

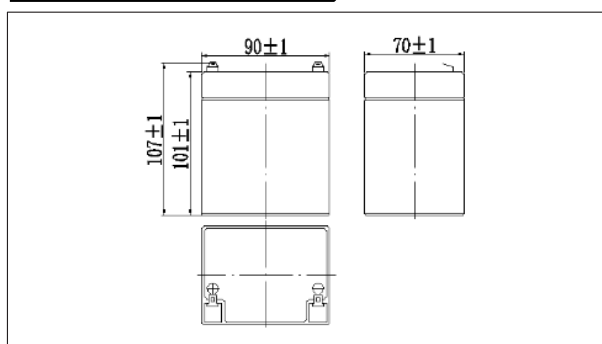
HA12-4 (12V-4 Ah)

Specifications

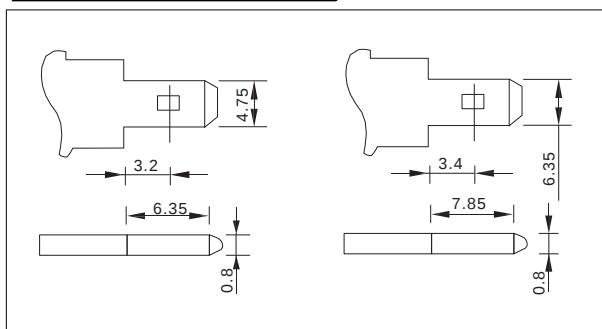
Nominal Voltage		12V
Rated capacity (20 hour rate)		4Ah
Dimensions	Length	90±1mm(3.54inch)
	Width	70±1mm(2.76inch)
	Height	101±1mm(3.98inch)
	Total Height	107±1mm(4.21inch)
Approx. Weight		1.35kg(2.98lbs)±4%



Outer dimensions (mm)



Terminal Type (mm)



Characteristics

Capacity (25°C)	20HR(10.5V)	4Ah
	10HR(10.5V)	3.7Ah
	1HR(9.60V)	2.4Ah
Terminal type		T1/T2
Internal resistance (Fully charged, 25°C)		Approx. 55m Ω
Capacity affected by temperature (20HR)	40°C	102%
	25°C	100%
	0°C	85%
	-15°C	65%
Self-discharge (25°C)	3month	Remaining Capacity: 91%
	6month	Remaining Capacity: 82%
	12month	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)		13.50 to 13.80V Temperature compensation: -18mV/°C
Cyclic charging voltage(25°C)		14.50 to 15.00V Temperature compensation: -30mV/°C
Maximum charging current		1.2A
Maximum discharge current		60A(5 sec.)
Designed floating life(20°C)		5 years

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	30min	60min	2h	3h	4h	5h	10h	20h
9.60V	15.3	9.68	7.56	4.26	2.62	1.43	0.99	0.82	0.70	0.38	0.20
9.90V	14.8	9.39	7.38	4.17	2.58	1.42	0.99	0.82	0.69	0.38	0.20
10.2V	14.2	9.00	7.11	4.05	2.52	1.41	0.98	0.81	0.69	0.38	0.20
10.5V	13.6	8.62	6.86	3.95	2.47	1.39	0.97	0.80	0.68	0.37	0.20
10.8V	12.8	8.13	6.50	3.80	2.39	1.36	0.94	0.78	0.66	0.37	0.20

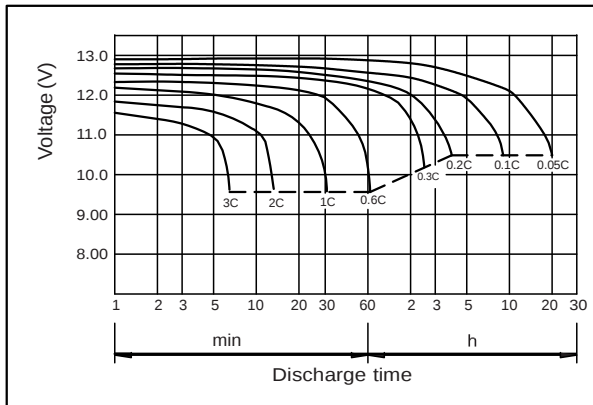
Constant Power Discharge Characteristics Unit:W(25°C,77°F)

F.V/Time	5min	10min	15min	30min	60min	2h	3h	4h	5h	10h	20h
9.60V	171	109	86.2	48.8	30.3	16.8	11.8	9.77	8.33	4.55	2.44
9.90V	165	106	84.1	47.8	29.9	16.7	11.7	9.71	8.28	4.53	2.43
10.2V	159	102	81.0	46.4	29.1	16.5	11.6	9.64	8.22	4.51	2.41
10.5V	152	97.2	78.3	45.3	28.5	16.3	11.5	9.58	8.17	4.48	2.40
10.8V	143	91.7	74.1	43.6	27.7	15.9	11.2	9.29	7.92	4.39	2.35

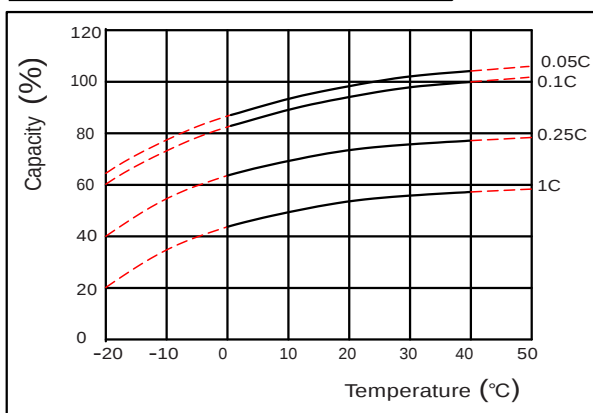
Note: The above characteristics data can be obtained within three charge or discharge cycles.

