4Ah</b>
5 hour rate (2.04A to 10.20V)	<b>10.2Ah</b>
1 C (12A to 9.60V)	<b>6.4Ah</b>
3 C (36A to 9.60V)	<b>4.2Ah</b>

Weight **Approx. 3.75kg(8.25Lbs.)**

Internal Resistance (at 1KHz) **Approx. 13 mΩ**

Maximum Discharge Current for 5 seconds: **180A**

#### Charging Methods at 25 (77 )

Cycle use:

Charging Voltage **14.4 to 15.0V**

Coefficient -5.0mV/ /cell

Maximum Charging Current : **3.6A**

Standby use:

Float Charging Voltage **13.5 to 13.8V**

Coefficient -3.0mV/ /cell

#### Operating Temperature Range

Charge **-15 (5 ) to 40 (104 )**

Discharge **-15 (5 ) to 50 (122 )**

Storage **-15 (5 ) to 40 (104 )**

#### Charge Retention (shelf life) at 20 (68 )

1 month **92%**

3 month **90%**

6 month **80%**

Case Material **ABS UL94 HB**

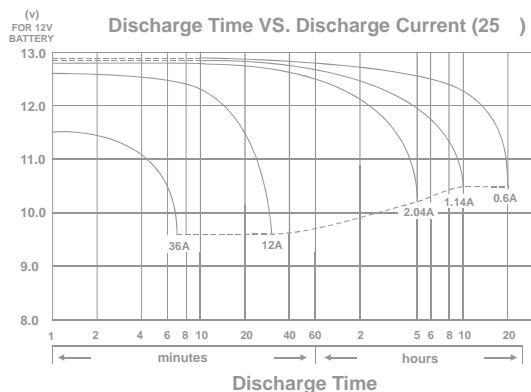
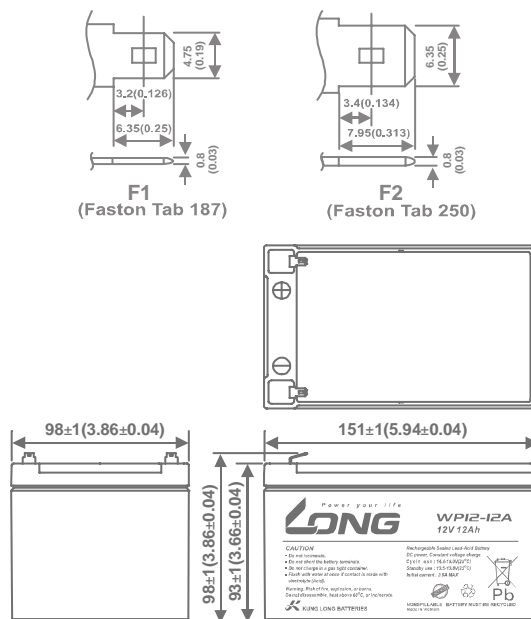
Option: Flammability resistance of (UL94 V-0)

Terminal **F1 or F2 (Faston Tab 187 or 250)**

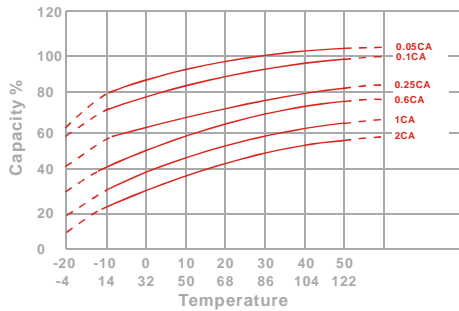


### Dimensions

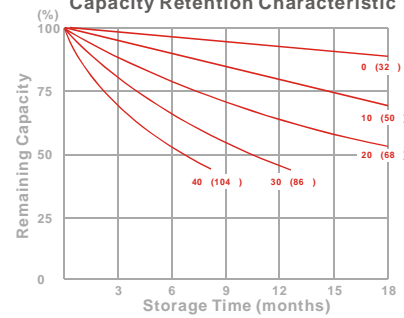
mm(inch)



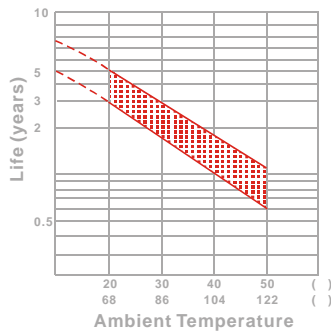
Effect of Temperature on Capacity 25 (77 )



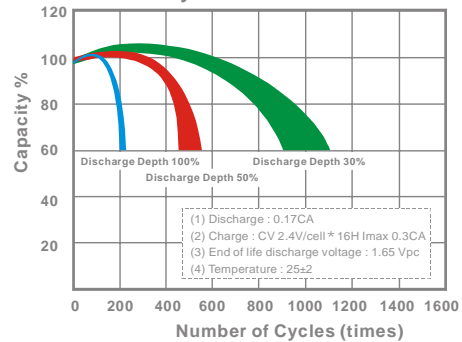
Capacity Retention Characteristic



Trickle (or float) Service Life



Cycle Service Life



## - PERFORMANCE DATA

Discharge Rates in Watts to Various End Voltages at 25 (77 )

End Voltage		1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
Time								
5	min	67.6	75.2	80.8	86.7	89.3	91.9	97.0
10	min	48.0	52.5	54.9	57.3	58.2	59.5	61.0
15	min	38.6	41.0	42.6	44.1	44.5	45.4	46.6
30	min	22.2	23.6	24.6	25.4	25.7	25.9	26.3
60	min	15.8	16.3	16.7	17.0	17.2	17.3	17.5
120	min	8.63	8.92	9.04	9.14	9.18	9.24	9.32
180	min	5.65	5.87	6.05	6.20	6.27	6.35	6.42
240	min	4.78	4.88	4.96	5.06	5.12	5.20	5.26
300	min	3.96	4.08	4.18	4.30	4.33	4.38	4.48
600	min	2.34	2.40	2.44	2.47	2.48	2.50	2.52
1200	min	1.19	1.21	1.25	1.26	1.28	1.29	1.32

- Discharge Rates in Amperes to Various End Voltages at 25 (77 )

End Voltage		1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
Time								
5	min	37.2	41.4	44.5	47.7	49.1	50.6	53.4
10	min	25.7	28.1	29.4	30.7	31.2	31.9	32.7
15	min	19.8	21.3	22.1	22.9	23.2	23.5	24.2
30	min	11.4	12.1	12.6	13.0	13.1	13.3	13.5
60	min	8.21	8.40	8.52	8.63	8.68	8.74	8.82
120	min	4.21	4.36	4.47	4.56	4.59	4.63	4.68
180	min	2.87	3.06	3.13	3.19	3.22	3.25	3.29
240	min	2.38	2.43	2.47	2.52	2.55	2.58	2.62
300	min	1.97	2.03	2.08	2.14	2.16	2.19	2.23
600	min	1.16	1.18	1.20	1.22	1.23	1.24	1.25
1200	min	0.592	0.599	0.618	0.627	0.634	0.642	0.656

All data on the spec. sheet is an average value:

The tolerance range : X<6min(+15%~-15%), 6min X<10min(+12%~-12%), 10min X < 60min(+8%~-8%), X 60min(+5%~-5%)

031016-1H

## WP18-12NSHR 12Volt 18Ah

### Specifications

Nominal Voltage(V) **12V**

#### Nominal Capacity

20 hour rate	(0.9A to 10.50V)	<b>18Ah</b>
10 hour rate	(1.71A to 10.50V)	<b>17.1Ah</b>
5 hour rate	(3.06A to 10.20V)	<b>15.3Ah</b>
1 C	(18A to 9.60V)	<b>11.4Ah</b>
3 C	(54A to 9.60V)	<b>7.2Ah</b>

Weight **Approx. 5.6kg(12.32Lbs.)**

Internal Resistance (at 1KHz) **Approx. 10.5 mΩ**

Maximum Discharge Current for 5 seconds: **270A**

#### Charging Methods at 25 (77 )

Cycle use:

Charging Voltage **14.4 to 15.0V**

Coefficient -5.0mV/ /cell

Maximum Charging Current : **5.4A**

Standby use:

Float Charging Voltage **13.5 to 13.8V**

Coefficient -3.0mV/ /cell

#### Operating Temperature Range

Charge **-15 (5 ) to 40 (104 )**

Discharge **-15 (5 ) to 50 (122 )**

Storage **-15 (5 ) to 40 (104 )**

#### Charge Retention (shelf life) at 20 (68 )

1 month **92%**

3 month **90%**

6 month **80%**

Case Material **ABS UL94 HB**

Option: Flammability resistance of (UL94 V-0)

Terminal **F6**

Description of torque value of hard ware for the terminals:

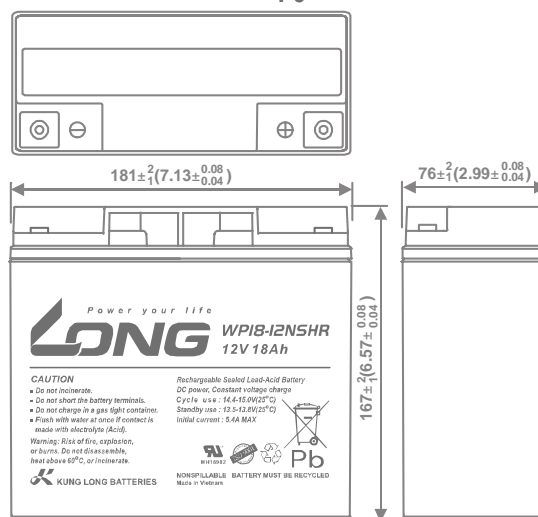
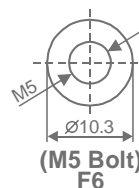
Recommended torque value **M5: 5 N-m (51kgf-cm)**

Maximum allowable torque value **M5: 6 N-m (61kgf-cm)**

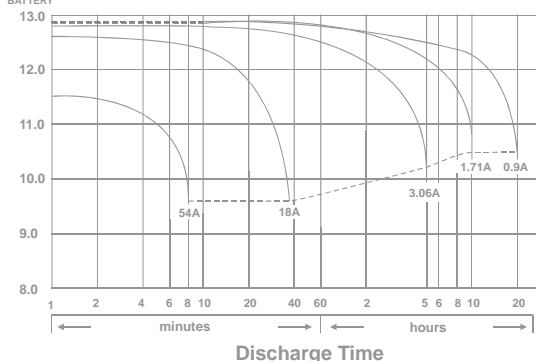


### Dimensions

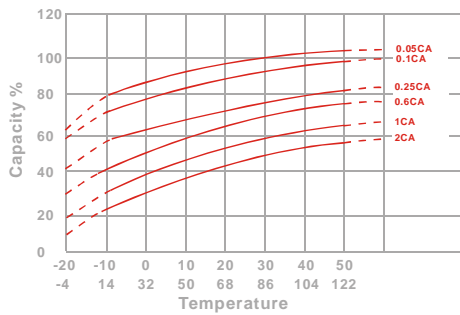
mm(inch)



