

# SPA 12 - 1.3 | VRLA Battery



## Specifications

Nominal Voltage	12 V	
Number of cells	6	
Design Life	10 years	
Dimensions	Length	97 mm
	Width	43 mm
	Height	52 mm
	Total Height	58 mm
Approx. Weight	0.52 kg	
Nominal Capacity (25°C)	20 hours rate (0.060 A, 10.5 V)	1.200 Ah
	10 hours rate (0.106 A, 10.5 V)	1.060 Ah
	5 hours rate (0.192 A, 10.5 V)	0.960 Ah
	1 hour rate (0.736 A, 9.6 V)	0.736 Ah
Max. Discharge Current (25°C)	18 A (5s)	
Max. Charging Current (25°C)	0.36 A	
Internal Resistance	90 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	195 A	
Charge Methods:	Cycle use	2.40-2.45 Vpc
	Temperature compensation	-30 mV/°C
Constant Voltage Charge (25°C)	Standby use	2.25-2.30 Vpc
	Temperature compensation	-18 mV/°C

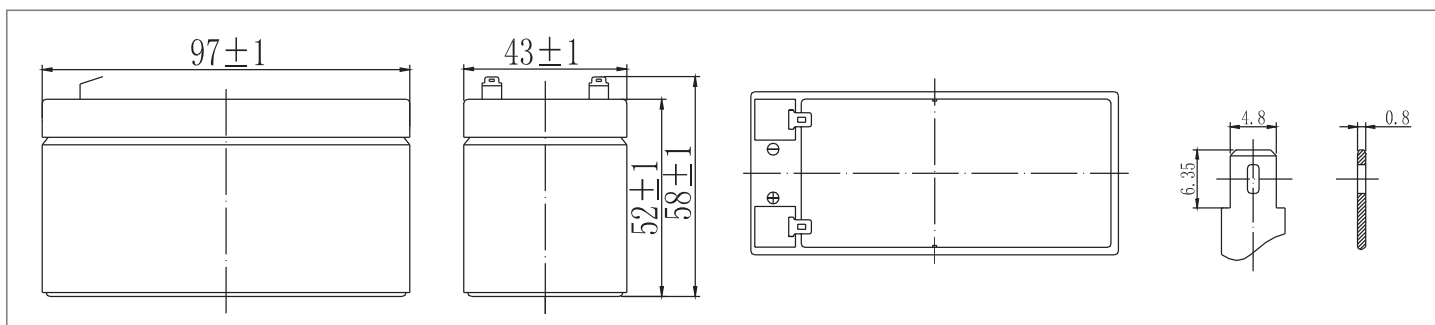
## Applications

- 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

## 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	10 h	20 h
1.60 V	4.3	2.7	2.14	1.20	0.736	0.406	0.290	0.226	0.196	0.107	0.061
1.65 V	4.2	2.6	2.09	1.18	0.725	0.403	0.288	0.225	0.195	0.107	0.060
1.70 V	4.0	2.5	2.01	1.14	0.706	0.400	0.286	0.224	0.193	0.106	0.060
1.75 V	3.8	2.4	1.94	1.11	0.692	0.394	0.284	0.222	0.192	0.106	0.060
1.80 V	3.6	2.3	1.84	1.07	0.671	0.384	0.276	0.215	0.186	0.103	0.056

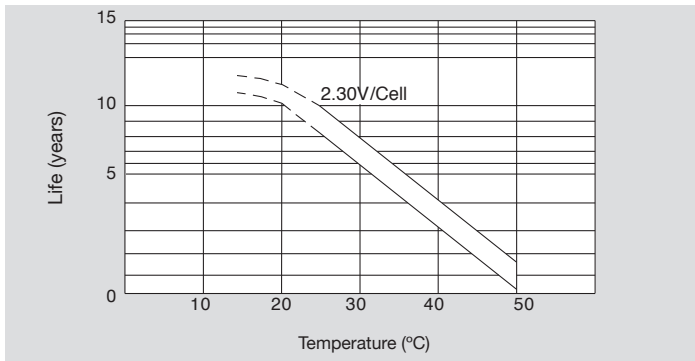
## Constant Power Discharge (Watts) at 25°C

End Voltage (Volts/Cell)	5 min	10 min	15 min	30 min	1 h	2 h	3 h	4 h	5 h	10 h	20 h
1.60 V	48.0	30.6	24.4	13.8	8.52	4.75	3.45	2.70	2.34	1.29	0.729
1.65 V	46.4	29.6	23.8	13.5	8.39	4.72	3.43	2.68	2.32	1.28	0.726
1.70 V	44.5	28.4	22.9	13.1	8.18	4.68	3.40	2.66	2.31	1.27	0.721
1.75 V	42.6	27.2	22.1	12.7	8.02	4.61	3.38	2.64	2.29	1.27	0.720
1.80 V	39.7	25.6	21.0	12.3	7.77	4.49	3.28	2.56	2.22	1.24	0.677

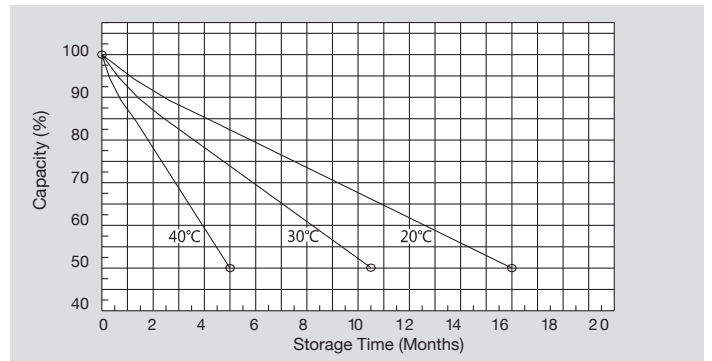
(Note) The above characteristics data are average values obtained within three charge/discharge cycles.

