



HR 1221W F2

12V 21W

HR 1221W F2 is specially designed for high efficient discharge 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 three to five years in standby service.



Specification

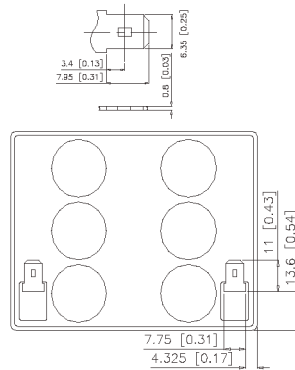
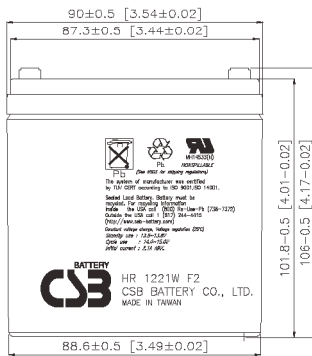
Cells Per Unit	6
Voltage Per Unit	12
Capacity	21w @ 15minute-rate to 1.67V per cell @25°C(77°F)
Weight	Approx. 2.02kg(4.45 lbs)
Maximum Discharge Current	90A(5sec)
Internal Resistance	Approx. 21mΩ
Operating Temperature Range	Discharge: -20°C ~50°C (-4°F~122°F) Charge: 0°C ~40°C (32°F~104°F) Storage: -20°C ~40°C (-4°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	2.1A
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-V2 can be available upon request.



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

Dimensions

unit: (MM)



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

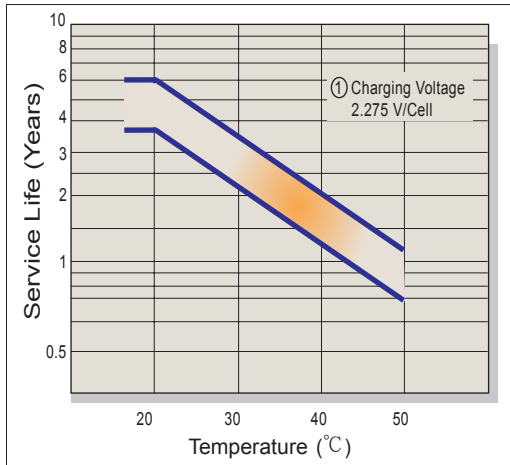
F.V/Time	2MIN	4MIN	6MIN	8MIN	10MIN	15MIN	20MIN	30MIN	60MIN	90MIN
1.60V	46.4	31.2	24.4	20.3	16.4	12.3	10.7	7.18	4.02	2.83
1.67V	43.4	30.1	23.8	20.0	16.3	12.3	10.6	7.15	4.00	2.71
1.70V	42.1	29.7	23.5	19.8	16.3	12.3	10.6	7.13	3.99	2.66
1.75V	37.6	27.4	22.2	19.0	15.8	12.0	10.4	7.13	3.99	2.56
1.80V	33.1	25.2	20.8	18.2	15.3	11.8	10.3	7.12	3.98	2.46
1.85V	28.6	22.9	19.5	17.3	14.8	11.5	10.1	7.12	3.98	2.36

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

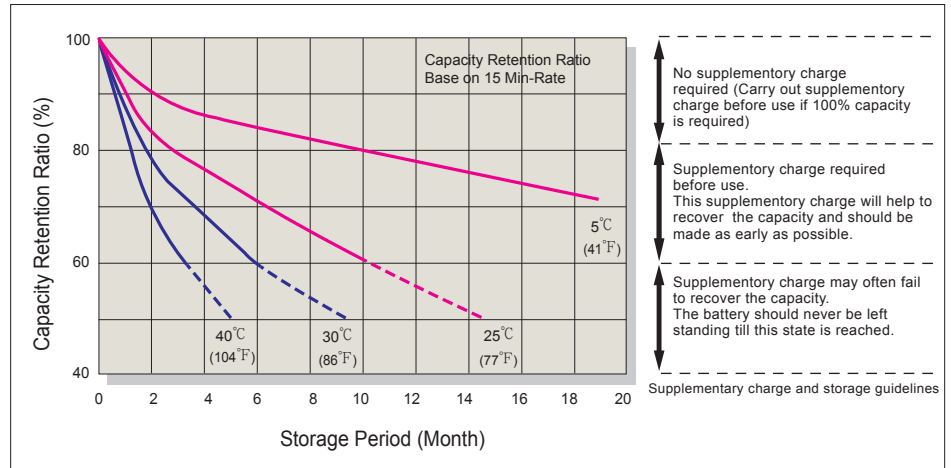
F.V/Time	2MIN	4MIN	6MIN	8MIN	10MIN	15MIN	20MIN	30MIN	60MIN	90MIN
1.60V	557	374	293	244	197	148	128	86.1	48.2	33.9
1.67V	521	361	285	240	196	147	127	85.8	48.0	32.5
1.70V	505	356	282	238	195	147	127	85.6	47.9	31.9
1.75V	451	329	266	228	189	144	125	85.5	47.9	30.7
1.80V	397	302	250	218	183	141	123	85.4	47.8	29.5
1.85V	343	275	234	208	177	138	121	85.3	47.8	28.3

- All mentioned values are average values.
- Low rate discharge mode (over 90 mins.) is not recommended.

