



# HRL 1234W F2FR

## 12V 34W

HRL 1234W F2FR is specially designed for high efficient discharge and **long life** application. It's 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.



HRL - 1234

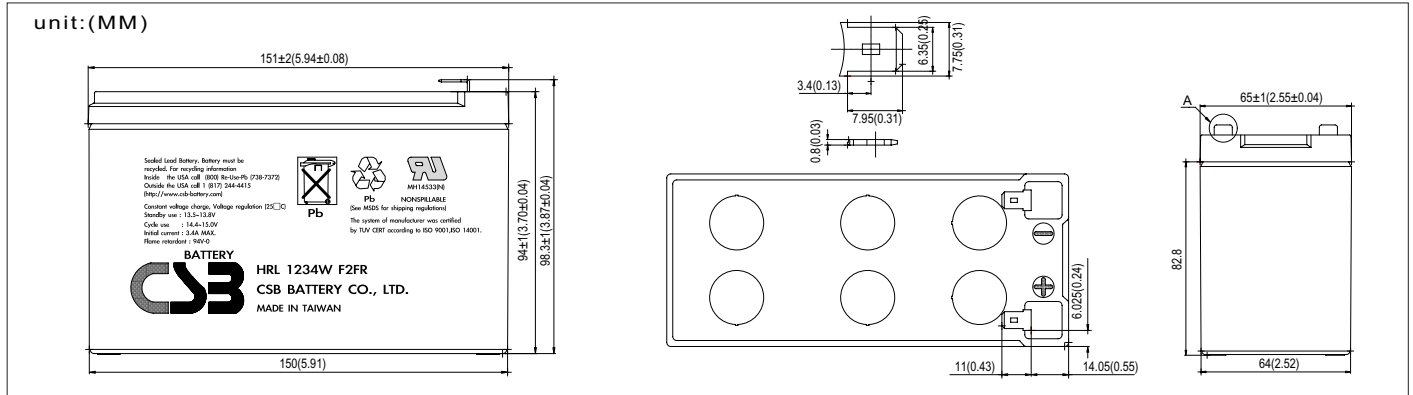
### Specification

<b>Cells per unit</b>	6
<b>Voltage per unit</b>	12
<b>Capacity</b>	34W @ 15minute-rate to 1.67V per cell @25°C(77°F)
<b>Weight</b>	Approx. 2.7kg(5.95 lbs)
<b>Maximum Discharge Current</b>	130A(5sec)
<b>Internal Resistance Approx.</b>	Approx. 17m½
<b>Operating Temperature Range</b>	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)
<b>Nominal Operating Temperature Range</b>	25°C±3°C (77°F±5°F)
<b>Float Charging Voltage</b>	13.5 to 13.8 VDC/unit Average at 25°C(77°F)
<b>Recommended Maximum Charging</b>	3.4A
<b>Current Limit</b>	
<b>Equalization and Cycle Service</b>	14.4 to 15.0 VDC/unit Average at 25°C(77°F)
<b>Self Discharge</b>	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.
<b>Terminal</b>	Faston Tab 250
<b>Container Material</b>	-ABS (UL94-VO Flame Retardant Case).



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)

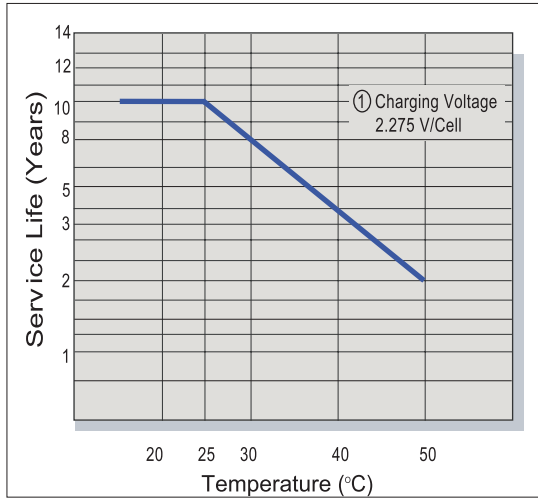
F.V/Time	2MIN	4MIN	6MIN	8MIN	10MIN	15MIN	20MIN	30MIN	60MIN	90MIN
1.60V	60.40	47.40	36.20	30.90	26.60	18.70	14.40	11.30	5.84	4.66
1.67V	57.25	44.67	33.89	29.29	25.20	18.56	14.26	11.16	5.80	4.63
1.70V	55.90	43.50	32.90	28.60	24.60	18.50	14.20	11.10	5.78	4.62
1.75V	52.40	40.70	30.90	27.00	22.80	18.30	14.05	10.95	5.74	4.57
1.80V	48.90	37.90	28.90	25.40	21.00	18.10	13.90	10.80	5.69	4.52
1.85V	45.40	35.10	26.90	23.80	19.20	17.90	13.75	10.65	5.65	4.47

