

## HR1228W (12V28 Watts/cell)

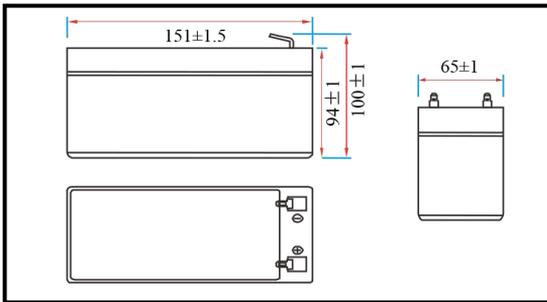
### Valve Regulated Lead Acid Battery



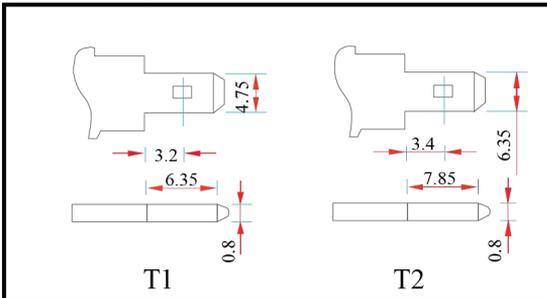
#### Specifications

Nominal voltage		12V (6 cells per unit)
Rated capacity (15min. rate)		28 Watts/cell /1.67V
Dimensions	Length	151±1.5mm (5.94inch)
	Width	65±1mm (2.56inch)
	Height	94±1mm (3.70inch)
	Total height	100±1mm (3.94inch)
Approx. weight		2.2kg (4.85lbs)±4%

#### Outer dimensions (mm)



#### Terminal type (mm)



#### 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: Ampere/cell (at 25°C, 77°F)

F.V/Time	5min	10min	15min	20min	30min	45min	60min	2h	3h	4h	5h
1.60V/cell	30.6	18.9	14.8	11.7	7.94	5.88	4.81	2.65	1.88	1.51	1.30
1.67V/cell	29.2	18.0	14.3	11.2	7.68	5.69	4.69	2.62	1.86	1.50	1.29
1.70V/cell	28.5	17.5	13.9	11.0	7.54	5.58	4.62	2.61	1.86	1.49	1.28
1.75V/cell	27.2	16.8	13.4	10.6	7.36	5.45	4.52	2.57	1.84	1.48	1.27
1.80V/cell	25.7	15.8	12.7	10.1	7.09	5.25	4.39	2.50	1.79	1.44	1.24

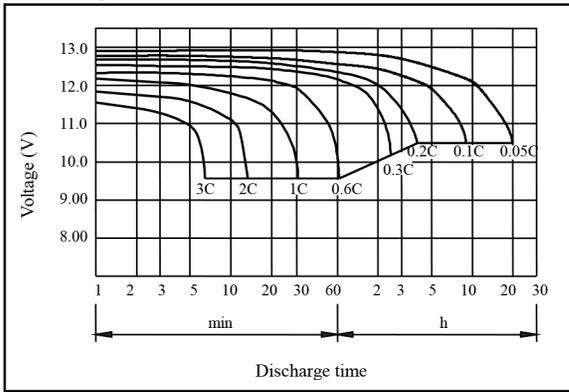
#### Constant power discharge characteristics unit: Watt/cell (at 25°C, 77°F)

F.V/Time	5min	10min	15min	20min	30min	45min	60min	2h	3h	4h	5h
1.60V/cell	58.8	36.6	29.3	23.2	15.7	11.6	9.52	5.26	3.78	3.04	2.61
1.67V/cell	56.1	34.9	28.3	22.3	15.2	11.3	9.28	5.22	3.75	3.01	2.59
1.70V/cell	54.6	34.0	27.6	21.8	14.9	11.1	9.14	5.19	3.73	3.00	2.58
1.75V/cell	52.3	32.5	26.6	21.1	14.6	10.8	8.96	5.11	3.70	2.98	2.56
1.80V/cell	49.4	30.7	25.2	19.9	14.0	10.4	8.68	4.98	3.59	2.89	2.48

