

# SPA 12 - 18 | VRLA Battery



## Applications

- Uninterruptible Power Supplies (UPS)
- Electric Power Systems (EPS)
- Emergency backup power supplies
- Electronic apparatus and equipment
- Communication power supplies
- DC power supplies
- Auto control system

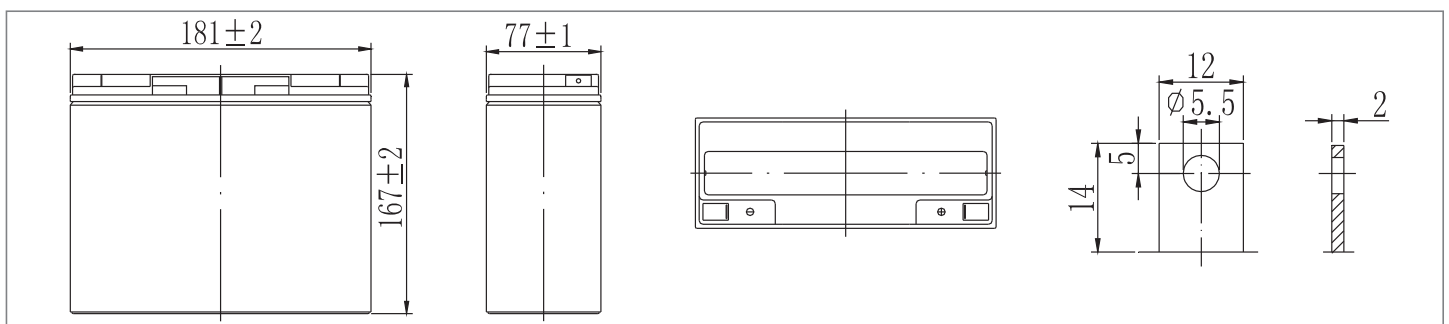
## Specifications

Nominal Voltage	12 V		
Number of cells	6		
Design Life	10 years		
Dimensions	Length	181 mm	
	Width	77 mm	
	Height	167 mm	
	Total Height	167 mm	
Approx. Weight	5.0 kg		
Nominal Capacity (25°C)	20 hours rate (0.90 A, 10.5 V)	18.00 Ah	
	10 hours rate (1.58 A, 10.5 V)	15.80 Ah	
	5 hours rate (2.88 A, 10.5 V)	14.40 Ah	
	1 hour rate (11.03 A, 9.6 V)	11.03 Ah	
Max. Discharge Current (25°C)	270 A (5s)		
Max. Charging Current (25°C)	5.4 A		
Internal Resistance	15 mOhms		
Fully Charged battery (25°C)			
Self-Discharge (25°C)	3% of capacity declined per month (average)		
Operating Temperature Range	Discharge	-15~50°C	
	Charge	-10~50°C	
	Storage	-20~50°C	
Short Circuit Current	750 A		
Charging Characteristics (25°C)	Boost charging voltage	2.40-2.45 Vpc	
	Temperature compensation	-30 mV/°C	
	Float charging voltage	2.25-2.30 Vpc	
	Temperature compensation	-18 mV/°C	

## Battery Construction

Component	Positive Plate	Negative Plate	Container	Cover	Safety Valve	Terminal	Separator	Electrolyte
Raw material	Lead dioxide	Lead	ABS	ABS	Rubber	Copper	Fiberglass	Sulfuric acid

## Dimensions



## Constant Current Discharge (Amperes) at 25°C

End Voltage (Volts/Cell)	5 min	10 min	15 min	30 min	1 h	2 h	3 h	4 h	5 h	8 h	10 h	20 h
1.60 V	62.2	40.6	32.13	18.00	11.03	6.08	4.35	3.40	2.94	1.93	1.61	0.91
1.65 V	60.7	39.4	31.29	17.64	10.87	6.05	4.33	3.38	2.92	1.92	1.60	0.91
1.70 V	58.1	37.7	30.17	17.10	10.59	5.99	4.30	3.35	2.90	1.90	1.59	0.90
1.75 V	55.6	36.1	29.14	16.69	10.38	5.90	4.27	3.33	2.88	1.89	1.58	0.90
1.80 V	52.2	34.1	27.60	16.07	10.06	5.75	4.14	3.23	2.79	1.83	1.55	0.85