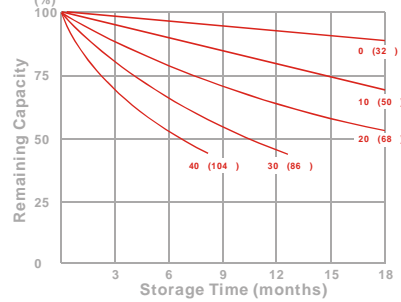
(V) Discharge Time VS. Discharge Current (25 )  
FOR 12V BATTERY



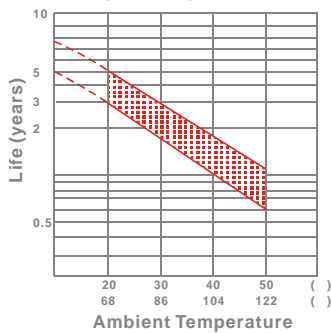
Effect of Temperature on Capacity 25 (77 )



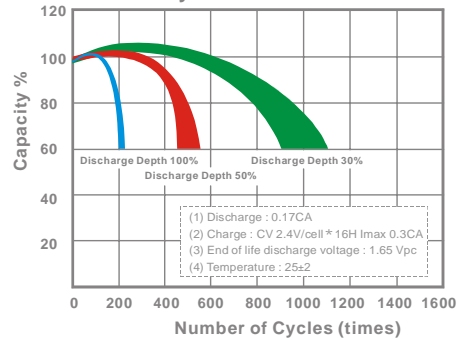
Capacity Retention Characteristic



Trickle (or float) Service Life



Cycle Service Life



## - PERFORMANCE DATA

Discharge Rates in Watts to Various End Voltages at 25 (77 )

End Voltage		1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
Time								
5	min	98.9	116	128	135	137	139	141
10	min	67.0	77.1	84.5	89.1	90.2	91.7	92.9
15	min	57.2	64.5	69.4	72.5	73.3	74.2	75.1
30	min	32.7	35.1	37.7	39.4	39.8	40.3	40.8
60	min	18.8	19.8	20.7	21.3	21.5	21.8	22.2
120	min	11.9	12.4	12.7	13.1	13.2	13.3	13.5
180	min	8.75	9.10	9.33	9.53	9.60	9.68	9.78
240	min	6.63	6.93	7.12	7.27	7.32	7.38	7.46
300	min	5.82	6.05	6.17	6.27	6.30	6.35	6.41
600	min	3.40	3.52	3.60	3.67	3.68	3.72	3.75
1200	min	1.77	1.83	1.88	1.92	1.93	1.95	1.96

- Discharge Rates in Amperes to Various End Voltages at 25 (77 )

End Voltage		1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
Time								
5	min	62.6	68.3	71.9	75.1	76.4	77.8	80.2
10	min	38.6	41.8	44.3	46.5	47.4	48.4	50.1
15	min	31.9	34.6	36.3	37.7	38.2	38.8	39.7
30	min	17.4	18.7	19.8	20.7	21.0	21.4	21.9
60	min	9.74	10.3	10.7	11.0	11.1	11.3	11.5
120	min	5.98	6.23	6.39	6.53	6.58	6.64	6.72
180	min	4.35	4.52	4.64	4.73	4.76	4.80	4.85
240	min	3.43	3.52	3.58	3.62	3.63	3.65	3.68
300	min	2.96	3.02	3.07	3.11	3.12	3.14	3.16
600	min	1.73	1.77	1.80	1.82	1.83	1.84	1.85
1200	min	0.893	0.914	0.931	0.946	0.952	0.959	0.962

All data on the spec. sheet is an average value:

The tolerance range : X<6min(+15%~-15%), 6min X<10min(+12%~-12%),10min X < 60min(+8%~-8%), X 60min(+5%~-5%)

031016-11

## WP22-12N 12Volt 22Ah

### Specifications

Nominal Voltage(V) **12V**

#### Nominal Capacity

20 hour rate	(1.1A	to	10.50V)	<b>22Ah</b>
10 hour rate	(2.09A	to	10.50V)	<b>20.9Ah</b>
5 hour rate	(3.74A	to	10.20V)	<b>18.7Ah</b>
1 C	(22A	to	9.60V)	<b>12.47Ah</b>
3 C	(66A	to	9.60V)	<b>8.8Ah</b>

Weight **Approx. 6.9kg(15.18Lbs.)**

Internal Resistance (at 1KHz) **Approx. 9 mΩ**

Maximum Discharge Current for 5 seconds: **330A**

#### Charging Methods at 25 (77 )

##### Cycle use:

Charging Voltage **14.4 to 15.0V**

Coefficient -5.0mV/ /cell

Maximum Charging Current : **6.6A**

##### Standby use:

Float Charging Voltage **13.5 to 13.8V**

Coefficient -3.0mV/ /cell

#### Operating Temperature Range

Charge **-15 (5 ) to 40 (104 )**

Discharge **-15 (5 ) to 50 (122 )**

Storage **-15 (5 ) to 40 (104 )**

#### Charge Retention (shelf life) at 20 (68 )

1 month **92%**

3 month **90%**

6 month **80%**

Case Material **ABS UL94 HB**

Option: Flammability resistance of (UL94 V-0)

Terminal **F8**

#### Description of torque value of hard ware for the terminals:

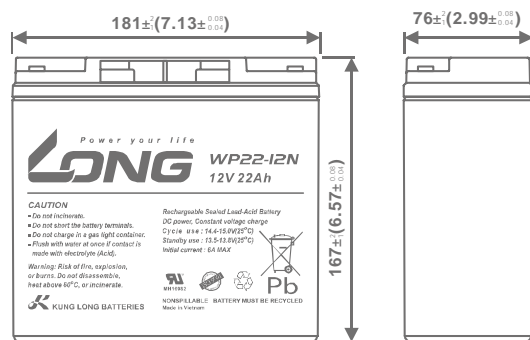
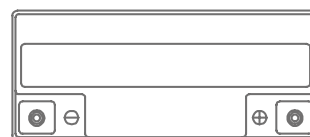
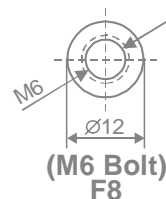
Recommended torque value **M6: 7 N-m (71kgf-cm)**

Maximum allowable torque value **M6: 9 N-m (92kgf-cm)**

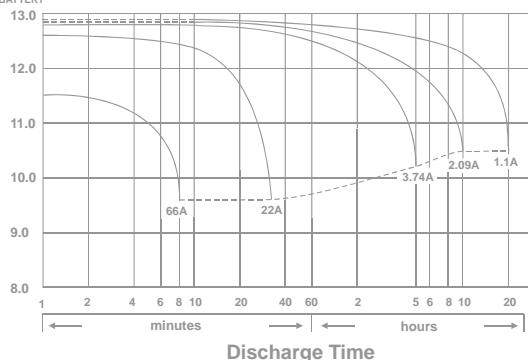


### Dimensions

mm(inch)

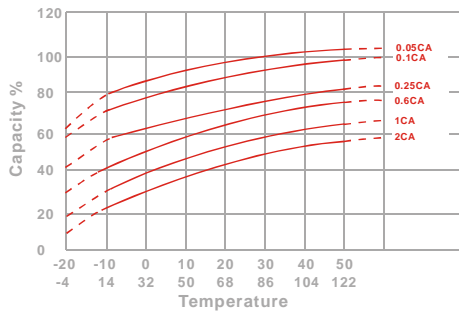


(V) Discharge Time VS. Discharge Current (25 )  
FOR 12V BATTERY

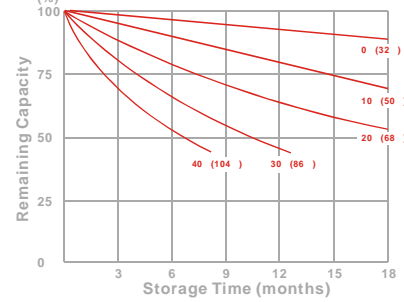




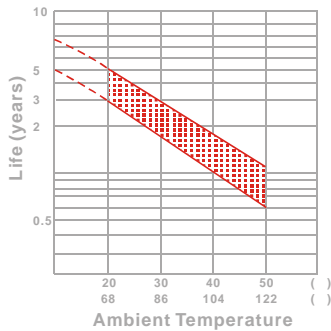
Effect of Temperature on Capacity 25 (77 )



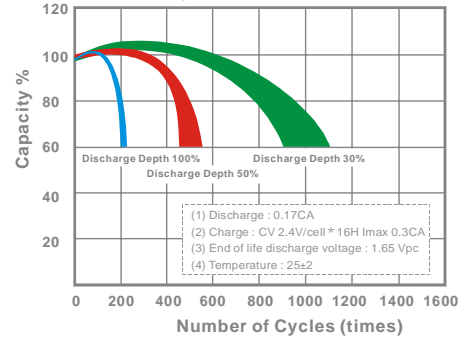
Capacity Retention Characteristic



Trickle (or float) Service Life



Cycle Service Life



## - PERFORMANCE DATA

Discharge Rates in Watts to Various End Voltages at 25 (77 )

End Voltage		1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
Time								
5	min	136	152	164	171	173	175	177
10	min	88.3	99.7	107	112	113	114	116
15	min	67.4	75.1	80.1	83.2	84.1	85.0	85.8
30	min	39.8	43.9	46.6	48.3	48.8	49.3	49.7
60	min	25.2	26.0	26.7	27.1	27.3	27.4	27.6
120	min	15.2	15.5	15.7	15.9	16.0	16.1	16.2
180	min	10.8	11.1	11.3	11.4	11.5	11.5	11.6
240	min	8.60	8.87	9.02	9.14	9.19	9.24	9.31
300	min	7.25	7.48	7.65	7.78	7.84	7.87	7.91
600	min	4.12	4.32	4.47	4.57	4.60	4.63	4.67
1200	min	2.20	2.28	2.35	2.41	2.42	2.44	2.45

- Discharge Rates in Amperes to Various End Voltages at 25 (77 )

End Voltage		1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
Time								
5	min	74.8	83.3	90.1	97.6	99.3	102	105
10	min	48.1	54.0	57.4	59.9	60.8	61.5	62.3
15	min	36.6	41.4	43.1	44.4	44.8	45.3	45.9
30	min	20.0	22.1	23.5	24.2	24.4	24.7	25.1
60	min	12.4	12.8	13.1	13.4	13.5	13.6	13.8
120	min	7.61	7.83	7.98	8.12	8.16	8.21	8.27
180	min	5.32	5.51	5.64	5.75	5.79	5.83	5.88
240	min	4.17	4.33	4.45	4.54	4.58	4.61	4.65
300	min	3.56	3.68	3.77	3.84	3.87	3.89	3.92
600	min	2.06	2.14	2.21	2.26	2.27	2.29	2.31
1200	min	1.07	1.12	1.16	1.19	1.20	1.21	1.22

All data on the spec. sheet is an average value:

The tolerance range : X<6min(+15%~-15%), 6min X<10min(+12%~-12%), 10min X < 60min(+8%~-8%), X > 60min(+5%~-5%)

021216-1E

### ⚡ Specifications

#### Nominal Voltage(V)

12V

#### Nominal Capacity

20 hour rate	(1.3A	to	10.50V)	26Ah
10 hour rate	(2.47A	to	10.50V)	24.7Ah
5 hour rate	(4.42A	to	10.20V)	22.1Ah
1 C	(26A	to	9.60V)	14.73Ah
3 C	(78A	to	9.60V)	10.4Ah

#### Weight

Approx. 9.3kg(20.5Lbs.)