HA12-4 (12V-4 Ah)

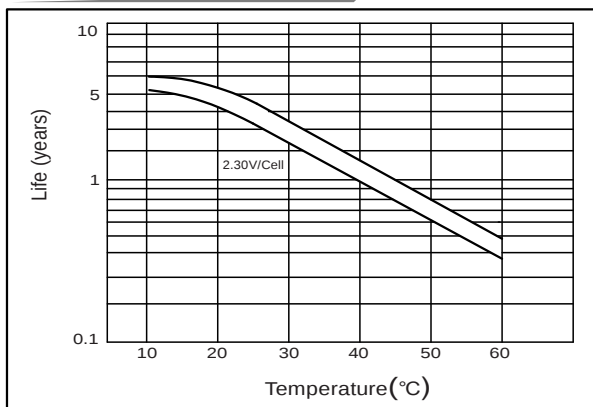
● Discharge characteristics(25°C)



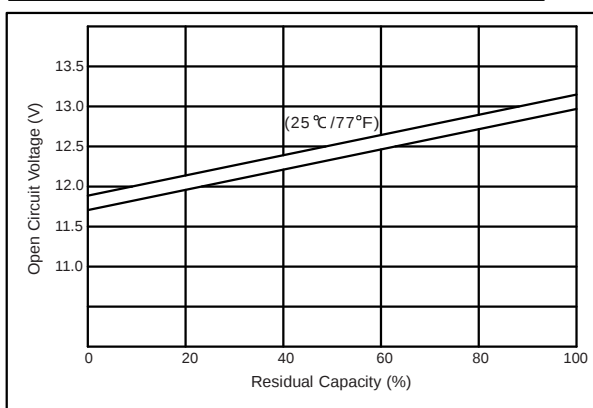
● Effect of temperature on capacity



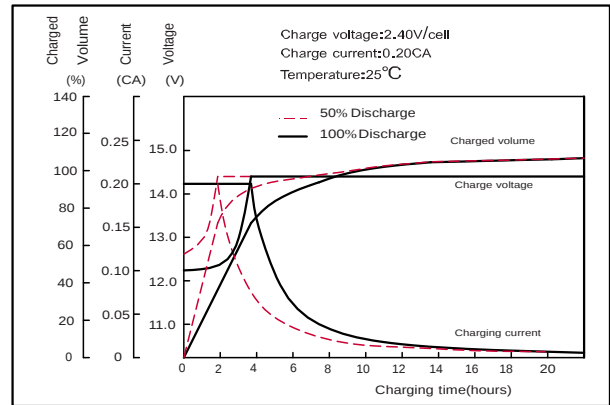
● Floating life on temperature



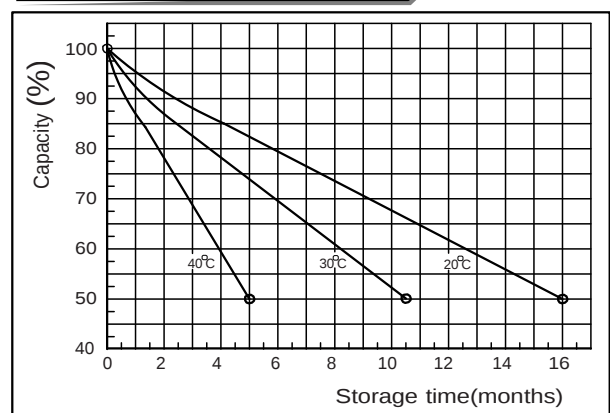
● The relationship for OCV and Capacity (25°C)



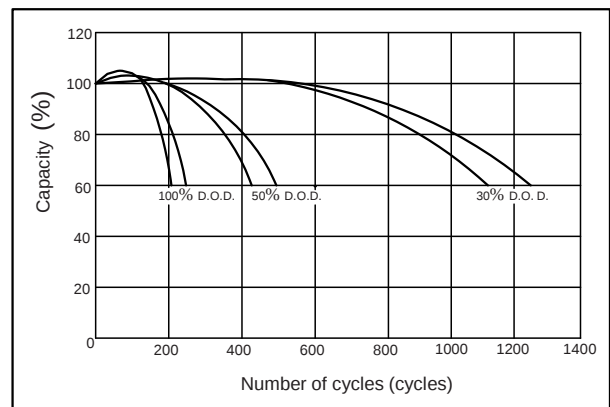
● Charging characteristics (25°C)



● Self-discharge characteristic



● Cycle life on D.O.D.(25°C)



● The relationship for Charging voltage and Temperature