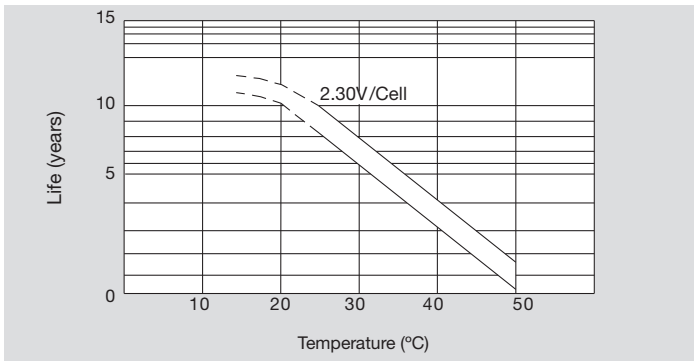
## Constant Power Discharge (Watts) at 25°C

End Voltage (Volts/Cell)	5 min	10 min	15 min	30 min	1 h	2 h	3 h	4 h	5 h	8 h	10 h	20 h
1.60 V	696	458	366.0	206.3	127.8	71.2	51.7	40.5	35.1	23.13	19.29	10.94
1.65 V	677	445	357.0	202.2	125.9	70.8	51.4	40.2	34.9	23.00	19.22	10.89
1.70 V	646	426	344.0	196.0	122.7	70.1	51.0	39.9	34.6	22.84	19.12	10.82
1.75 V	622	407	332.0	191.2	120.2	69.1	50.7	39.7	34.4	22.68	19.01	10.80
1.80 V	587	384	314.6	184.2	116.5	67.3	49.2	38.5	33.4	22.00	18.63	10.15

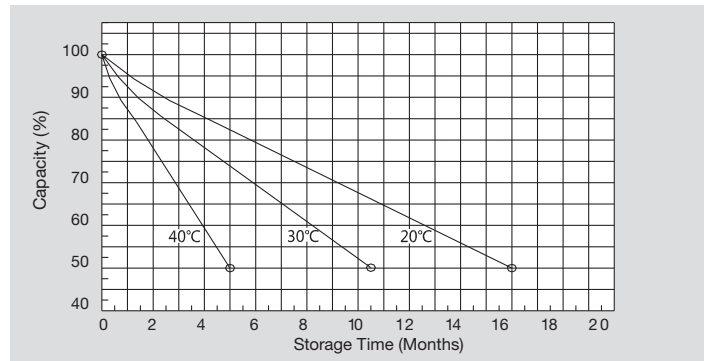
(Note) The above characteristics data are average values obtained within three charge/discharge cycles.

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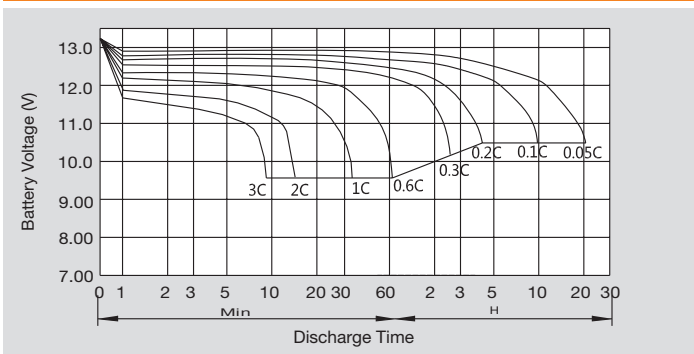
## Temperature Effects on Float Life