#### Internal Resistance (at 1KHz)

Approx. 9.5 mΩ

#### Maximum Discharge Current for

5 seconds: 390A

#### Charging Methods at 25°C(77°F)

Cycle use:	
Charging Voltage	14.4 to 15.0V
Coefficient	-5.0mV/°C/cell
Maximum Charging Current :	7.8A
Standby use:	
Float Charging Voltage	13.5 to 13.8V
Coefficient	-3.0mV/°C/cell

#### Operating Temperature Range

Charge	-15°C(5°F)	to	40°C(104°F)
Discharge	-15°C(5°F)	to	50°C(122°F)
Storage	-15°C(5°F)	to	40°C(104°F)

#### Charge Retention (shelf life) at 20°C(68°F)

1 month	92%
3 month	90%
6 month	80%

#### Case Material

ABS UL94 HB  
Option: Flammability resistance of (UL94 V-0)

#### Design Life

3-5 Years.

#### Terminal

F6



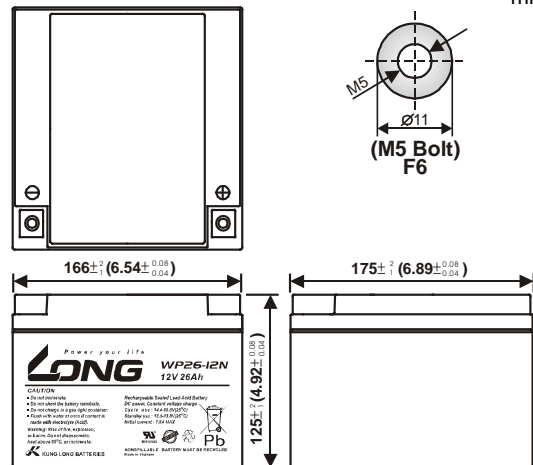
### ⚡ Dimensions

Length (L)	166±2-1 (6.54±0.08-0.04)
Width (W)	175±2-1 (6.89±0.08-0.04)
Height (H)	125±2-1 (4.92±0.08-0.04)
Overall Height (HT)	125±2-1 (4.92±0.08-0.04)

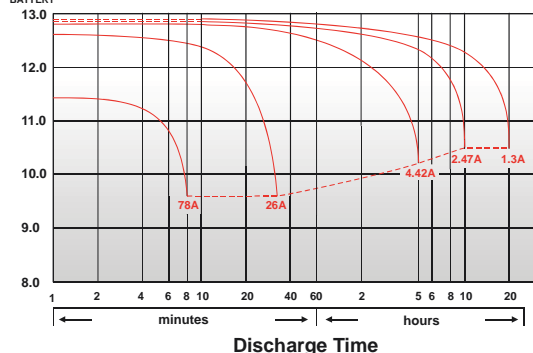
#### Description of torque value of hard ware for the terminals:

Recommended torque value	M5: 5 N-m (51kgf-cm)
Maximum allowable torque value	M5: 6 N-m (61kgf-cm)

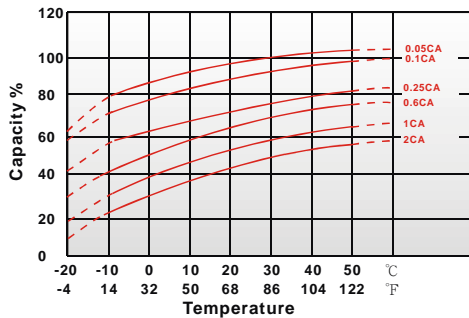
mm(inch)



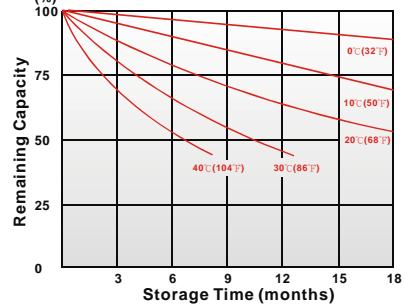
(V) FOR 12V BATTERY Discharge Time VS. Discharge Current (25°C)



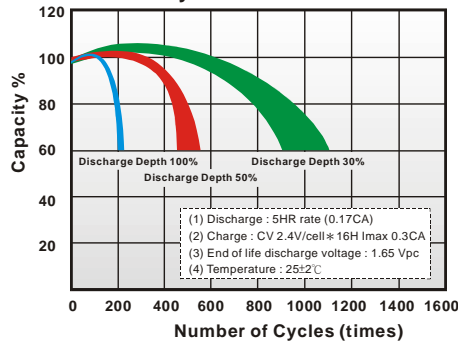
Effect of Temperature on Capacity 25°C(77°F)



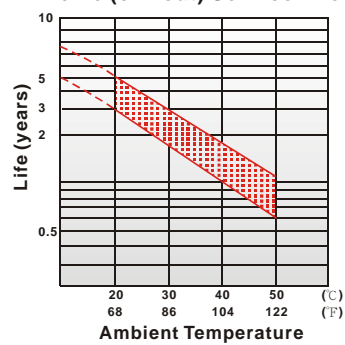
Capacity Retention Characteristic



Cycle Service Life



Trickle (or float) Service Life



### - PERFORMANCE DATA

#### Discharge Rates in Watts to Various End Voltages at 25°C(77°F)

End Voltage		1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
Time								
5	min	147	161	173	185	191	196	208
10	min	108	114	119	125	128	131	135
15	min	78.7	84.0	88.2	92.2	94.2	96.0	99.5
30	min	42.3	45.3	47.2	48.7	49.5	50.3	51.3
60	min	30.2	31.7	32.4	32.8	33.2	33.5	33.8
120	min	19.2	19.8	20.2	20.7	20.8	21.0	21.2
180	min	12.8	13.2	13.4	13.6	13.6	13.7	13.8
240	min	10.3	10.5	10.7	10.8	10.9	10.9	11.0
300	min	8.75	8.90	8.98	9.07	9.10	9.15	9.37
600	min	5.42	5.52	5.58	5.66	5.68	5.72	5.75
1200	min	2.62	2.69	2.74	2.78	2.80	2.82	2.83

#### - Discharge Rates in Amperes to Various End Voltages at 25°C(77°F)

End Voltage		1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
Time								
5	min	78.9	92.9	103	109	111	113	115
10	min	55.6	62.1	64.2	68.2	70.4	72.3	75.7
15	min	40.8	46.4	49.8	52.6	54.3	54.9	56.2
30	min	21.4	23.8	25.2	26.5	27.2	27.8	28.8
60	min	15.3	16.1	16.5	16.9	17.1	17.3	17.5
120	min	9.34	9.72	9.87	10.0	10.1	10.2	10.3
180	min	6.45	6.63	6.72	6.83	6.87	6.92	6.99
240	min	5.48	5.61	5.69	5.76	5.79	5.84	5.91
300	min	4.77	4.86	4.93	5.00	5.02	5.05	5.08
600	min	2.55	2.61	2.65	2.69	2.71	2.74	2.77
1200	min	1.29	1.34	1.36	1.38	1.39	1.40	1.43

All data on the spec. sheet is an average value:

The tolerance range :  $X < 6\text{min}$ (+15%~-15%),  $6\text{min} \leq X < 10\text{min}$ (+12%~-12%),  $10\text{min} \leq X < 60\text{min}$ (+8%~-8%),  $X \geq 60\text{min}$ (+5%~-5%)

120219-1K

## WP30-12T 12Volt 30Ah

### Specifications

Nominal Voltage(V) **12V**

#### Nominal Capacity

20 hour rate	(1.5A	to	10.50V)	<b>30Ah</b>
10 hour rate	(2.85A	to	10.50V)	<b>28.5Ah</b>
5 hour rate	(5.1A	to	10.20V)	<b>25.5Ah</b>
1 C	(30A	to	9.60V)	<b>17.0Ah</b>
3 C	(90A	to	9.60V)	<b>12.0Ah</b>

Weight **Approx. 10.5kg(23.1Lbs.)**

Internal Resistance (at 1KHz) **Approx. 9 mΩ**

#### Maximum Discharge Current for

5 seconds: **600A**

#### Charging Methods at 25 (77 )

##### Cycle use:

Charging Voltage **14.4 to 15.0V**

Coefficient -5.0mV/ /cell

Maximum Charging Current : **9A**

##### Standby use:

Float Charging Voltage **13.5 to 13.8V**

Coefficient -3.0mV/ /cell

#### Operating Temperature Range

Charge **-15 (5 ) to 40 (104 )**

Discharge **-15 (5 ) to 50 (122 )**

Storage **-15 (5 ) to 40 (104 )**

#### Charge Retention (shelf life) at 20 (68 )

1 month **92%**

3 month **90%**

6 month **80%**

Case Material **ABS UL94 HB**

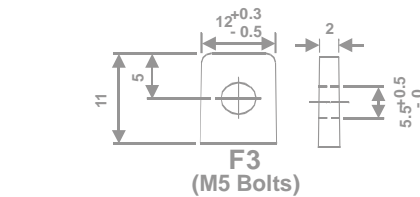
Option: Flammability resistance of (UL94 V-0)

Terminal **F3**

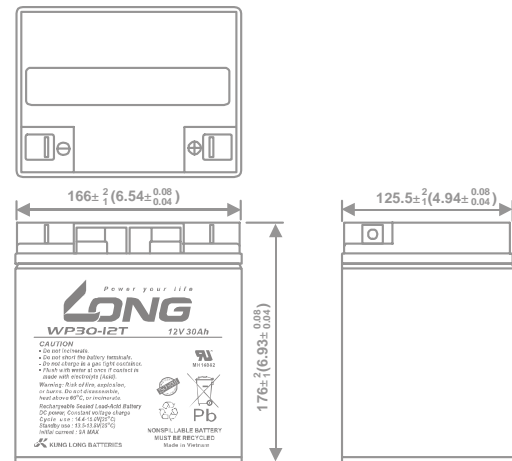


### Dimensions

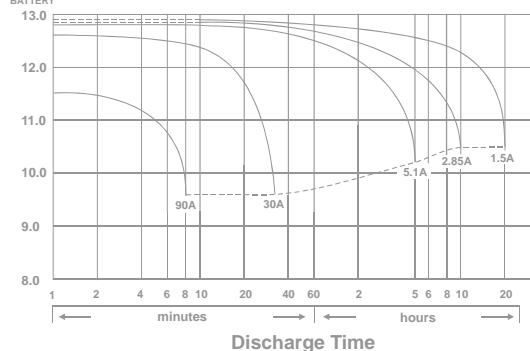
mm(inch)



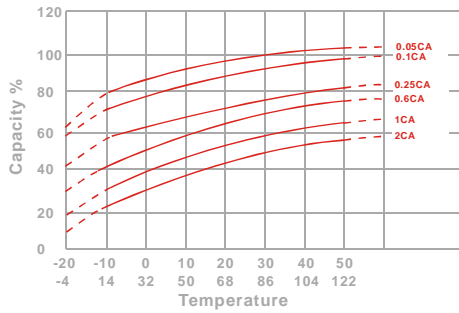
F3 (M5 Bolts)