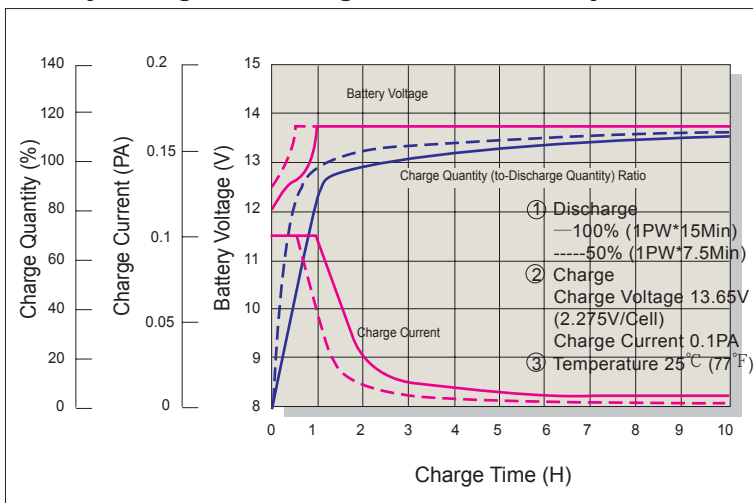
Trickle (or Float) Service Life



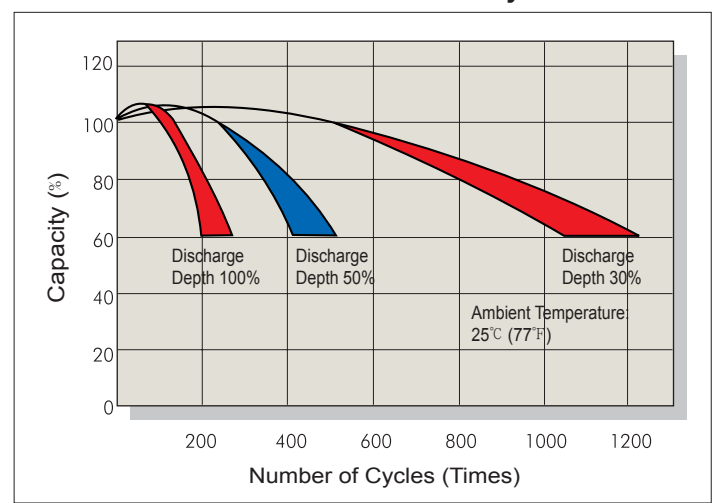
Capacity Retention Characteristic



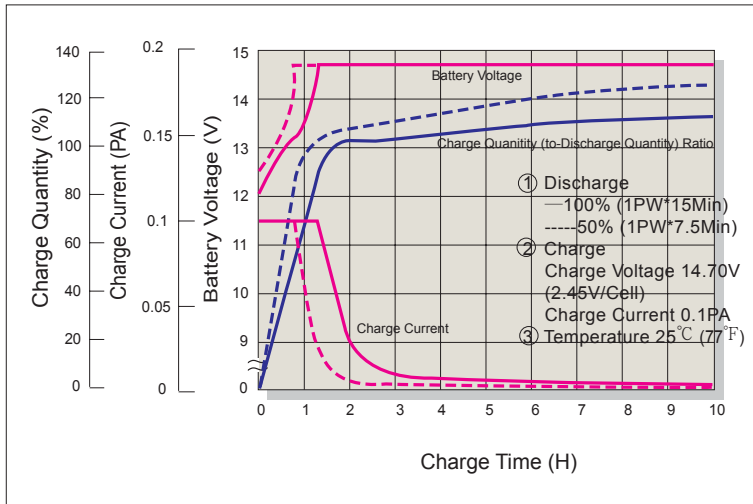
Battery Voltage and Charge Time for Standby Use



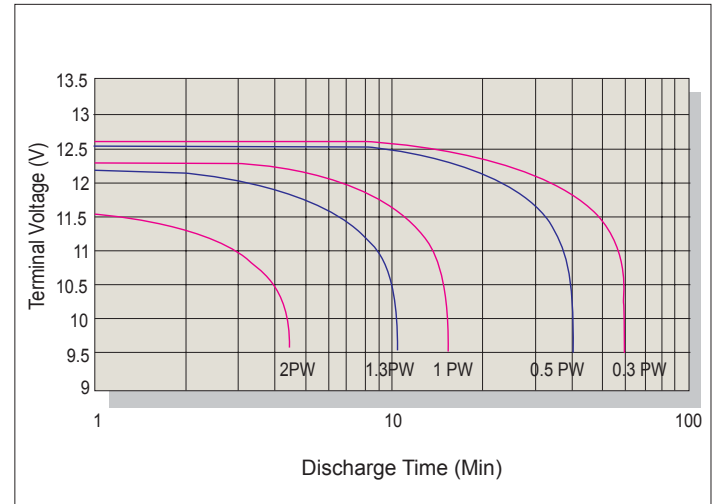
Cycle Service Life



Battery Voltage and Charge Time for Cycle Use



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



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	