



# HRL 1210W F2

## 12V 10W

HRL 1210W F2 is specially designed for high efficient discharge and long life application. Its characteristics are small volume, light weight and high discharge efficiency. It can be used for more than 260 cycles at 100% discharge in cycle service, or five to eight years in standby service.



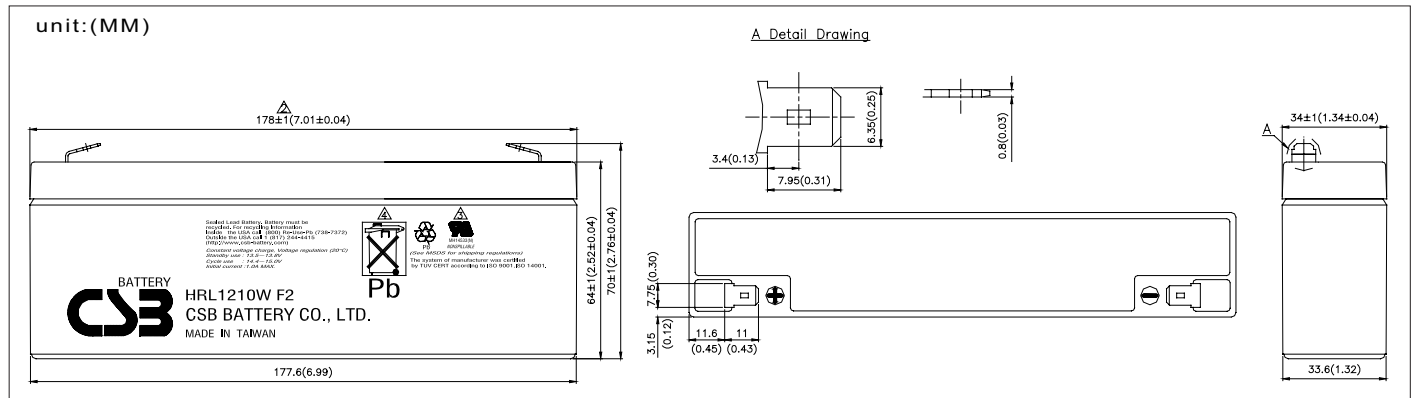
### Specification

Cells per unit	6
Voltage per unit	12
Capacity	10W @15 minute-rate to 1.67V per cell @25°C (77°F)
Weight	Approx. 1.2kg (2.67 lbs)
Maximum Discharge Current	40A(5sec)
Internal Resistance Approx.	Approx. 35mΩ
Operating Temperature Range	Discharge: -15°C~50°C (5°F~122°F) Charge: -15~40°C (5°F~104°F) Storage: -15°C~40°C (5°F~104°F)
Nominal Operating Temperature Range	25°C ±3°C (77°F ±5°F)
Float Charging Voltage	13.5 to 13.8 VDC/unit Average at 25°C (77°F)
Recommended Maximum Charging Current Limit	1.0A
Equalization and Cycle Service	14.4 to 15.0 VDC/unit Average at 25°C (77°F)
Self Discharge	CSB Batteries can be stored for more than 6 months at 25°C(77°F). Please charge batteries before using. For higher temperatures the time interval will be shorter.
Terminal	Faston Tab 187/250
Container Material	-ABS (UL94-HB)*Flammability resistance of UL94-V0 can be available upon request.



CSB-manufactured batteries are UL-recognized components under UL924 as well as ISO 9001 and ISO 14001 certified.