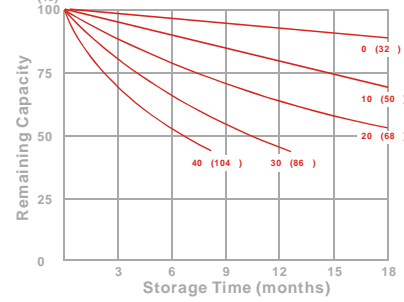
(V) FOR 12V BATTERY Discharge Time VS. Discharge Current (25 )



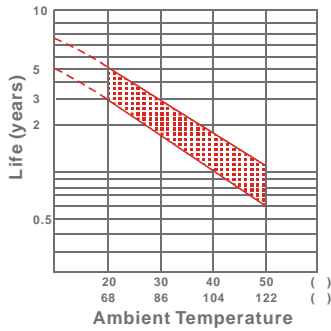
Effect of Temperature on Capacity 25 (77 )



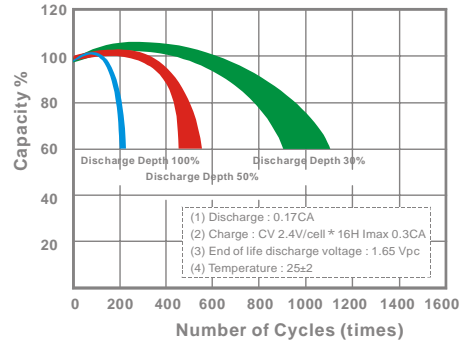
Capacity Retention Characteristic



Trickle (or float) Service Life



Cycle Service Life



## - PERFORMANCE DATA

Discharge Rates in Watts to Various End Voltages at 25 (77 )

End Voltage		1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
5	min	141	177	198	209	213	217	222
10	min	108	124	135	142	146	149	153
15	min	94.4	105	110	114	116	117	119
30	min	58.4	63.1	65.0	66.5	66.8	67.4	68.1
60	min	34.4	37.1	38.5	39.5	39.8	40.4	40.9
120	min	20.3	21.7	22.5	23.2	23.3	23.7	24.0
180	min	15.5	16.1	16.4	16.7	16.8	17.0	17.2
240	min	12.7	13.2	13.5	13.7	13.7	13.8	14.0
300	min	10.4	10.9	11.1	12.1	11.3	11.4	11.5
600	min	5.81	6.02	6.17	6.30	6.33	6.39	6.45
1200	min	3.13	3.26	3.33	3.38	3.40	3.44	3.47

- Discharge Rates in Amperes to Various End Voltages at 25 (77 )

End Voltage		1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
5	min	75.3	96.7	110	118	121	124	128
10	min	56.4	65.5	71.8	77.0	78.8	81.0	83.4
15	min	48.6	54.4	57.1	59.7	60.6	61.4	62.7
30	min	29.3	31.8	32.9	33.8	34.1	34.5	34.9
60	min	16.9	18.3	19.2	19.8	20.0	20.2	20.4
120	min	10.4	10.9	11.3	11.6	11.7	11.8	11.9
180	min	7.51	7.83	8.04	8.21	8.28	8.35	8.46
240	min	6.12	6.41	6.54	6.66	6.70	6.74	6.81
300	min	5.09	5.34	5.46	5.55	5.59	5.63	5.68
600	min	2.81	2.92	3.00	3.06	3.08	3.11	3.14
1200	min	1.52	1.57	1.61	1.64	1.65	1.67	1.69

All data on the spec. sheet is an average value:

The tolerance range : X<6min(+15%~-15%), 6min X<10min(+12%~-12%),10min X < 60min(+8%~-8%), X 60min(+5%~-5%)

021216-1E



Head Quarter Service - TEL: +886-49-2254-777 FAX: +886-49-2255-139 E-mail: sales@mail.klb.com.tw  
USA Customer Service - TEL: +1-949-328-7936 FAX: +1-949-266-9917 E-mail: sales@kunglong.com  
Vietnam Customer Service - TEL: +84-72-3779666 FAX: +84-72-3779476 E-mail: sales@mail.klb.com.tw



### Specifications

#### Nominal Voltage(V)

12V

#### Nominal Capacity

20 hour rate	(2A	to	10.50V)	40Ah
10 hour rate	(3.8A	to	10.50V)	38Ah
5 hour rate	(6.8A	to	10.20V)	34Ah
1 C	(40A	to	9.60V)	22.67Ah
3 C	(120A	to	9.60V)	16Ah

#### Weight

Approx. 13.4kg(29.5Lbs.)

#### Internal Resistance (at 1KHz)

Approx. 7.5 mΩ

#### Maximum Discharge Current for

5 seconds: 480A

#### Charging Methods at 25°C(77°F)

Cycle use:	
Charging Voltage	14.4 to 15.0V
Coefficient	-5.0mV/°C/cell
Maximum Charging Current :	12A
Standby use:	
Float Charging Voltage	13.5 to 13.8V
Coefficient	-3.0mV/°C/cell

#### Operating Temperature Range

Charge	-15°C(5°F)	to	40°C(104°F)
Discharge	-15°C(5°F)	to	50°C(122°F)
Storage	-15°C(5°F)	to	40°C(104°F)

#### Charge Retention (shelf life) at 20°C(68°F)

1 month	92%
3 month	90%
6 month	80%

#### Case Material

ABS UL94 HB  
Option: Flammability resistance of (UL94 V-0)

#### Design Life

3-5 Years.

#### Terminal

F8



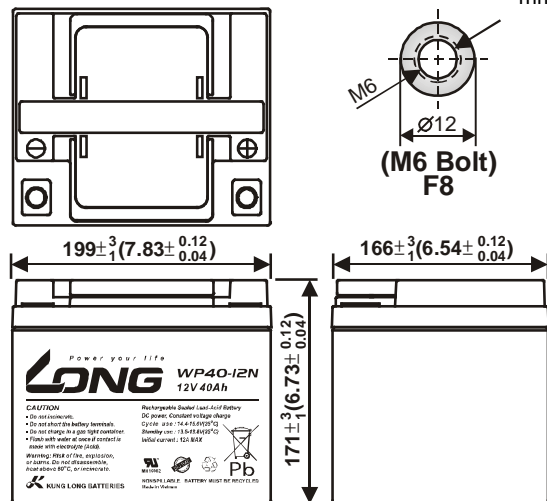
### Dimensions

Length (L)	199+3-1 (7.83+0.12-0.04)
Width (W)	166+3-1 (6.54+0.12-0.04)
Height (H)	171+3-1 (6.73+0.12-0.04)
Overall Height (HT)	171+3-1 (6.73+0.12-0.04)

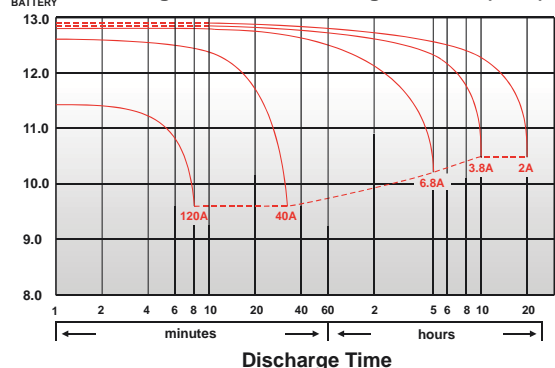
#### Description of torque value of hard ware for the terminals:

Recommended torque value	M6: 7 N-m (71kgf-cm)
Maximum allowable torque value	M6: 9 N-m (92kgf-cm)

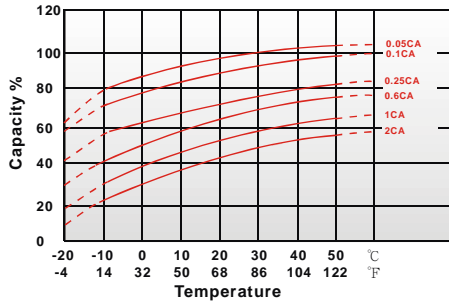
mm(inch)



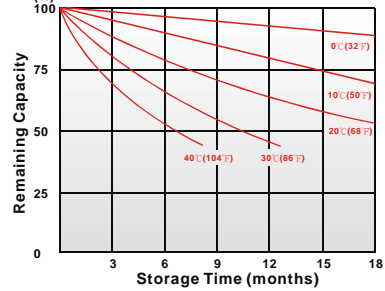
(V) FOR 12V BATTERY Discharge Time VS. Discharge Current (25°C)



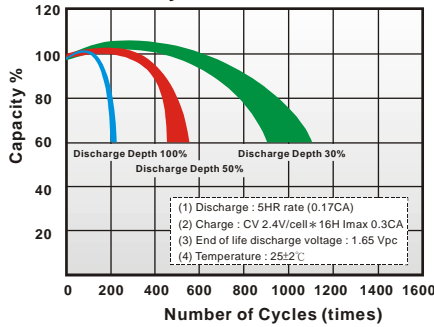
Effect of Temperature on Capacity 25°C (77°F)



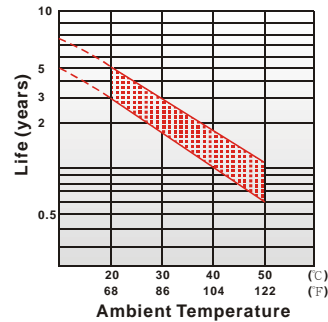
Capacity Retention Characteristic



Cycle Service Life



Trickle (or float) Service Life



### - PERFORMANCE DATA

#### Discharge Rates in Watts to Various End Voltages at 25°C (77°F)

End Voltage		1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
Time								
6	min	249	266	281	290	293	295	299
8	min	205	218	231	237	239	241	244
10	min	178	189	198	204	205	207	209
15	min	135	142	149	152	153	154	156
20	min	112	118	123	125	126	127	128
30	min	84.8	88.6	91.8	93.5	94.2	94.6	95.5
60	min	62.9	65.3	66.6	67.1	67.3	67.6	67.9
90	min	43.5	45.2	46.0	46.3	46.5	46.7	46.9
120	min	33.5	34.8	35.4	35.6	35.8	35.9	36.1
180	min	23.3	24.1	24.5	24.7	24.7	24.8	24.9
240	min	18.0	18.6	18.9	19.0	19.1	19.1	19.2
300	min	14.6	15.2	15.4	15.5	15.5	15.6	15.7
480	min	9.56	9.88	10.0	10.1	10.1	10.1	10.2
600	min	6.93	7.15	7.35	7.55	7.63	7.73	7.87
1200	min	3.55	3.75	3.93	4.08	4.15	4.23	4.35

#### - Discharge Rates in Amperes to Various End Voltages at 25°C (77°F)

End Voltage		1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
Time								
6	min	141	150	159	164	166	167	169
8	min	114	121	128	132	133	134	135
10	min	97.0	103	108	111	112	113	114
15	min	72.1	76.1	79.6	81.4	82.2	82.6	83.5
20	min	58.5	61.4	64.0	65.4	65.9	66.2	66.9
30	min	43.5	45.5	47.1	48.0	48.3	48.5	49.0
60	min	31.7	32.9	33.6	33.8	33.9	34.1	34.2
90	min	21.9	22.7	23.1	23.3	23.4	23.5	23.6
120	min	16.8	17.5	17.8	17.9	18.0	18.0	18.1
180	min	11.6	12.0	12.2	12.3	12.4	12.4	12.5
240	min	8.94	9.25	9.40	9.47	9.50	9.53	9.57
300	min	7.29	7.54	7.66	7.72	7.74	7.77	7.80
480	min	4.75	4.91	4.98	5.01	5.03	5.04	5.06
600	min	3.92	4.04	4.10	4.13	4.14	4.15	4.17
1200	min	2.08	2.14	2.17	2.19	2.19	2.20	2.20

