NPP Power Co., Ltd.

NPP
CLEAN ENERGY, SAFE POWER

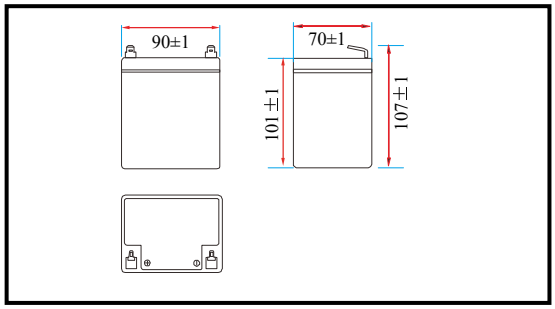
HR1221W (12V21 Watts/cell)

Valve Regulated Lead Acid Battery

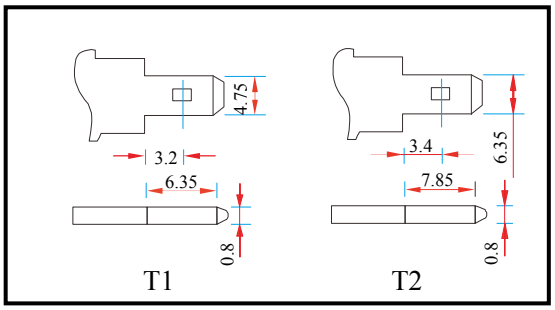
Specifications

Nominal voltage		12V (6 cells per unit)
Rated capacity (15min. rate)		21 Watts/cell/1.67V
Dimensions	Length	90±1mm (3.54inch)
	Width	70±1mm (2.76inch)
	Height	101±1mm (3.98inch)
	Total height	107±1mm (4.21inch)
Approx. weight		1.62kg (3.57lbs)±4%

Outer dimensions (mm)



Terminal type (mm)



Characteristics

Capacity (25°C)	15min. rate	21 Watts/cell /1.67V
	20HR	5Ah/10.5V
Terminal type		T1/T2
Internal resistance (Fully charged, 25°C)		Approx. 23mΩ
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		1.68A
Maximum discharge current		75A (5 sec.)
Design life		5 years for floating (25°C)
		Eurobat (20°C): 3-5 years, standard commercial

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/Block (at 25°C, 77°F)

F.V/Time	5min	10min	15min	20min	30min	45min	60min	2h	3h	4h	5h
1.60V/cell	25.14	15.44	11.33	9.06	6.20	4.37	3.58	1.84	1.31	1.05	0.90
1.67V/cell	23.92	14.77	10.92	8.69	6.00	4.23	3.49	1.82	1.29	1.04	0.89
1.70V/cell	23.37	14.33	10.61	8.52	5.89	4.15	3.43	1.81	1.29	1.04	0.89
1.75V/cell	22.38	13.78	10.30	8.23	5.74	4.05	3.36	1.78	1.28	1.03	0.89
1.80V/cell	21.06	13.01	9.79	7.79	5.53	3.90	3.26	1.74	1.24	1.00	0.86

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

F.V/Time	5min	10min	15min	20min	30min	45min	60min	2h	3h	4h	5h
1.60V/cell	45.91	28.56	22.45	17.89	12.29	8.65	7.08	3.66	2.62	2.11	1.81
1.67V/cell	43.81	27.30	21.00	17.26	11.87	8.38	6.90	3.62	2.60	2.09	1.80
1.70V/cell	42.66	26.57	21.12	16.85	11.66	8.22	6.80	3.60	2.59	2.08	1.79
1.75V/cell	40.87	25.41	20.39	16.33	11.34	8.02	6.66	3.55	2.57	2.07	1.78
1.80V/cell	38.56	23.94	19.26	15.39	10.92	7.73	6.46	3.46	2.50	2.01	1.73

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

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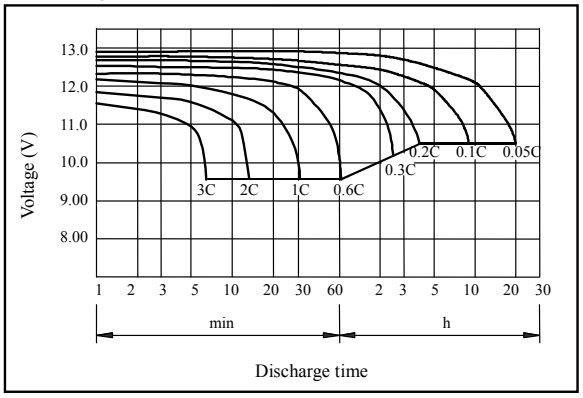
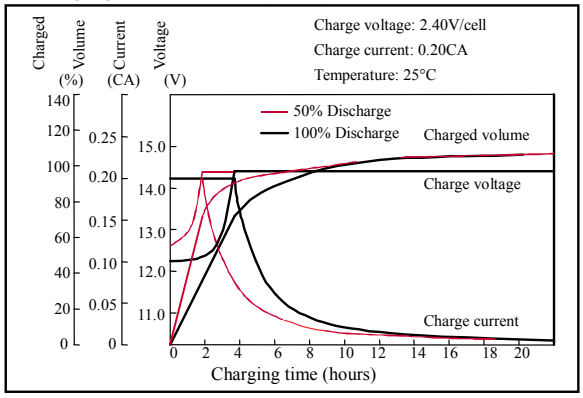
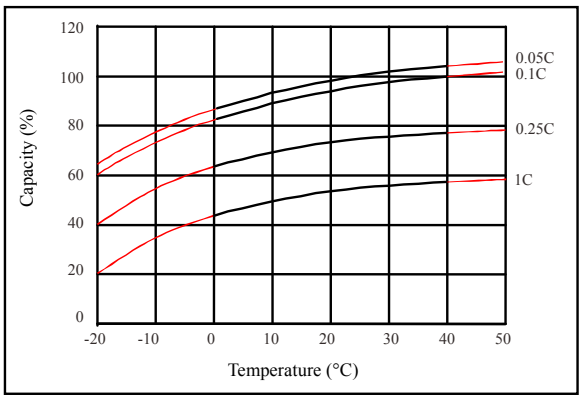
Discharge characteristics (25°C)



