

### HR Series

HR(High-Rate) Series of valve regulated lead acid (VRLA) batteries have been developed with high efficiency active materials to stimulate inside the battery with higher power output when the battery is discharged to a extent level of discharging. Along with high-density structure design for relatively smaller Inner resistance which will significantly improve the performance for high rate discharging when high power output service is needed.

### Application

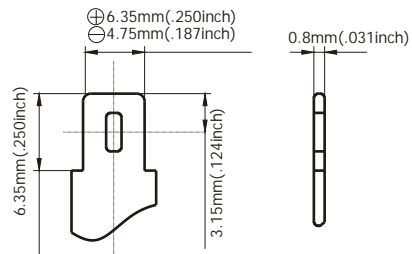
- Alarm System
- Cable Television
- Communication Equipment
- Control Equipment
- Security System
- Medical Equipment
- Toys
- UPS
- Emergency Power System

### General Features

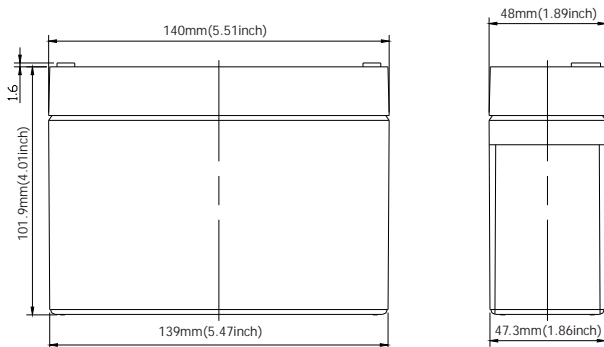
- Sealed and maintenance free operation.
- Non-Spillable construction design.
- ABS containers and covers(UL94HB, UL94V-0) optional.
- Safety valve installation for explosion proof.
- High quality and high reliability.
- Exceptional deep discharge recovery performance.
- Low self discharge characteristic.
- Flexibility design for multiple install positions.

### Construction

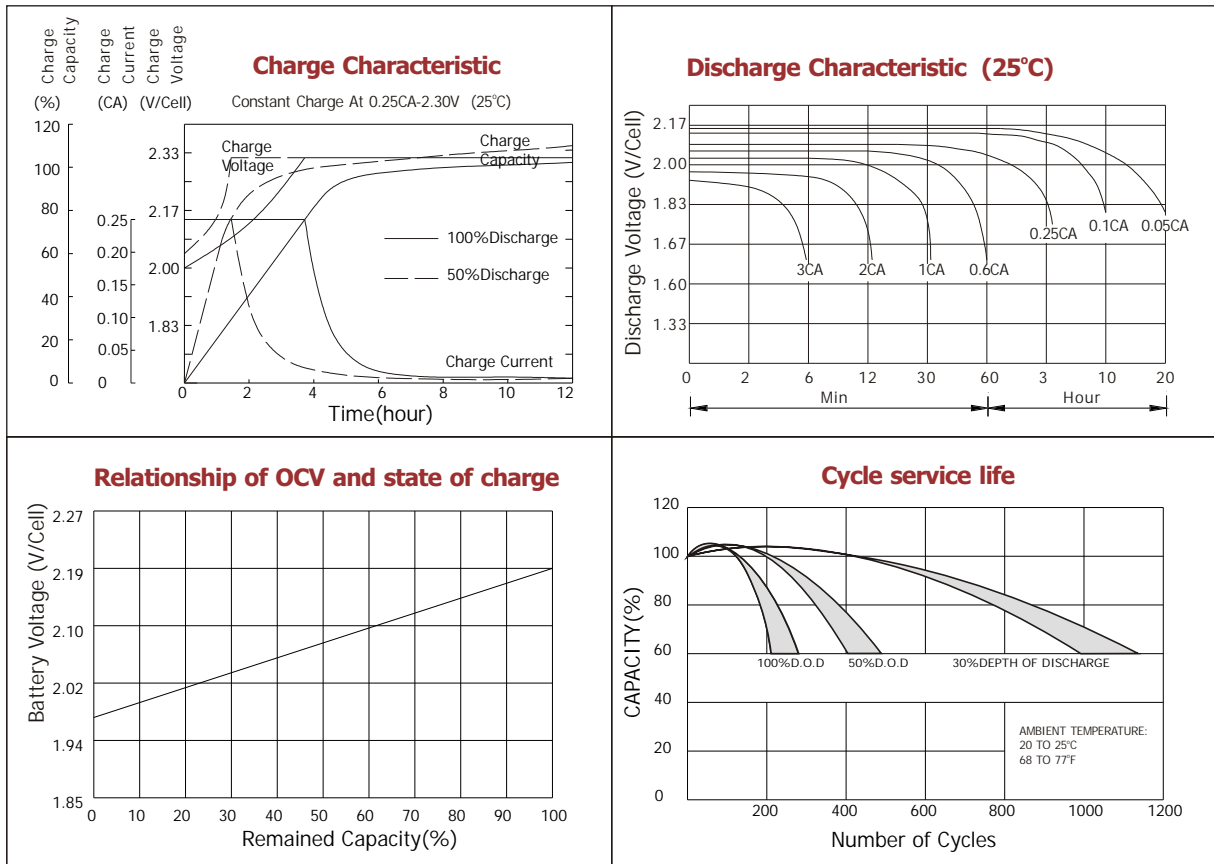
- Component .....Raw material
- Positive .....Lead dioxide
- Negative .....Lead
- Container .....ABS
- Cover .....ABS
- Sealant .....Epoxy Resin
- Safety valve ....EPDR
- Terminal .....Copper
- Separator .....Fibre glass
- Electrolyte .....Sulfuric acid