All data on the spec. sheet is an average value:

The tolerance range :  $X < 6\text{min}$  (+15%~-15%),  $6\text{min} \leq X < 10\text{min}$  (+12%~-12%),  $10\text{min} \leq X < 60\text{min}$  (+8%~-8%),  $X \geq 60\text{min}$  (+5%~-5%)

120219-1F

## WP50-12N 12Volt 50Ah

### Specifications

Nominal Voltage(V) **12V**

#### Nominal Capacity

20 hour rate	(2.5A to 10.50V)	50Ah
10 hour rate	(4.75A to 10.50V)	47.5Ah
5 hour rate	(8.5A to 10.20V)	42.5Ah
1 C	(50A to 9.60V)	28.33Ah
3 C	(150A to 9.60V)	20Ah

Weight **Approx. 15.1kg(33.2Lbs.)**

Internal Resistance (at 1KHz) **Approx. 5 mΩ**

#### Maximum Discharge Current for

5 seconds: **600A**

#### Charging Methods at 25 (77 )

##### Cycle use:

Charging Voltage **14.4 to 15.0V**

Coefficient -5.0mV/ /cell

Maximum Charging Current : **15A**

##### Standby use:

Float Charging Voltage **13.5 to 13.8V**

Coefficient -3.0mV/ /cell

#### Operating Temperature Range

Charge **-15 (5 ) to 40 (104 )**

Discharge **-15 (5 ) to 50 (122 )**

Storage **-15 (5 ) to 40 (104 )**

#### Charge Retention (shelf life) at 20 (68 )

1 month **98%**

3 month **94%**

6 month **85%**

Case Material **ABS UL94 HB**

Option: Flammability resistance of (UL94 V-0)

Terminal **F8**

#### Description of torque value of hard ware for the terminals:

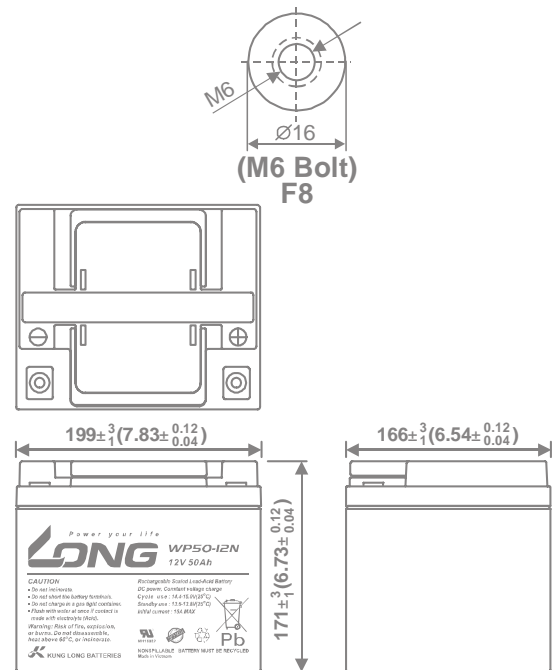
Recommended torque value **M6: 7 N-m (71kgf-cm)**

Maximum allowable torque value **M6: 9 N-m (92kgf-cm)**

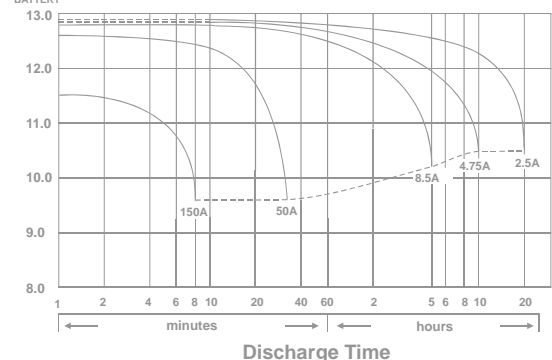


### Dimensions

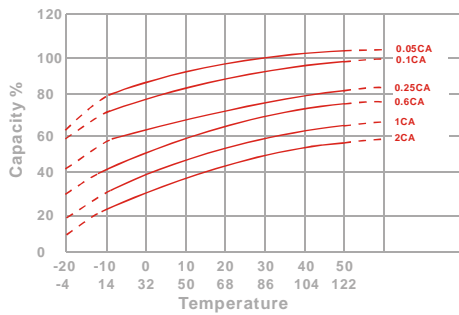
mm(inch)



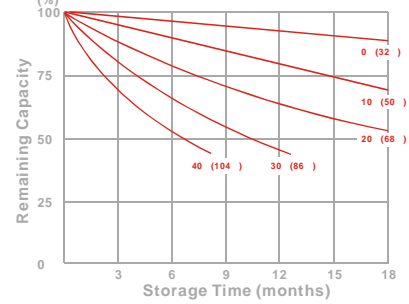
#### (V) FOR 12V BATTERY Discharge Time VS. Discharge Current (25 )



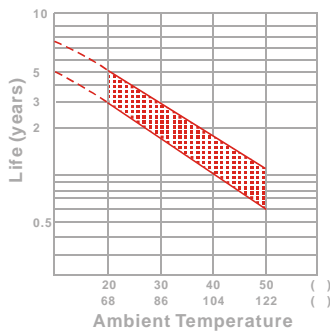
Effect of Temperature on Capacity 25 (77 )



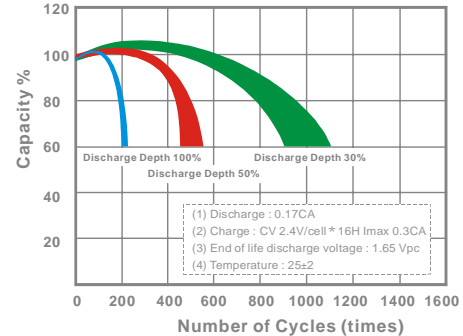
Capacity Retention Characteristic



Trickle (or float) Service Life



Cycle Service Life



## - PERFORMANCE DATA

### Discharge Rates in Watts to Various End Voltages at 25 (77 )

End Voltage		1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
<b>Time</b>								
5	min	240	288	322	345	350	356	361
10	min	171	203	223	233	237	241	246
15	min	126	146	160	167	170	172	175
30	min	78.0	89.8	97.2	100	102	103	104
60	min	53.7	56.5	58.2	59.5	60.0	60.7	61.2
120	min	29.2	32.0	33.3	34.5	34.8	35.3	35.8
180	min	20.8	22.7	23.8	24.7	25.0	25.3	25.7
240	min	17.2	18.3	19.0	19.7	19.8	20.2	20.5
300	min	15.9	16.6	17.0	17.3	17.5	17.7	17.8
600	min	8.62	9.10	9.38	9.57	9.62	9.68	9.77
1200	min	4.58	4.87	5.05	5.17	5.20	5.25	5.30

### - Discharge Rates in Amperes to Various End Voltages at 25 (77 )

End Voltage		1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
<b>Time</b>								
5	min	139	166	185	199	206	210	214
10	min	88.5	106	117	125	128	131	134
15	min	77.8	84.5	87.6	90.2	90.9	91.8	92.9
30	min	45.4	50.7	52.8	54.4	54.9	55.5	56.2
60	min	26.0	28.8	29.9	30.6	30.8	31.1	31.4
120	min	15.1	16.2	16.8	17.3	17.5	17.7	17.9
180	min	11.0	11.7	12.1	12.4	12.5	12.6	12.7
240	min	8.96	9.44	9.70	9.89	9.96	10.1	10.2
300	min	7.85	8.26	8.50	8.67	8.73	8.80	8.87
600	min	4.41	4.65	4.76	4.82	4.84	4.87	4.91
1200	min	2.32	2.44	2.50	2.55	2.57	2.59	2.61

All data on the spec. sheet is an average value:

The tolerance range : X<6min(+15%~-15%), 6min X<10min(+12%~-12%),10min X < 60min(+8%~-8%), X 60min(+5%~-5%)



## WP55-12N 12Volt 55Ah

### Specifications

Nominal Voltage(V) **12V**

#### Nominal Capacity

20 hour rate	(2.75A to 10.50V)	55Ah
10 hour rate	(5.225A to 10.50V)	52.25Ah
5 hour rate	(9.35A to 10.20V)	46.75Ah
1 C	(55A to 9.60V)	31.17Ah
3 C	(165A to 9.60V)	22Ah

Weight **Approx. 17.0kg(37.4Lbs.)**

Internal Resistance (at 1KHz) **Approx. 8 mΩ**

Maximum Discharge Current for 5 seconds: **660A**

#### Charging Methods at 25 (77 )

Cycle use:

Charging Voltage **14.4 to 15.0V**

Coefficient -5.0mV/ /cell

Maximum Charging Current : **16.5A**

Standby use:

Float Charging Voltage **13.5 to 13.8V**

Coefficient -3.0mV/ /cell

#### Operating Temperature Range

Charge **-15 (5 ) to 40 (104 )**

Discharge **-15 (5 ) to 50 (122 )**

Storage **-15 (5 ) to 40 (104 )**

#### Charge Retention (shelf life) at 20 (68 )

1 month **98%**

3 month **94%**

6 month **85%**

Case Material **ABS UL94 HB**

Option: Flammability resistance of (UL94 V-0)

Terminal **F8**

Description of torque value of hard ware for the terminals:

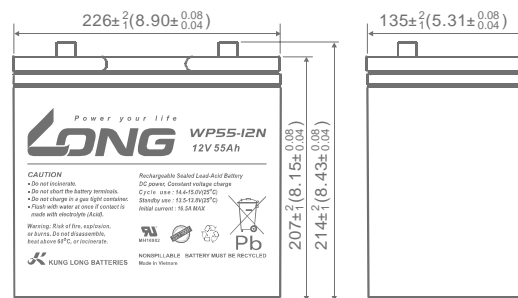
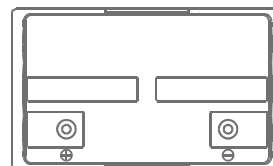
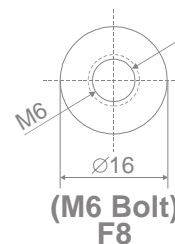
Recommended torque value **M6: 7 N-m (71kgf-cm)**

Maximum allowable torque value **M6: 9 N-m (92kgf-cm)**

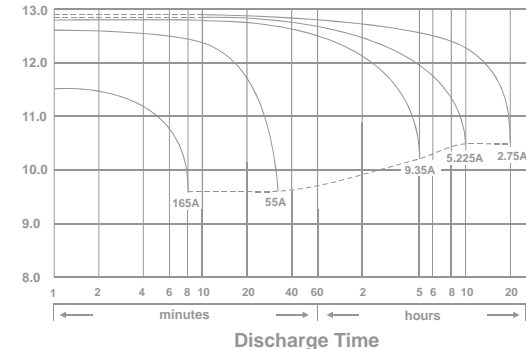


### Dimensions

mm(inch)