### Dimensions



### Constant Current Discharge Characteristics Unit:A(25°C,77°F)

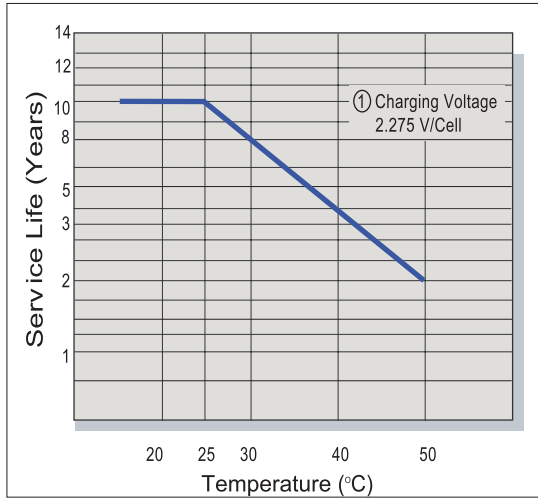
F.V/Time	2MIN	4MIN	6MIN	8MIN	10MIN	15MIN	20MIN	30MIN	60MIN	90MIN
1.60V	19.20	14.70	10.50	8.84	7.47	5.51	4.24	3.06	1.66	1.29
1.67V	18.64	14.07	10.29	8.70	7.37	5.43	4.20	3.03	1.64	1.28
1.70V	18.40	13.80	10.20	8.64	7.32	5.39	4.18	3.02	1.63	1.27
1.75V	17.45	12.65	9.85	8.37	7.15	5.27	4.10	2.98	1.62	1.26
1.80V	16.50	11.50	9.50	8.10	6.98	5.14	4.02	2.93	1.60	1.25
1.85V	15.55	10.35	9.15	7.83	6.81	5.02	3.94	2.89	1.59	1.24

### Constant Power Discharge Characteristics Unit:Watt(25°C,77°F)

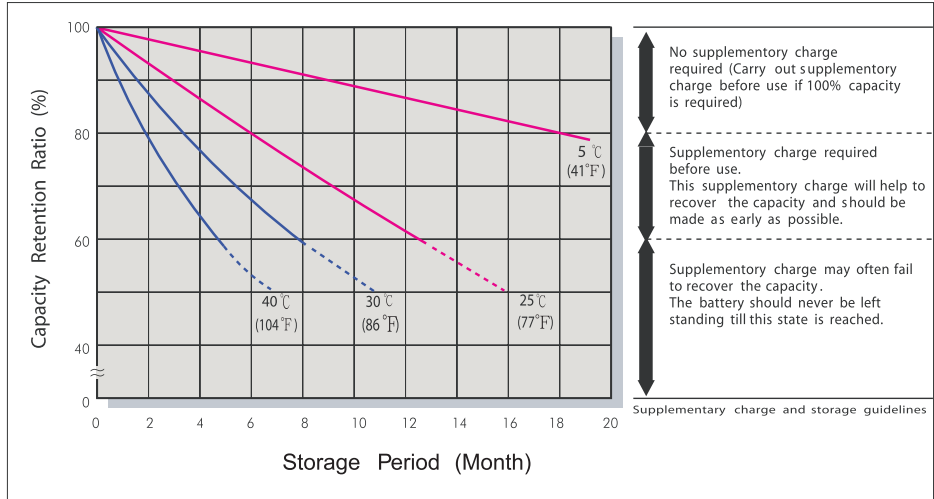
F.V/Time	2MIN	4MIN	6MIN	8MIN	10MIN	15MIN	20MIN	30MIN	60MIN	90MIN
1.60V	200.00	154.00	113.00	95.60	81.50	60.90	47.00	34.10	18.70	14.70
1.67V	195.80	149.10	110.90	94.55	80.73	60.34	46.79	33.96	18.56	14.56
1.70V	194.00	147.00	110.00	94.10	80.40	60.10	46.70	33.90	18.50	14.50
1.75V	185.50	136.00	106.50	91.60	78.85	58.65	45.95	33.45	18.35	14.40
1.80V	177.00	125.00	103.00	89.10	77.30	57.20	45.20	33.00	18.20	14.30
1.85V	168.50	114.00	99.50	86.60	75.75	55.75	44.45	32.55	18.05	14.20

● All mentioned values are average values.