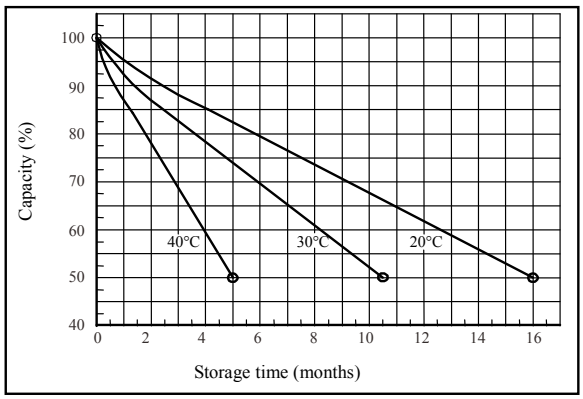
Charging characteristics (25°C)



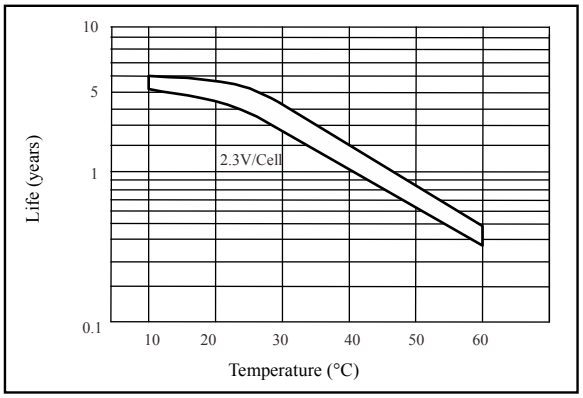
Temperature effects on capacity



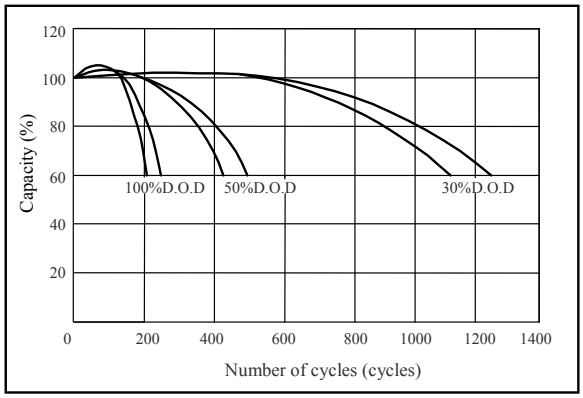
Self-discharge characteristics



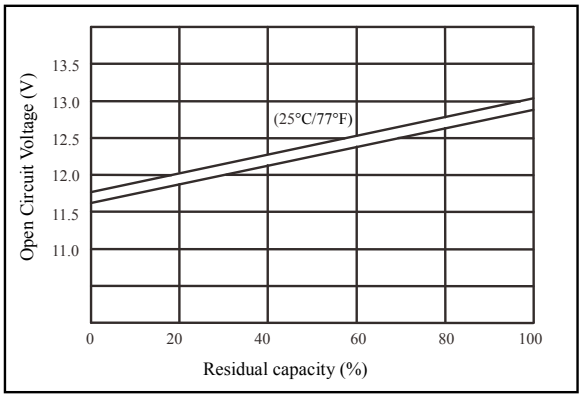
Floating life on temperature



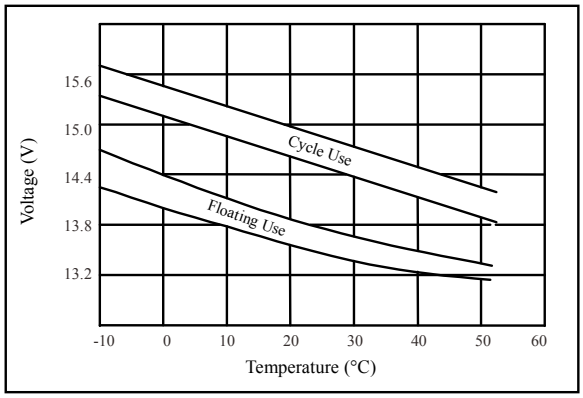
Cycle life on D.O.D (25°C)



Relationship for OCV and capacity (25°C)



Relationship for charging voltage and temperature



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