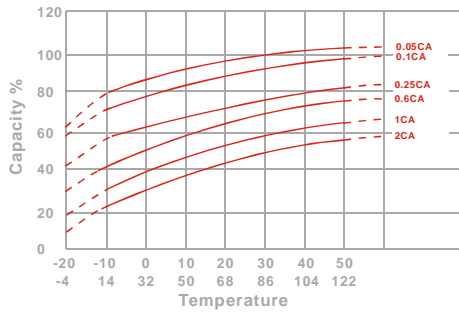


(V) Discharge Time VS. Discharge Current (25 )

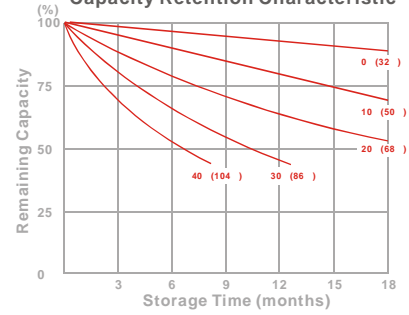




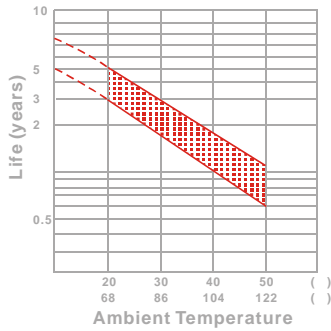
Effect of Temperature on Capacity 25 (77 )



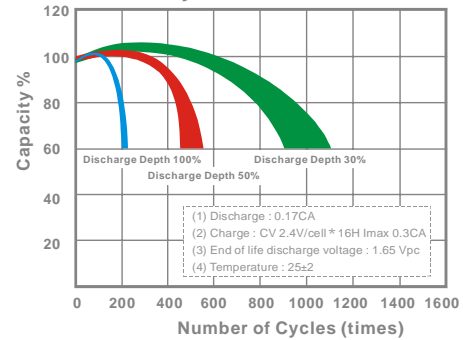
Capacity Retention Characteristic



Trickle (or float) Service Life



Cycle Service Life



## - PERFORMANCE DATA

Discharge Rates in Watts to Various End Voltages at 25 (77 )

End Voltage		1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
Time								
5	min	328	381	413	430	434	438	444
10	min	210	244	265	276	278	281	285
15	min	163	187	202	209	211	213	215
30	min	86.9	99.5	107	111	112	113	115
60	min	64.7	67.5	69.3	70.8	71.3	72.0	72.6
120	min	32.5	34.7	36.2	37.2	37.5	37.8	38.3
180	min	26.3	28.2	29.2	29.8	30.0	30.3	30.6
240	min	21.8	23.0	23.7	24.2	24.3	24.5	24.6
300	min	18.3	19.3	20.0	20.3	20.5	20.7	20.9
600	min	10.6	11.1	11.4	11.6	11.6	11.7	11.7
1200	min	5.48	5.78	5.93	6.05	6.08	6.14	6.18

- Discharge Rates in Amperes to Various End Voltages at 25 (77 )

End Voltage		1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
Time								
5	min	176	204	219	228	231	234	238
10	min	110	127	138	143	145	147	149
15	min	83.5	95.6	103	107	108	109	110
30	min	43.8	50.2	54.1	55.8	56.4	57.0	57.7
60	min	29.4	33.2	34.5	35.4	35.7	36.1	36.5
120	min	16.9	18.4	19.2	19.8	20.0	20.3	20.6
180	min	13.0	13.8	14.3	14.7	14.8	15.0	15.2
240	min	10.9	11.5	11.7	11.9	12.0	12.1	12.2
300	min	9.32	9.74	9.92	10.1	10.2	10.3	10.4
600	min	5.39	5.63	5.65	5.71	5.73	5.76	5.80
1200	min	2.76	2.89	2.96	3.00	3.01	3.03	3.05

All data on the spec. sheet is an average value:

The tolerance range : X<6min(+15%~-15%), 6min X<10min(+12%~-12%),10min X < 60min(+8%~-8%), X 60min(+5%~-5%)

021216-1J

## WPL65-12AN 12Volt 65Ah

### Specifications

Nominal Voltage(V) **12V**

#### Nominal Capacity

20 hour rate	(3.25A to 10.50V)	<b>65Ah</b>
10 hour rate	(6.175A to 10.50V)	<b>61.75Ah</b>
5 hour rate	(11.05A to 10.20V)	<b>55.25Ah</b>
1 C	(65A to 9.60V)	<b>41.17Ah</b>
3 C	(195A to 9.60V)	<b>26Ah</b>

Weight **Approx. 20.9kg(45.98Lbs.)**

Internal Resistance (at 1KHz) **Approx. 7 mΩ**

Maximum Discharge Current for  
5 seconds: **780A**

#### Charging Methods at 25°C (77°F)

##### Cycle use:

Charging Voltage **14.4 to 15.0V**

Coefficient **-5.0mV/°C/cell**

Maximum Charging Current : **19.5A**

##### Standby use:

Float Charging Voltage **13.5 to 13.8V**

Coefficient **-3.0mV/°C/cell**

#### Operating Temperature Range

Charge **-15°C (5°F) to 40°C (104°F)**

Discharge **-15°C (5°F) to 50°C (122°F)**

Storage **-15°C (5°F) to 40°C (104°F)**

#### Charge Retention (shelf life) at 20°C (68°F)

1 month **98%**

3 month **94%**

6 month **85%**

Case Material **ABS UL94 HB**

Option: Flammability resistance of (UL94 V-0)

Terminal **F8**

#### Description of torque value of hard ware for the terminals:

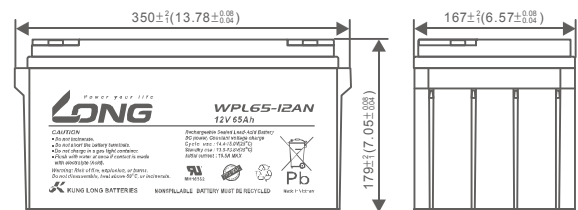
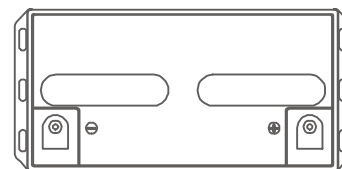
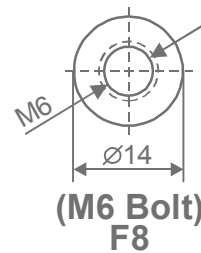
Recommended torque value **M6: 7 N-m (71kgf-cm)**

Maximum allowable torque value **M6: 9 N-m (92kgf-cm)**

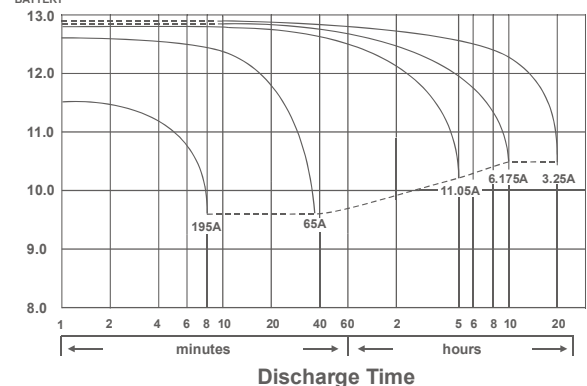


### Dimensions

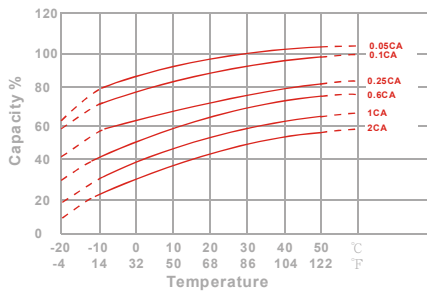
mm(inch)



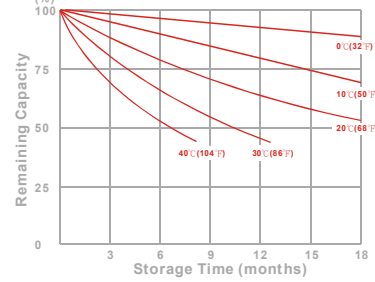
(V) FOR 12V BATTERY **Discharge Time VS. Discharge Current (25°C)**



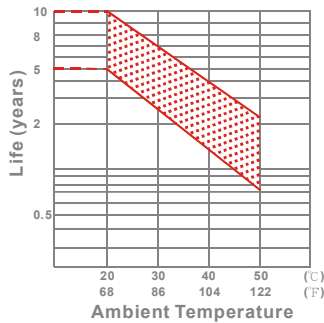
Effect of Temperature on Capacity 25°C (77°F)



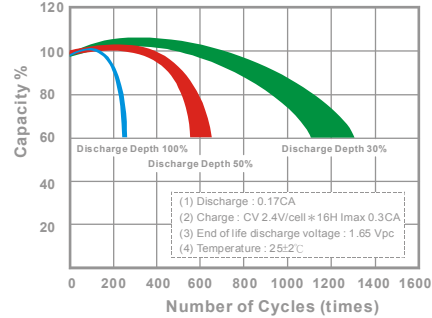
Capacity Retention Characteristic



Trickle (or float) Service Life



Cycle Service Life



## - PERFORMANCE DATA

### Discharge Rates in Watts to Various End Voltages at 25°C (77°F)

End Voltage		1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
Time								
5	min	249	275	320	371	380	396	432
10	min	203	230	251	274	282	290	309
15	min	170	190	207	215	218	224	231
20	min	150	158	171	173	180	185	193
30	min	113	124	134	138	141	143	148
60	min	72.5	76.5	82.3	83.7	84.0	84.3	85.0
90	min	58.3	60.2	61.5	62.0	62.3	62.5	62.8
120	min	46.7	49.0	50.0	50.5	50.7	50.8	51.0
180	min	32.4	33.5	34.0	34.3	34.5	34.7	35.0
240	min	26.0	27.2	27.5	27.7	27.8	28.0	28.2
300	min	21.7	22.6	23.1	23.2	23.3	23.4	23.4
480	min	14.9	15.5	15.8	15.9	16.0	16.0	16.0
600	min	12.5	12.9	13.2	13.2	13.3	13.3	13.3
1200	min	6.54	6.76	6.86	6.87	6.89	6.91	6.94

### - Discharge Rates in Amperes to Various End Voltages at 25°C (77°F)

End Voltage		1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
Time								
5	min	137	151	177	208	213	224	245
10	min	102	123	135	149	154	158	169
15	min	91.0	100	109	116	119	122	129
20	min	61.4	82.5	89.3	92.5	94.0	96.5	101
30	min	50.7	63.6	68.5	71.5	73.4	74.7	77.2
60	min	36.6	38.5	41.5	42.5	43.0	43.6	44.2
90	min	29.5	31.1	31.8	32.2	32.8	33.0	33.4
120	min	23.1	24.3	24.8	25.0	25.3	25.5	25.8
180	min	16.2	17.0	17.3	17.5	17.7	17.8	18.0
240	min	13.0	13.6	13.8	13.9	14.0	14.1	14.2
300	min	10.8	11.3	11.5	11.6	11.7	11.8	11.9
480	min	7.43	7.73	7.87	7.92	7.94	7.96	7.98
600	min	6.19	6.43	6.54	6.58	6.60	6.61	6.63
1200	min	3.24	3.35	3.40	3.41	3.42	3.43	3.44