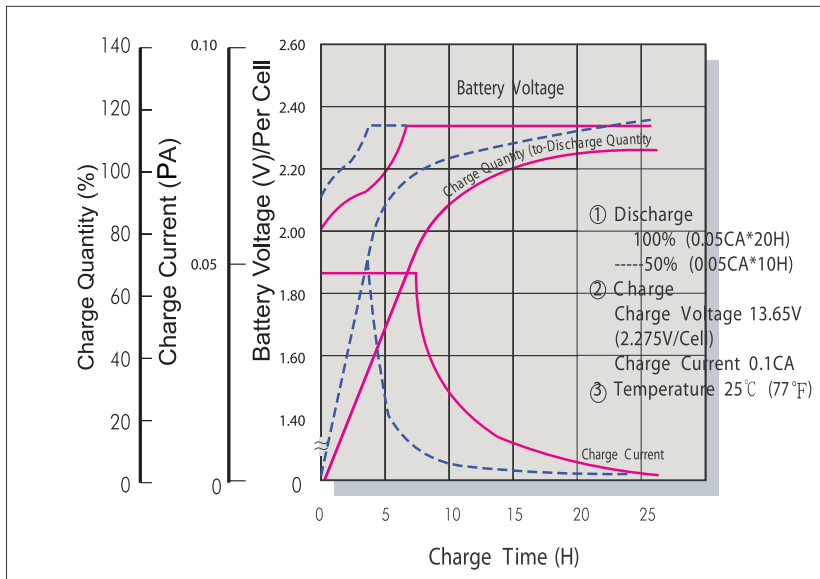
## Trickle (or Float) Service Life



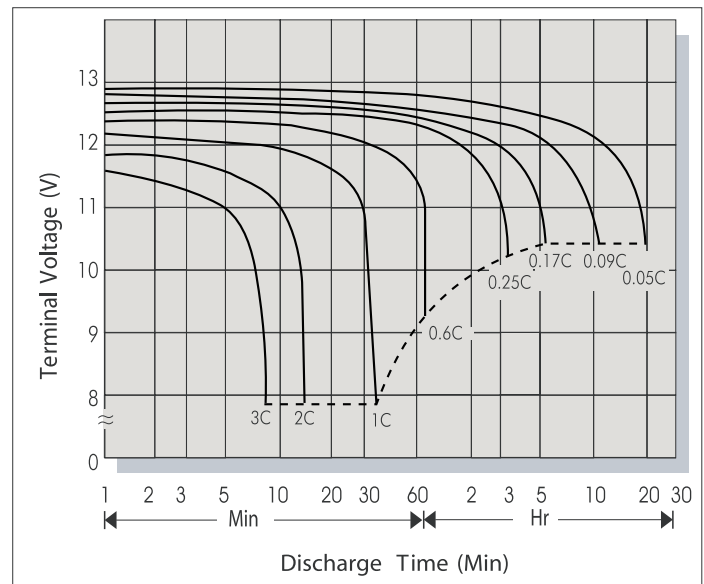
## Capacity Retention Characteristic



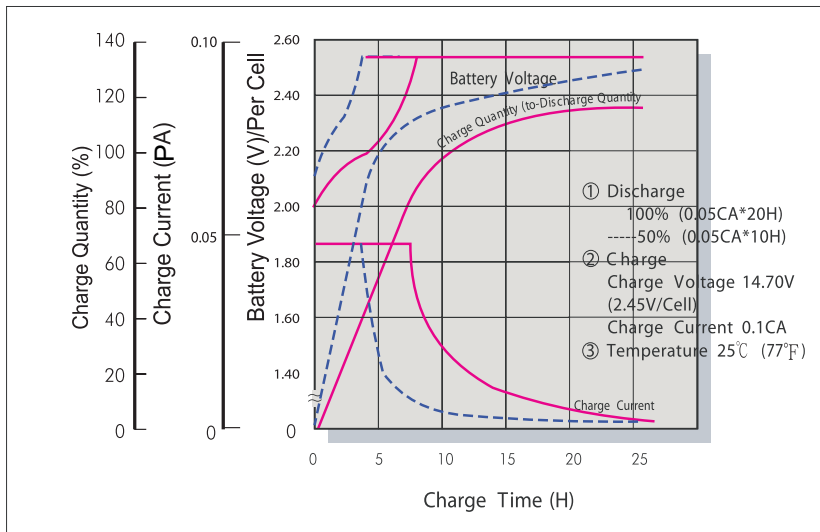
## Battery Voltage and Charge Time for Standby Use



## Terminal Voltage (V) and Discharge Time (25°C/77°F)



## Battery Voltage and Charge Time for Cycle Use



## Discharge Current VS. Discharge Voltage

Final Discharge Voltage V/Cell	1.75	1.70	1.55	1.30
Discharge Current (A)	0.2C >(A)	0.2C <(A)<0.5C	0.5C <(A)<1.0C	(A)>1.0C

## Charging Procedures

Application	Charge Voltage (V/Cell)			Max. Charge Current
	Temperature	Set Point	Allowable Range	
Cycle Use	25°C (77°F)	2.45	2.40~2.50	0.1PA
Standby	25°C (77°F)	2.275	2.25~2.30	

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