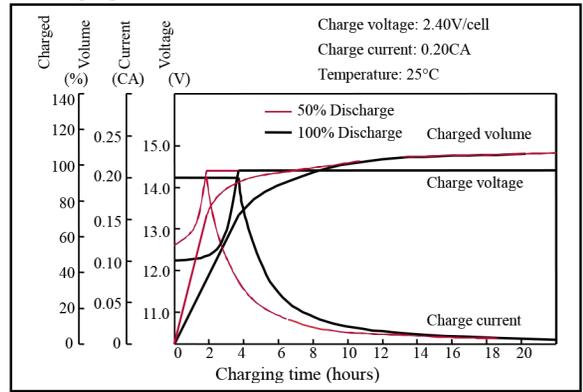
#### Characteristics

Capacity (25°C)	15min. rate	28 Watts/cell /1.67V
	20HR	7.5Ah/10.5V
Terminal type		T2/T1
Internal resistance (Fully charged, 25°C)		Approx. 21mΩ
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%
	12 months	Remaining capacity: 65%
Nominal operating temperature		25°C± 3°C (77°F± 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)		13.60 to 13.80V Temperature compensation: -18mV/°C/Block
Cyclic charging voltage (25°C)		14.50 to 15.00V Temperature compensation: -30mV/°C/Block
Maximum charging current		2.25A
Maximum discharge current		112.5A (5 sec.)
Design life	5 years for floating (25°C)	
	Eurobat (20°C): 3-5 years, standard commercial	

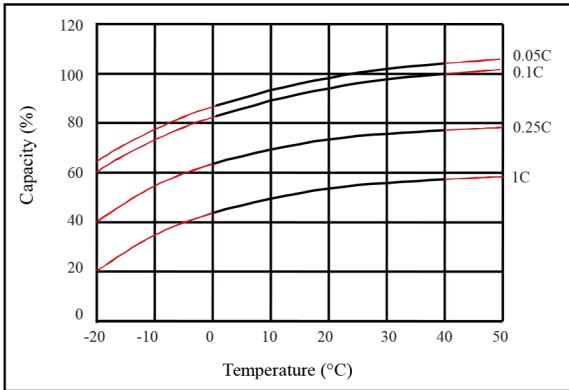
## Discharge characteristics (25°C)



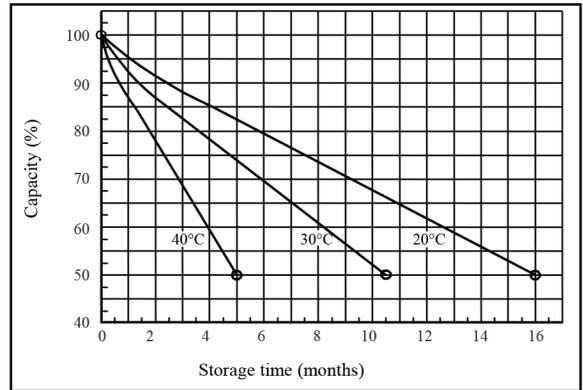
## Charging characteristics (25°C)



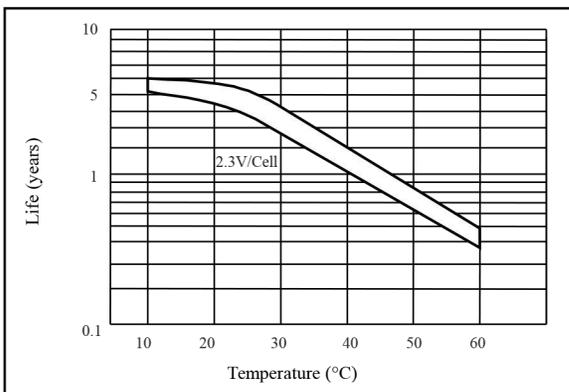
## Temperature effects on capacity



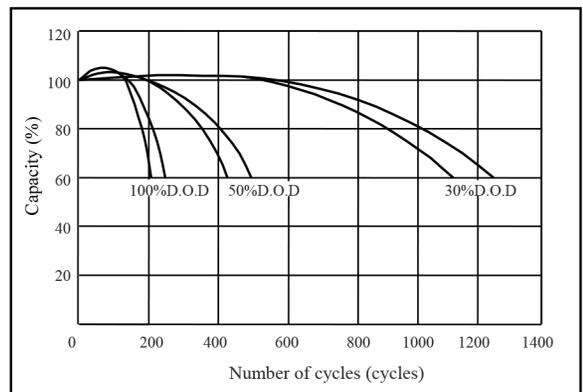
## Self-discharge characteristics



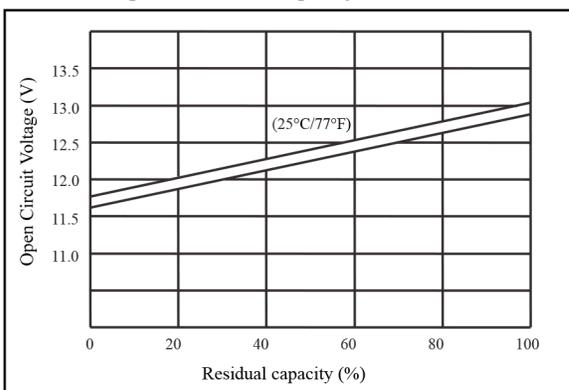
## Floating life on temperature



## Cycle life on D.O.D (25°C)



## Relationship for OCV and capacity (25°C)



## Relationship for charging voltage and temperature