All data on the spec. sheet is an average value:

The tolerance range : X < 6min (+15%~-15%), 6min ≤ X < 10min (+12%~-12%), 10min ≤ X < 60min (+8%~-8%), X ≥ 60min (+5%~-5%)

120916-1F

## KPH75-12N 12Volt 75Ah

### Specifications

Nominal Voltage(V) **12V**

#### Nominal Capacity

10 hour rate	(7.5A to 10.80V)	<b>75Ah</b>
5 hour rate	(12.75A to 10.20V)	<b>63.75Ah</b>
1 hour rate	(45A to 9.60V)	<b>45Ah</b>
1 C	(75A to 9.60V)	<b>47.5Ah</b>

Weight **Approx. 24.2kg(53.24Lbs.)**

Internal Resistance (at 1KHz) **Approx. 5 mΩ**

Maximum Discharge Current for 5 seconds: **900A**

#### Charging Methods at 25 (77 )

Cycle use:

Charging Voltage	<b>14.4 to 15.0V</b>
Coefficient -5.0mV/ /cell	
Maximum Charging Current :	<b>22.5A</b>

Standby use:

Float Charging Voltage	<b>13.5 to 13.8V</b>
Coefficient -3.0mV/ /cell	

Design Life **12 years**

#### Operating Temperature Range

Charge	<b>-15 (5 ) to 40 (104 )</b>
Discharge	<b>-15 (5 ) to 50 (122 )</b>
Storage	<b>-15 (5 ) to 40 (104 )</b>

#### Charge Retention (shelf life) at 20 (68 )

1 month	<b>98%</b>
3 month	<b>94%</b>
6 month	<b>85%</b>

Case Material **ABS UL94 HB**

Option: Flammability resistance of (UL94 V-0)

Terminal **F8**

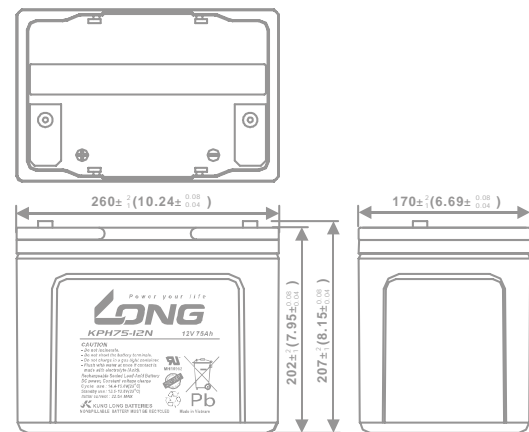
#### Description of torque value of hard ware for the terminals:

Recommended torque value	<b>M6: 7 N-m (71kgf-cm)</b>
Maximum allowable torque value	<b>M6: 9 N-m (92kgf-cm)</b>



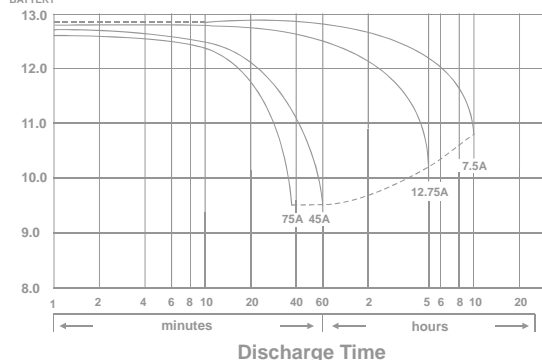
### Dimensions

mm(inch)

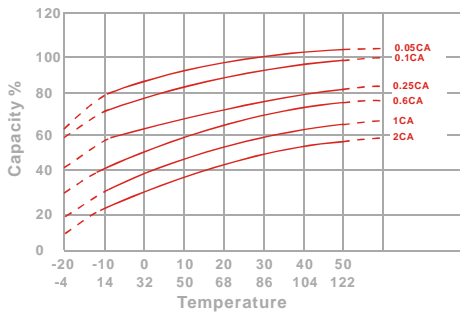


(v)  
FOR 12V  
BATTERY

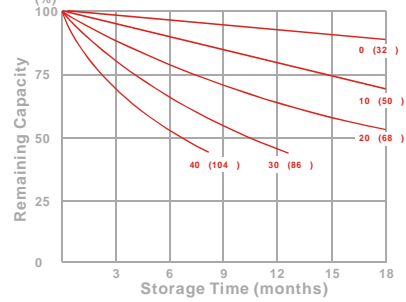
#### Discharge Time VS. Discharge Current (25 )



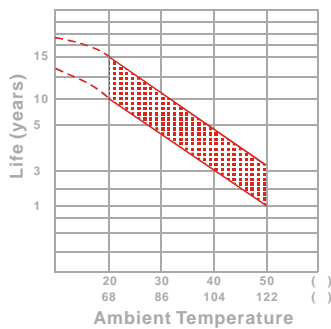
Effect of Temperature on Capacity 25 (77 )



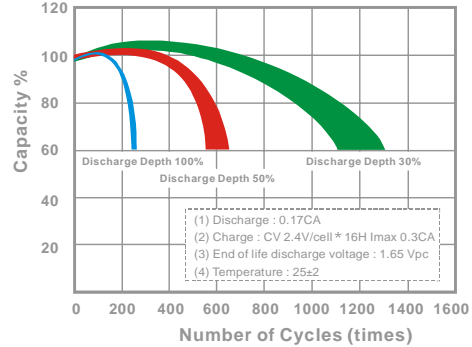
Capacity Retention Characteristic



Trickle (or float) Service Life



Cycle Service Life



## - PERFORMANCE DATA

Discharge Rates in Watts to Various End Voltages at 25 (77 )

End Voltage		1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
Time								
5	min	407	429	491	521	537	552	567
10	min	278	294	336	357	368	378	388
15	min	178	225	240	274	280	287	294
30	min	139	149	155	159	160	162	165
60	min	80.8	85.3	87.8	89.8	90.5	91.3	92.3
120	min	47.2	49.8	51.3	52.7	53.2	53.7	54.3
180	min	34.0	35.8	36.8	37.7	38.0	38.3	38.8
240	min	27.8	28.8	29.7	30.3	30.5	30.8	31.2
300	min	24.8	25.3	25.7	26.0	26.2	26.3	26.5
600	min	15.0	15.2	15.3	15.5	15.5	15.6	15.6
1200	min	7.85	7.97	8.07	8.15	8.20	8.23	8.28

- Discharge Rates in Amperes to Various End Voltages at 25 (77 )

End Voltage		1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
Time								
5	min	178	214	245	272	281	292	304
10	min	112	143	167	186	192	199	207
15	min	90.5	109	124	138	141	145	150
30	min	63.2	72.6	79.4	84.5	85.6	87.2	89.0
60	min	38.6	41.5	43.3	44.8	45.3	45.9	46.7
120	min	20.2	22.4	23.9	25.0	25.4	25.8	26.3
180	min	15.8	17.4	18.4	19.3	19.6	20.0	20.4
240	min	12.9	13.9	14.7	15.3	15.6	15.9	16.2
300	min	11.8	12.6	13.1	13.4	13.6	13.8	14.1
600	min	7.53	7.62	7.69	7.74	7.76	7.81	7.85
1200	min	3.87	3.93	3.98	4.02	4.03	4.05	4.08

All data on the spec. sheet is an average value:

The tolerance range : X<6min(+15%~-15%), 6min X<10min(+12%~-12%), 10min X < 60min(+8%~-8%), X > 60min(+5%~-5%)

100916-11



## KPH80-12N 12Volt 80Ah

### Specifications

Nominal Voltage(V) **12V**

#### Nominal Capacity

10 hour rate	(8A	to	10.80V)	<b>80Ah</b>
5 hour rate	(13.6A	to	10.20V)	<b>68Ah</b>
1 hour rate	(48A	to	9.60V)	<b>48Ah</b>
1 C	(80A	to	9.60V)	<b>50.67Ah</b>

Weight **Approx. 24.2kg(53.2Lbs.)**

Internal Resistance (at 1KHz) **Approx. 5 mΩ**

Maximum Discharge Current for 5 seconds: **960A**

#### Charging Methods at 25 (77 )

Cycle use:

Charging Voltage **14.4 to 15.0V**

Coefficient -5.0mV/ /cell

Maximum Charging Current : **24A**

Standby use:

Float Charging Voltage **13.5 to 13.8V**

Coefficient -3.0mV/ /cell

Design Life **12 years**

#### Operating Temperature Range

Charge **-15 (5 ) to 40 (104 )**

Discharge **-15 (5 ) to 50 (122 )**

Storage **-15 (5 ) to 40 (104 )**

#### Charge Retention (shelf life) at 20 (68 )

1 month **98%**

3 month **94%**

6 month **85%**

Case Material **ABS UL94 HB**

Option: Flammability resistance of (UL94 V-0)

Terminal **F8**

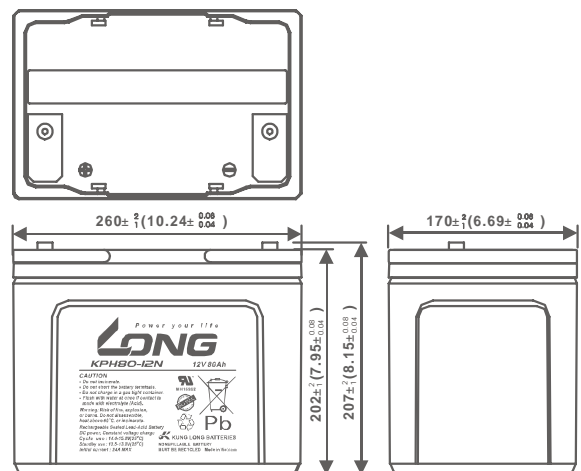
Description of torque value of hard ware for the terminals:

Recommended torque value **M6: 7 N-m (71kgf-cm)**

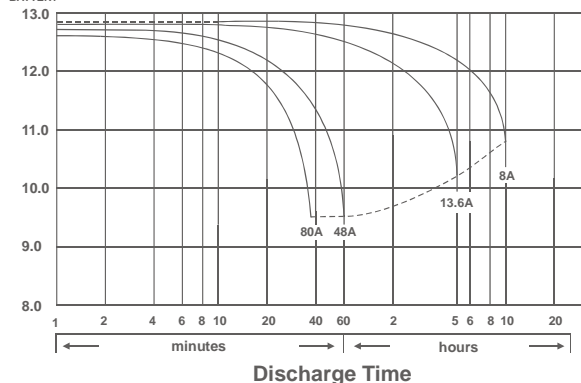
Maximum allowable torque value **M6: 9 N-m (92kgf-cm)**



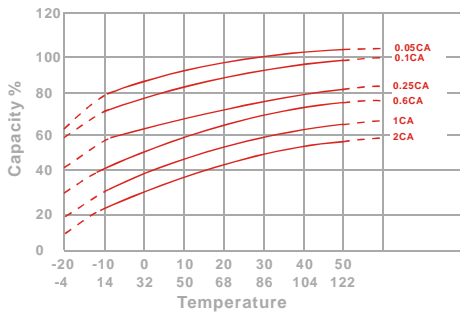
### Dimensions mm(inch)