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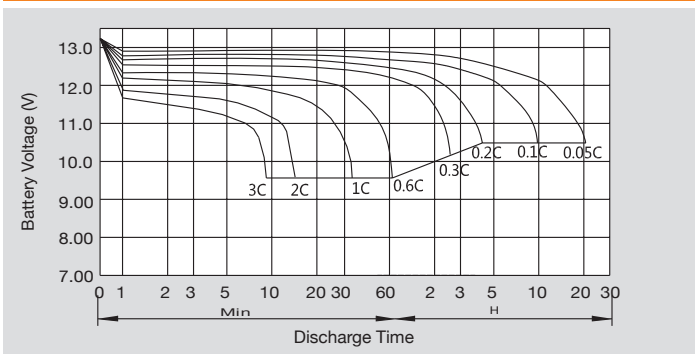
## Temperature Effects on Float Life



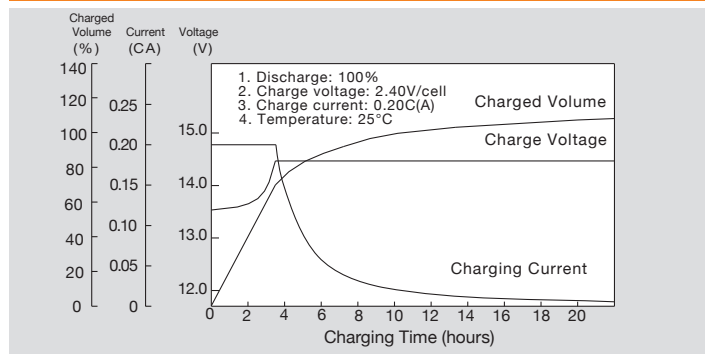
## Self Discharge Characteristics



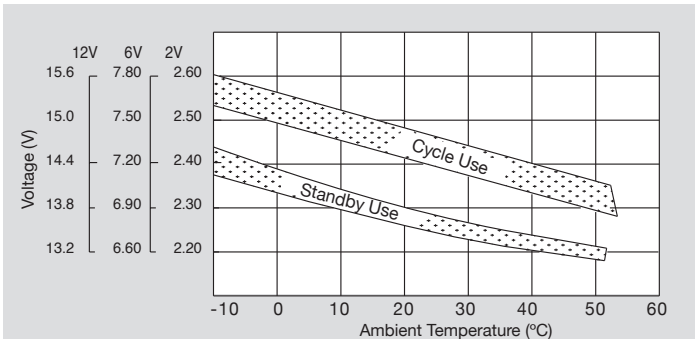
## Discharge Characteristics (25°C)



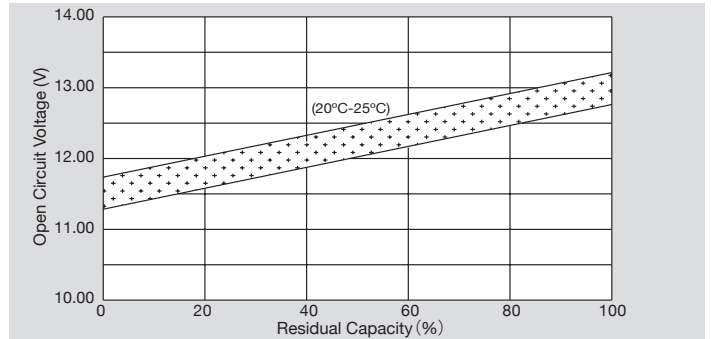
## Constant Voltage Charging Characteristic 25°C



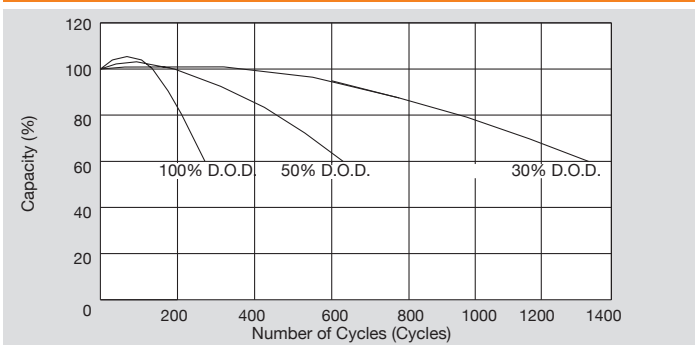
## Relationship Between Charging Voltage and Temperature



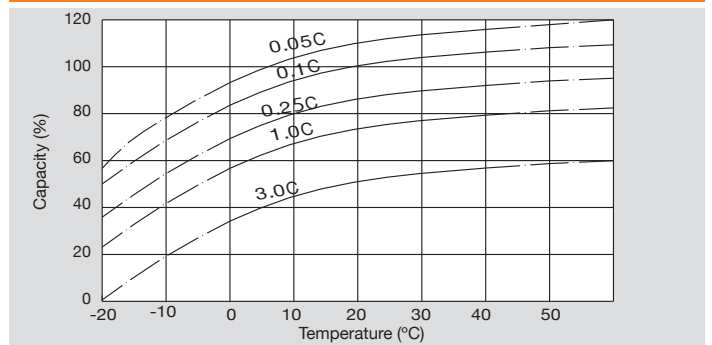
## Relationship Between Open Circuit Voltage and Residual Capacity (25°C)



## Cycle Service Life in Relation to Depth of Discharge



## Temperature Effects on Capacity



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