

## HR1251W (12V51 Watts/cell)

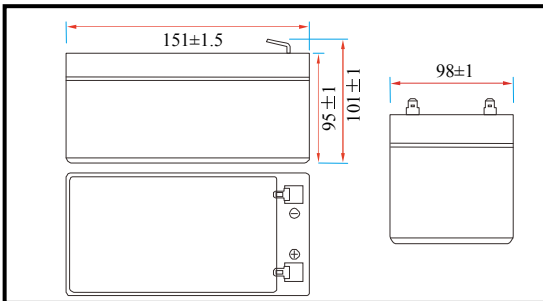
### Valve Regulated Lead Acid Battery



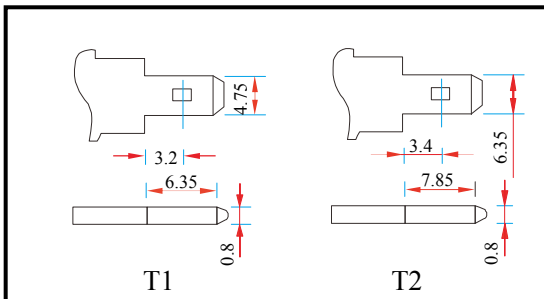
#### Specifications

Nominal voltage	12V (6 cells per unit)	
Rated capacity (15min. rate)	51 Watts/cell /1.67V	
Dimensions	Length	151±1.5mm (5.94inch)
	Width	98±1mm (3.86inch)
	Height	95±1mm (3.74inch)
	Total height	101±1mm (3.98inch)
Approx. weight	4.00kg (8.82lbs)±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	55.30	35.37	26.70	21.20	14.30	10.60	8.68	4.78	3.39	2.73	2.35
1.67V/cell	52.80	33.81	25.80	20.30	13.90	10.30	8.46	4.73	3.36	2.71	2.33
1.70V/cell	51.40	32.98	25.10	19.90	13.60	10.10	8.33	4.71	3.35	2.70	2.32
1.75V/cell	49.20	31.52	24.30	19.20	13.30	9.84	8.17	4.64	3.33	2.68	2.30
1.80V/cell	46.40	29.76	23.00	18.20	12.80	9.48	7.92	4.52	3.23	2.60	2.33

#### 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	110.28	72.06	52.90	41.90	28.40	21.00	17.20	9.51	6.82	5.49	4.72
1.67V/cell	105.08	68.89	51.00	40.20	27.50	20.30	16.80	9.42	6.76	5.44	4.68
1.70V/cell	102.69	67.04	49.80	39.40	27.00	20.00	16.50	9.36	6.74	5.42	4.66
1.75V/cell	98.21	64.20	48.10	38.00	26.30	19.50	16.20	9.22	6.69	5.38	4.63
1.80V/cell	92.70	60.59	45.50	36.00	25.30	18.80	15.70	8.99	6.49	5.22	4.49

Note 1: Above characteristics data can be obtained within three charge and discharge cycles.

#### Characteristics

Capacity (25°C)	15min. rate	51 Watts/cell /1.67V
	20HR	12Ah/10.5V
Terminal type		T2/T1
Internal resistance (Fully charged, 25°C)		Approx. 11mΩ
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		4.08A
Maximum discharge current		180A (5 sec.)
Design life	5 years for floating (25°C)	
	Eurobat (20°C): 3-5 years, standard commercial	

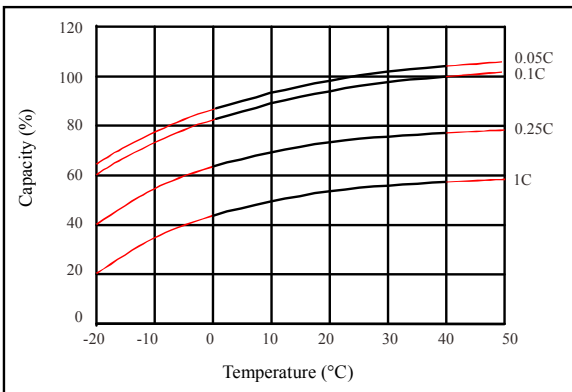
### ● Discharge characteristics (25°C)



### ● Charging characteristics (25°C)



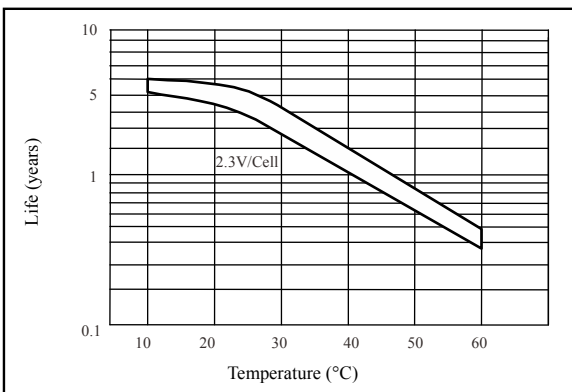
### ● Temperature effects on capacity



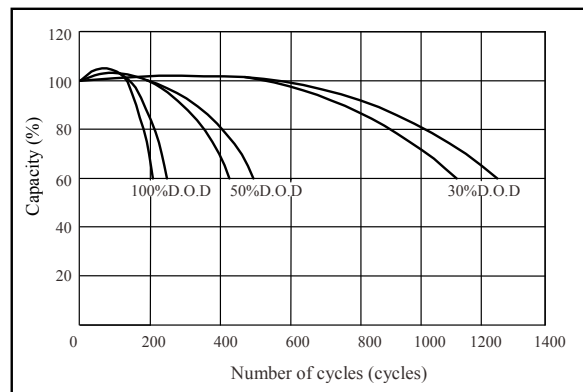
### ● Self-discharge characteristics



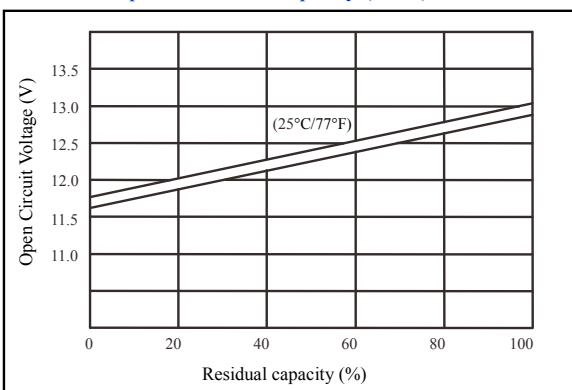
### ● Floating life on temperature



### ● Cycle life on D.O.D (25°C)



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



### ● Relationship for charging voltage and temperature

