

HR1228W (12V28 Watts/cell)

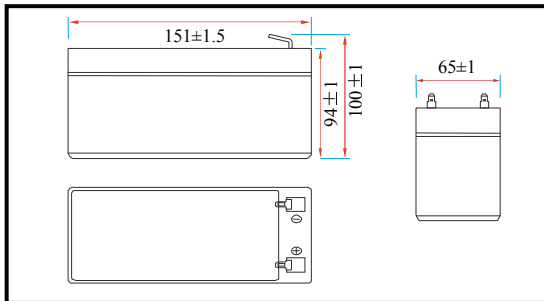
Valve Regulated Lead Acid Battery



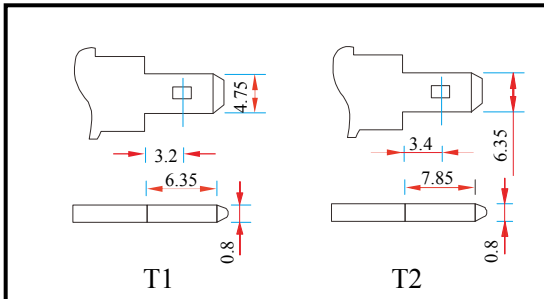
Specifications

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	2.35kg (5.18lbs)±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	31.3	19.3	15.1	12.0	8.12	6.01	4.91	2.81	2.00	1.61	1.38
1.67V/cell	29.9	18.4	14.6	11.5	7.85	5.81	4.80	2.79	1.98	1.58	1.37
1.70V/cell	29.1	17.9	14.2	11.2	7.71	5.71	4.72	2.77	1.97	1.59	1.36
1.75V/cell	27.9	17.2	13.8	10.9	7.52	5.57	4.62	2.73	1.96	1.57	1.35
1.80V/cell	26.3	16.1	13.0	10.3	7.25	5.36	4.48	2.66	1.91	1.53	1.32

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	60.1	37.4	30	23.7	16.1	11.9	9.78	5.59	4.01	3.23	2.78
1.67V/cell	57.3	35.7	28.9	22.8	15.6	11.5	9.52	5.54	3.98	3.20	2.75
1.70V/cell	55.8	34.8	28.1	22.3	15.3	11.4	9.35	5.51	3.96	3.19	2.74
1.75V/cell	53.5	33.2	27.2	21.5	14.9	11.0	9.18	5.43	3.94	3.17	2.72
1.80V/cell	50.5	31.5	25.8	20.4	14.4	10.6	8.84	5.29	3.82	3.07	2.64

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

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. 14mΩ
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		2.24A
Maximum discharge current		135A (5 sec.)
Design life	5 years for floating (25°C)	
	Eurobat (20°C): 3-5 years, standard commercial	

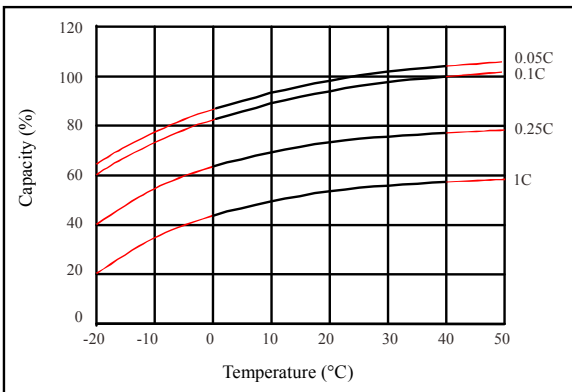
● Discharge characteristics (25°C)



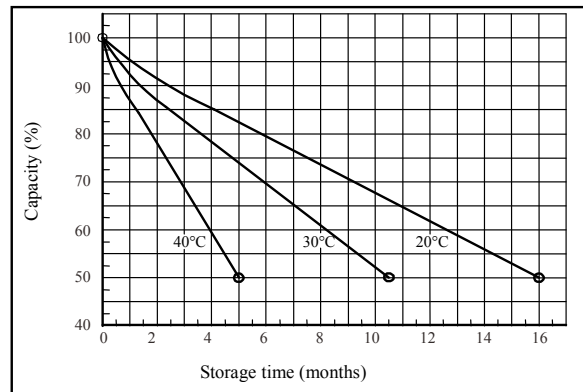
● Charging characteristics (25°C)



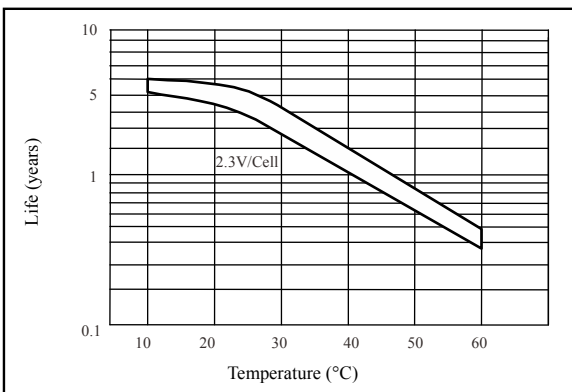
● Temperature effects on capacity



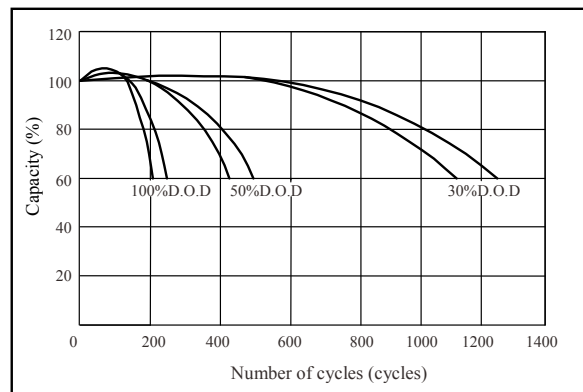
● Self-discharge characteristics



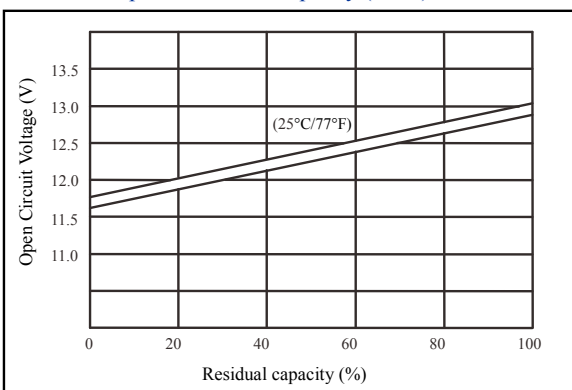
● Floating life on temperature



● Cycle life on D.O.D (25°C)



● Relationship for OCV and capacity (25°C)



● Relationship for charging voltage and temperature