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

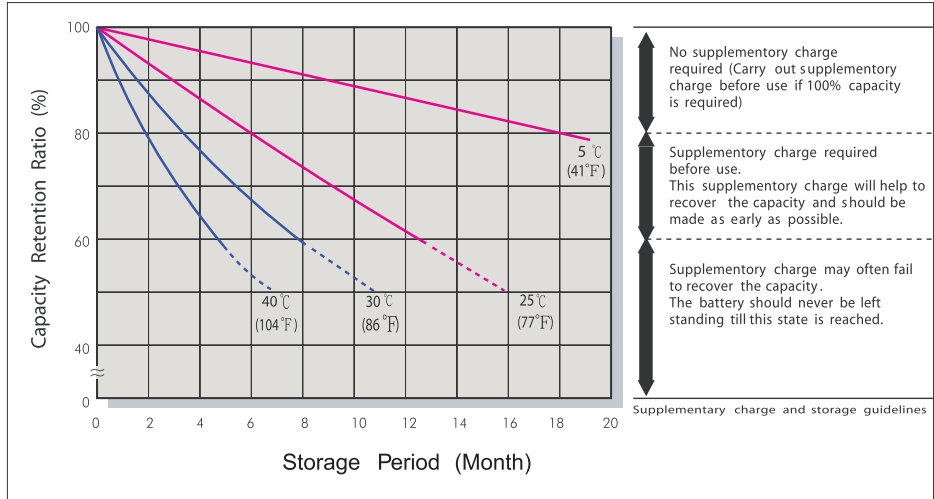
F.V/Time	2MIN	4MIN	6MIN	8MIN	10MIN	15MIN	20MIN	30MIN	60MIN	90MIN
1.60V	654.00	520.00	405.00	350.00	300.00	220.00	168.00	132.00	69.20	55.40
1.67V	623.20	492.00	380.50	332.50	286.00	216.50	165.20	130.60	68.85	55.12
1.70V	610.00	480.00	370.00	325.00	280.00	215.00	164.00	130.00	68.70	55.00
1.75V	582.50	455.00	350.00	309.00	265.00	207.50	162.00	128.50	68.25	54.55
1.80V	555.00	430.00	330.00	293.00	250.00	200.00	160.00	127.00	67.80	54.10
1.85V	527.50	405.00	310.00	277.00	235.00	192.50	158.00	125.50	67.35	53.65

● All mentioned values are average values.