**Terminal Dimensions**



Battery Model	HR12L-24W (24W to 1.67V, 15min)			
Designed Floating Life	5 Years			
Capacity(25°C)	20HR(0.29A,1.75V)	10HR(0.55A,1.75V)	5HR(0.98A,1.75V)	1HR(3.7A,1.75V)
	5.8AH	5.5AH	4.9AH	3.7AH
Dimensions	Length	Width	Height	Total Height
	140mm(5.51inch)	48mm(1.89inch)	103.5mm(4.07inch)	103.5mm(4.07inch)
Approx. Weight	1.7Kg (3.75 lbs)			
Internal Resistance	Full charged at 25°C: 0.021 Ohm			
Self Discharge	3% of capacity declined per month at (25°C)			
Capacity Affected by Temp.(20HR)	40°C	25°C	0°C	-15°C
	102%	100%	85%	65%
Charge Voltage(25°C)	Cycle use		Float use	
	14.4-15V(-30mV/ °C), max. Current: 1.65A		13.6-13.8V(-20mV/ °C)	



**Constant current discharge ratings-amperes at 25°C**

F.V/Time	5MIN	10MIN	15MIN	30MIN	1HR	3HR	5HR	10HR	20HR
1.60V	21.9	13.6	10.30	6.26	3.98	1.75	1.07	0.60	0.31
1.67V	20.5	12.9	9.88	5.99	3.93	1.68	1.05	0.59	0.30
1.70V	18.8	12.4	9.64	5.44	3.81	1.57	1.02	0.59	0.30
1.75V	18.4	12.1	9.33	5.17	3.63	1.52	1.00	0.58	0.29
1.80V	16.5	11.5	8.48	4.79	3.40	1.46	0.94	0.57	0.28
1.85V	14.6	11.0	7.62	4.41	3.17	1.40	0.88	0.57	0.27

**Constant power discharge ratings-watts at 25°C**

F. V/Time	5MIN	10MIN	15MIN	30MIN	1HR	3HR	5HR	10HR	20HR
1.60V	38.4	24.6	18.7	11.3	7.18	3.10	1.80	1.19	0.63
1.67V	37.0	24.0	18.5	11.0	7.14	3.00	1.80	1.19	0.60
1.70V	34.9	23.7	18.4	10.3	7.00	2.87	1.77	1.18	0.60
1.75V	35.1	23.6	18.2	10.0	6.88	2.80	1.76	1.16	0.58
1.80V	32.1	23.3	16.9	9.57	6.49	2.72	1.70	1.15	0.57
1.85V	29.1	22.1	15.3	8.96	6.10	2.64	1.65	1.13	0.55

