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HR SERIES-HIGH RATE **BATTERIES**

HR 1224W

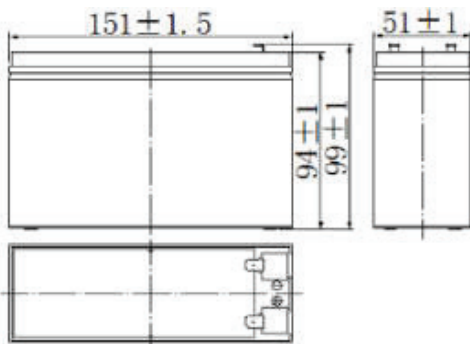


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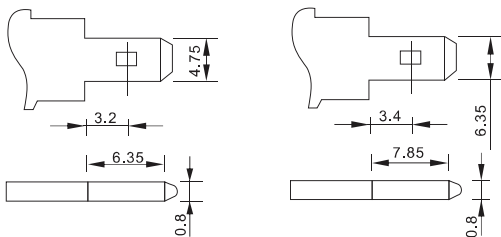
HR 1224W



Outer Dimensions (mm)



Terminal Type (mm)



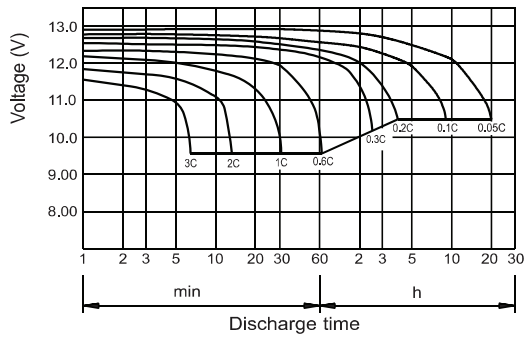
SPECIFICATIONS

Nominal Voltage	12V	
Number of Cell	6 cells	
Rated Capacity (15min. rat)	21 Watts/cell	
Dimensions	Length	151±1.5mm(5.94inch)
	Width	51±1mm(2.01inch)
	Height	94±1mm(3.70inch)
	Total Height	99±1mm(3.90inch)
Approx. Weight	1.94kg (4.28lbs)±4%	

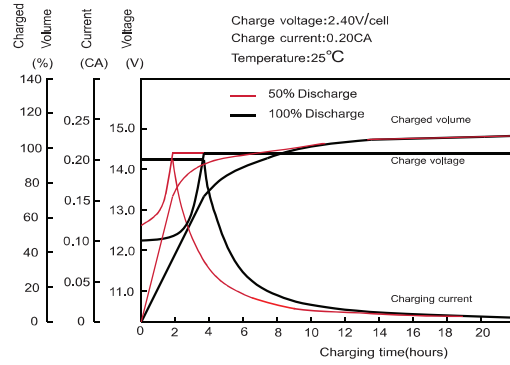
CHARACTERISTICS

Capacity (20HR, 25°C)	5Ah	
Capacity (15min.rate, 25°C)	24 Watts/cell	
Terminal Type	T2/T1	
Internal Resistance (Fully Charged, 25°C)	Approx. 19mΩ	
Capacity Affected by Temperature (10HR)	40°C	102%
	25°C	100%
	0°C	85%
	-15°C	65%
Self-Discharge (25°C)	3 months	Remaining Capacity: 91%
	6 months	Remaining Capacity: 82%
	12months	Remaining Capacity: 65%
Nominal Operating Temperature	25±3°C (77±5°F)	
Operating Temperature Range	Discharge	-15°C~50°C(5°F~122°F)
	Charge	-10°C~50°C(14°F~122°F)
	Storage	-20°C~50°C(4°F~122°F)
Float Charging Voltage (25°C)	13.50 to 13.80V Temperature Compensation: -18mV/°C	
Cyclic Charging Voltage (25°C)	14.50 to 15.00V Temperature Compensation: -30mV/°C	
Maximum Charging Current	1.8A	
Terminal Material	Copper	
Maximum Discharge Current	90A(5 sec)	
Design Floating Life(20°C)	5 Years	

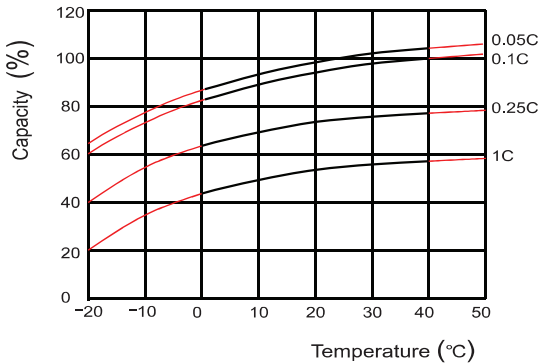
Discharge Characteristics



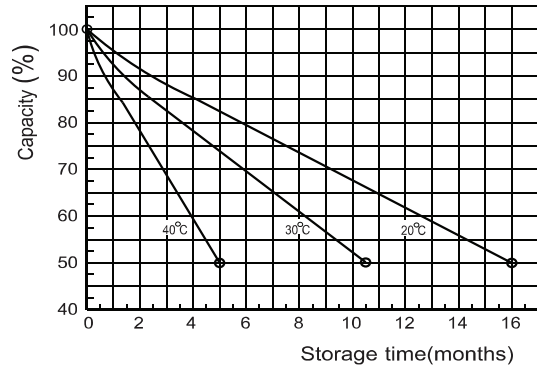
Charging Characteristics (25°C)