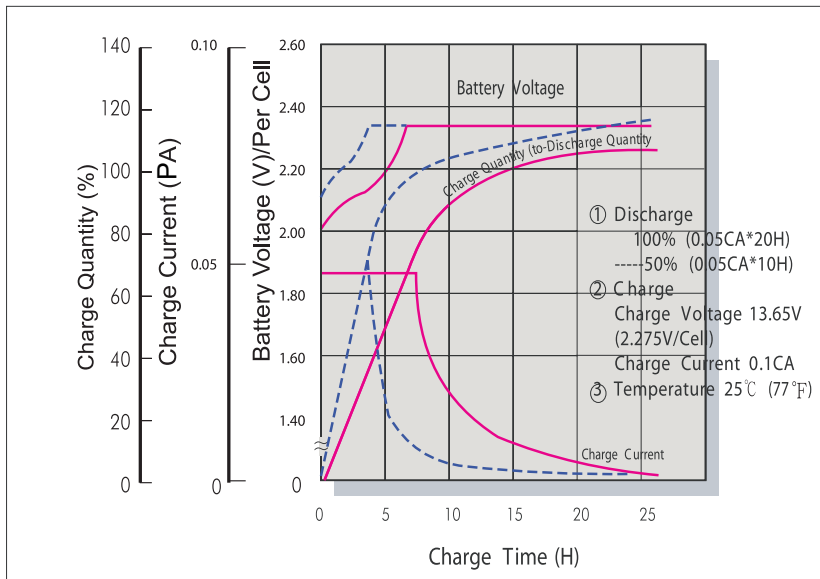
### Trickle (or Float) Service Life



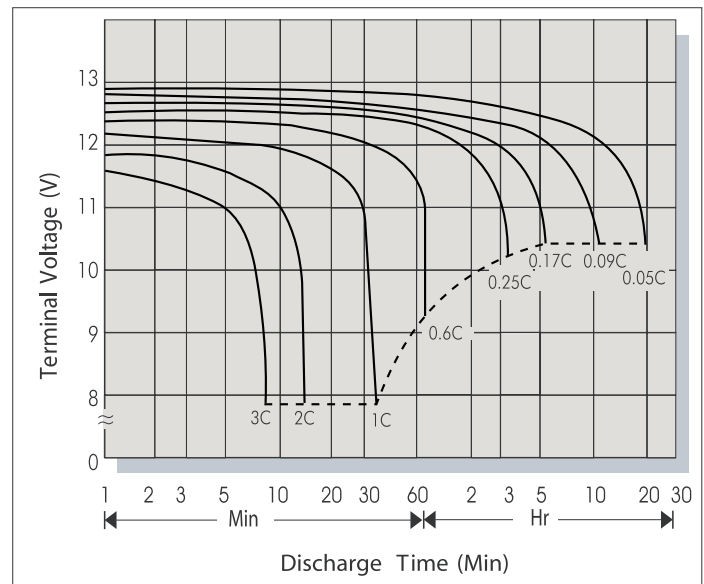
### Capacity Retention Characteristic



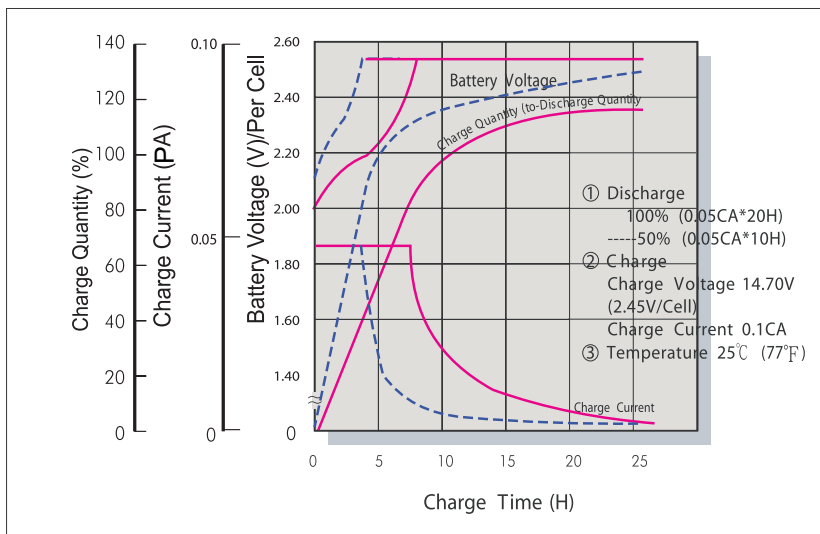
### Battery Voltage and Charge Time for Standby Use



### 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	

Sales Office URL: [WWW.CSB-BATTERY.COM](http://WWW.CSB-BATTERY.COM)

**CSB BATTERY CO., LTD.**  
TAIWAN OFFICE  
Tel: +886-2-8751-5000  
Fax: +886-2-8751-6161  
E-mail: [service@csb-battery.com.tw](mailto:service@csb-battery.com.tw)

**CSB BATTERY LOGISTICS (SHANGHAI) CO., LTD.**  
SHANGHAI OFFICE  
Tel: +86-21-5046-1622, 5046-0833  
Fax: +86-21-5064-3314

**CSB BATTERY TECHNOLOGIES, INC**  
USA OFFICE  
Tel: +1-817-244-7777/1-8003 CSBUSA(272872)  
Fax: +1-817-244-4445  
E-mail: [csb@csb-battery.com](mailto:csb@csb-battery.com)

**CSB BATTERY LOGISTICS (SHANGHAI) CO., LTD.**  
BEIJING OFFICE  
Tel: +86-10-6597-8060, 6597-8070  
Fax: +86-10-6597-8050  
E-mail: [chinasls@csb-battery.com](mailto:chinasls@csb-battery.com)

**CSB BATTERY OF NETHERLANDS B.V**  
NETHERLANDS OFFICE  
Tel: +31(0) 180 418 140  
Fax: +31(0) 180 418 327  
E-mail: [eurosales@csb-battery.com](mailto:eurosales@csb-battery.com)

**CSB BATTERY LOGISTICS (SHANGHAI) CO., LTD.**  
SHENZHEN OFFICE  
Tel: +86-755-88316356 88316488 88316396  
Fax: +86-755-88316548  
E-mail: [she@csb-battery.com](mailto:she@csb-battery.com)