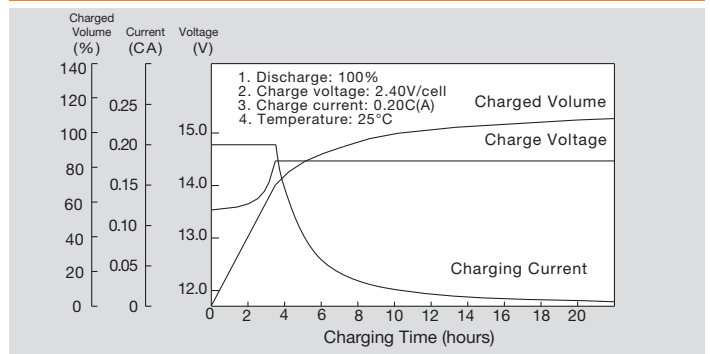
## Self Discharge Characteristics



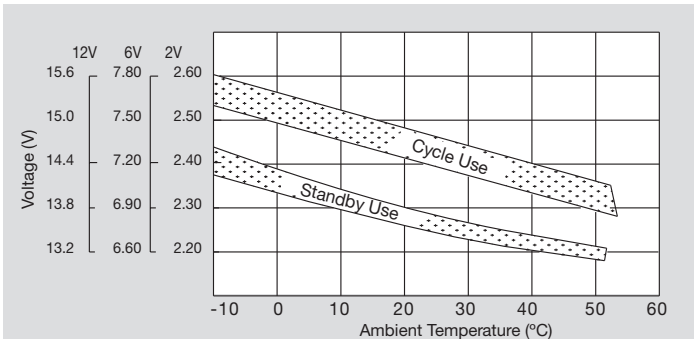
## Discharge Characteristics (25°C)



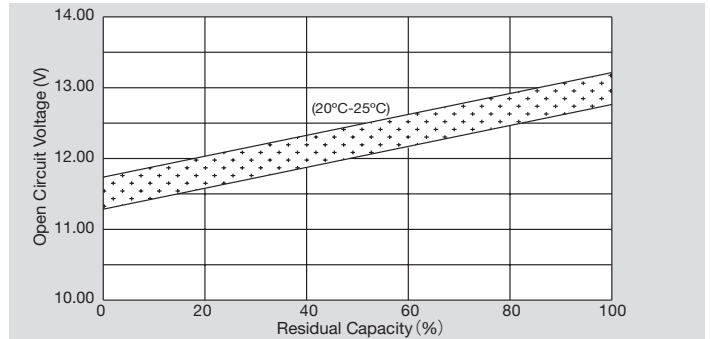
## Charging Characteristics (25°C)



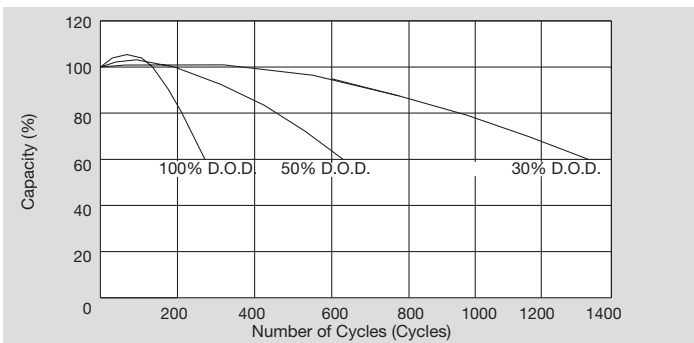
## Relationship Between Charging Voltage and Temperature



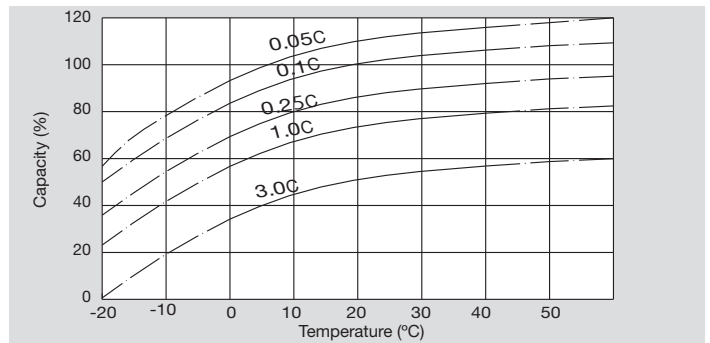
## Relationship Between Open Circuit Voltage and Residual Capacity (25°C)



## Cycle Service Life in Relation to Depth of Discharge



## Temperature Effects on Capacity



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