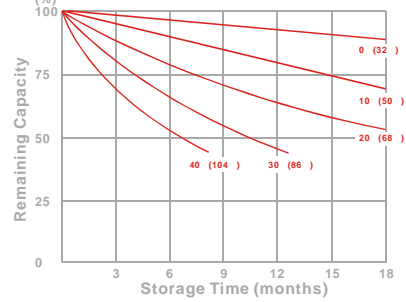
(V) FOR 12V BATTERY Discharge Time VS. Discharge Current (25 )



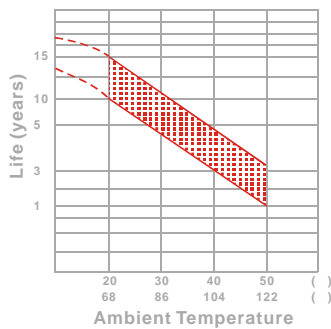
Effect of Temperature on Capacity 25 (77 )



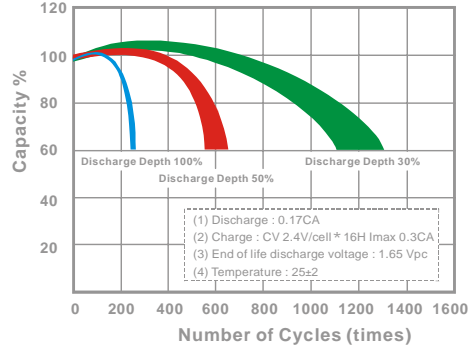
Capacity Retention Characteristic



Trickle (or float) Service Life



Cycle Service Life



## - PERFORMANCE DATA

Discharge Rates in Watts to Various End Voltages at 25 (77 )

End Voltage		1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
Time								
5	min	407	429	491	521	537	552	567
10	min	278	294	336	357	368	378	388
15	min	178	225	240	274	280	287	294
30	min	139	149	155	159	160	162	165
60	min	80.8	85.3	87.8	89.8	90.5	91.3	92.3
120	min	47.2	49.8	51.3	52.7	53.2	53.7	54.3
180	min	34.0	35.8	36.8	37.7	38.0	38.3	38.8
240	min	27.8	28.8	29.7	30.3	30.5	30.8	31.2
300	min	24.8	25.3	25.7	26.0	26.2	26.3	26.5
600	min	15.0	15.2	15.3	15.5	15.5	15.6	15.6
1200	min	7.85	7.97	8.07	8.15	8.20	8.23	8.28

- Discharge Rates in Amperes to Various End Voltages at 25 (77 )

End Voltage		1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
Time								
5	min	178	214	245	272	281	292	304
10	min	112	143	167	186	192	199	207
15	min	90.5	109	124	138	141	145	150
30	min	63.2	72.6	79.4	84.5	85.6	87.2	89.0
60	min	38.6	41.5	43.3	44.8	45.3	45.9	46.7
120	min	20.2	22.4	23.9	25.0	25.4	25.8	26.3
180	min	15.8	17.4	18.4	19.3	19.6	20.0	20.4
240	min	12.9	13.9	14.7	15.3	15.6	15.9	16.2
300	min	11.8	12.6	13.1	13.4	13.6	13.8	14.1
600	min	7.53	7.62	7.69	7.74	7.76	7.81	7.85
1200	min	3.87	3.93	3.98	4.02	4.03	4.05	4.08

All data on the spec. sheet is an average value:

The tolerance range : X<6min(+15%~-15%), 6min X<10min(+12%~-12%), 10min X < 60min(+8%~-8%), X > 60min(+5%~-5%)

190517-1A

## KPH100-12AN 12Volt 100Ah

### Specifications

Nominal Voltage(V) **12V**

#### Nominal Capacity

10 hour rate	(10A	to	10.80V)	<b>100Ah</b>
5 hour rate	(17A	to	10.20V)	<b>85Ah</b>
1 hour rate	(60A	to	9.60V)	<b>60Ah</b>
1 C	(100A	to	9.60V)	<b>63.33Ah</b>

Weight **Approx. 29.5kg(64.9Lbs.)**

Internal Resistance (at 1KHz) **Approx. 5 mΩ**

#### Maximum Discharge Current for

5 seconds: **1200A**

#### Charging Methods at 25 (77 )

##### Cycle use:

Charging Voltage **14.4 to 15.0V**

Coefficient -5.0mV/ /cell

Maximum Charging Current : **30A**

##### Standby use:

Float Charging Voltage **13.5 to 13.8V**

Coefficient -3.0mV/ /cell

Design Life **12 years**

#### Operating Temperature Range

Charge **-15 (5 ) to 40 (104 )**

Discharge **-15 (5 ) to 50 (122 )**

Storage **-15 (5 ) to 40 (104 )**

#### Charge Retention (shelf life) at 20 (68 )

1 month **98%**

3 month **94%**

6 month **85%**

Case Material **ABS UL94 HB**

Option: Flammability resistance of (UL94 V-0)

Terminal **F8**

#### Description of torque value of hard ware for the terminals:

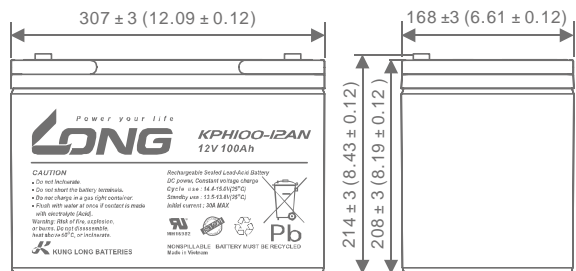
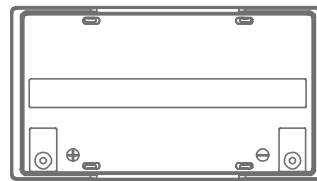
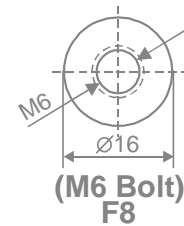
Recommended torque value **M6: 7 N-m (71kgf-cm)**

Maximum allowable torque value **M6: 9 N-m (92kgf-cm)**



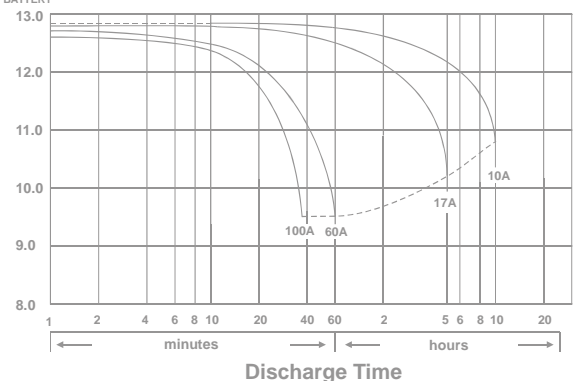
### Dimensions

mm(inch)

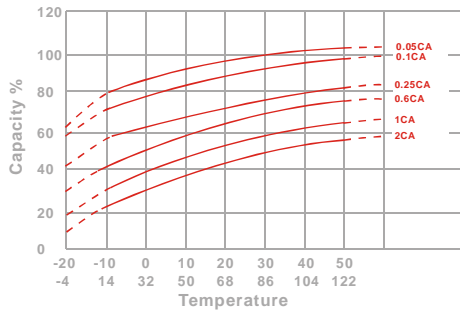


(v)  
FOR 12V  
BATTERY

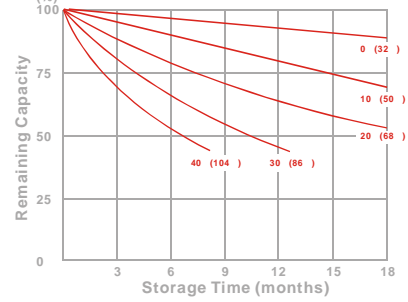
#### Discharge Time VS. Discharge Current (25 )



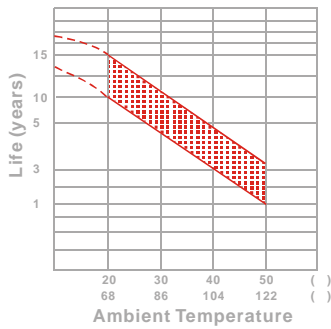
Effect of Temperature on Capacity 25 (77 )



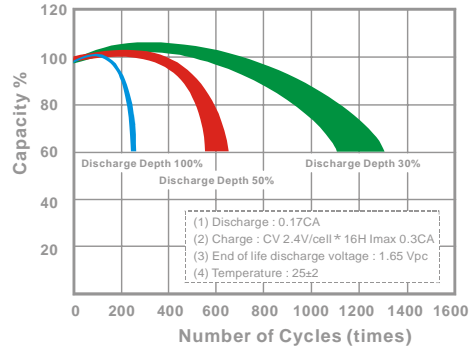
Capacity Retention Characteristic



Trickle (or float) Service Life



Cycle Service Life



**- PERFORMANCE DATA**

Discharge Rates in Watts to Various End Voltages at 25 (77 )

End Voltage		1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
Time								
5	min	458	512	549	584	600	617	649
10	min	348	380	407	432	443	455	477
15	min	277	301	320	338	346	354	370
30	min	163	174	183	191	195	199	206
60	min	112	116	119	122	123	125	126
120	min	66.3	69.5	72.0	73.5	74.5	75.7	77.2
180	min	47.2	49.7	51.8	52.2	53.0	54.0	55.2
240	min	35.2	37.3	39.3	41.3	42.0	42.8	43.8
300	min	31.3	32.8	34.2	35.2	35.5	36.0	36.7
600	min	18.0	19.2	20.0	20.8	21.2	21.5	21.8
1200	min	10.4	10.7	11.0	11.2	11.3	11.4	11.5

- Discharge Rates in Amperes to Various End Voltages at 25 (77 )

End Voltage		1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
Time								
5	min	202	267	305	336	346	358	375
10	min	159	188	209	226	234	243	257
15	min	119	146	165	179	184	190	198
30	min	71.2	83.7	92.1	101	103	106	111
60	min	43.6	50.8	56.5	60.6	61.5	63.0	64.9
120	min	25.8	29.3	32.5	35.6	36.4	37.3	38.5
180	min	22.6	23.7	24.8	25.7	26.1	26.5	27.2
240	min	18.3	19.1	19.8	20.5	20.8	21.1	21.6
300	min	16.1	16.7	17.2	17.6	17.8	17.9	18.1
600	min	9.71	10.0	10.2	10.4	10.5	10.6	10.7
1200	min	5.09	5.26	5.38	5.48	5.53	5.57	5.64

All data on the spec. sheet is an average value:

The tolerance range : X<6min(+15%~-15%), 6min X<10min(+12%~-12%),10min X < 60min(+8%~-8%), X 60min(+5%~-5%)

100916-1G



Head Quarter Service - TEL: +886-49-2254-777 FAX: +886-49-2255-139 E-mail: sales@mail.klb.com.tw  
 USA Customer Service - TEL: +1-949-328-7936 FAX: +1-949-266-9917 E-mail: sales@kunglong.com  
 Vietnam Customer Service - TEL: +84-72-3779666 FAX: +84-72-3779476 E-mail: sales@mail.klb.com.tw