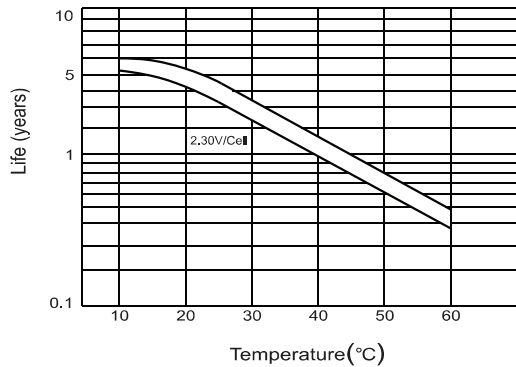
Effect of Temp on Capacity



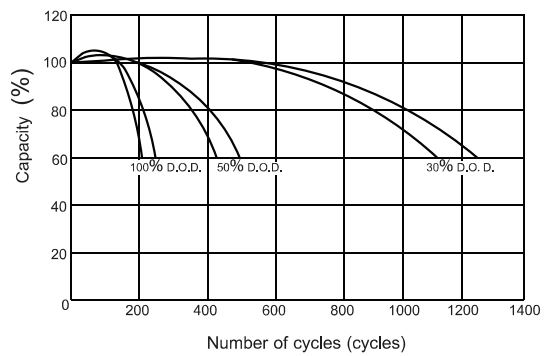
Self-Discharge Characteristics



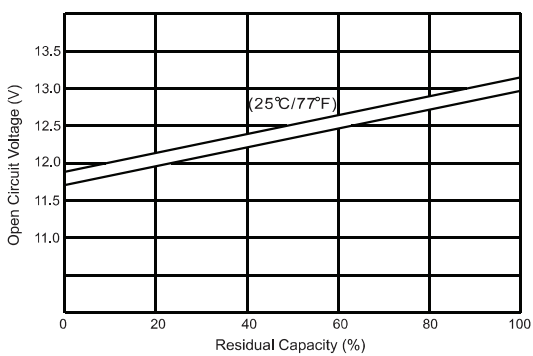
Floating Life on Temperature



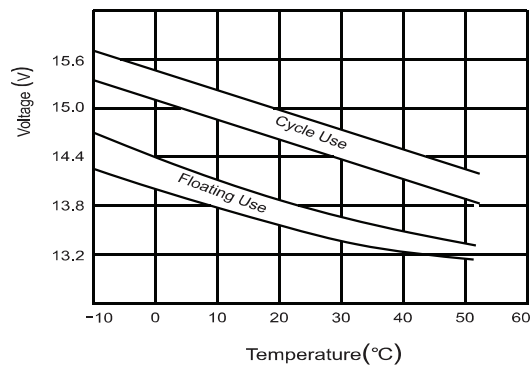
Cycle Service Life on D.O.D (25°C)



Relationship for OCV and Capacity (25°C)



Relationship for Charging Voltage and Temp



Construction

Component	Positive Plate	Negative Plate	Container	Cover	Separator	Electrolyte	Safety Valve	Terminal
Raw material	Lead Dioxide	Lead	ABS	ABS	AGM	Sulfuric Acid	Rubber	Copper

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

F.V/Time	5min	10min	15min	20min	30min	45min	60min	2h	3h	4h	5h
1.60V/cell	26.0	16.0	12.6	9.95	6.74	4.99	4.08	2.20	1.57	1.26	1.08
1.67V/cell	24.8	15.3	12.1	9.55	6.52	4.83	3.98	2.19	1.55	1.25	1.07
1.70V/cell	24.2	14.9	11.8	9.35	6.40	4.74	3.92	2.17	1.55	1.24	1.07
1.75V/cell	23.1	14.2	11.4	9.03	6.25	4.63	3.84	2.14	1.54	1.24	1.06
1.80V/cell	21.8	13.4	10.8	8.55	6.02	4.46	3.72	2.09	1.49	1.20	1.03

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

F.V/Time	5min	10min	15min	20min	30min	45min	60min	2h	3h	4h	5h
1.60V/cell	49.9	31.1	24.9	19.7	13.3	9.88	8.08	4.39	3.15	2.53	2.18
1.67V/cell	47.6	29.7	24.0	18.9	12.9	9.56	7.88	4.35	3.12	2.51	2.16
1.70V/cell	46.4	28.9	23.4	18.5	12.7	9.39	7.76	4.32	3.11	2.50	2.15
1.75V/cell	44.4	27.6	22.6	17.9	12.4	9.16	7.61	4.26	3.09	2.48	2.13
1.80V/cell	41.9	26.1	21.4	16.9	11.9	8.82	7.37	4.15	2.99	2.41	2.07



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