

# SPA 12 - 2.3 | VRLA Battery



## Specifications

Nominal Voltage	12 V	
Number of cells	6	
Design Life	10 years	
Dimensions	Length	178 mm
	Width	35 mm
	Height	61 mm
	Total Height	67 mm
Approx. Weight	0.80 kg	
Nominal Capacity (25°C)	20 hours rate (0.115 A, 10.5 V)	2.30 Ah
	10 hours rate (0.210 A, 10.5 V)	2.10 Ah
	5 hours rate (0.390 A, 10.5 V)	1.95 Ah
	1 hour rate (1.500 A, 9.6 V)	1.50 Ah
Max. Discharge Current (25°C)	34.5 A (5s)	
Max. Charging Current (25°C)	0.69 A	
Internal Resistance	60 mOhms	
Fully Charged battery (25°C)		
Self-Discharge (25°C)	3% of capacity declined per month (average)	
	Discharge	-15~50°C
	Charge	-10~50°C
Operating Temperature Range	Storage	-20~50°C
	74.5 A	
	Short Circuit Current	
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

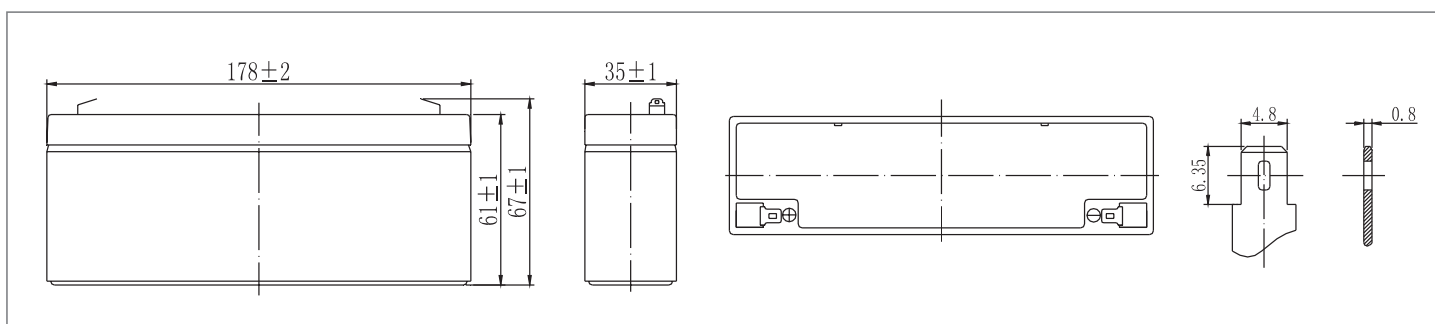
## Applications

- 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	8.74	5.52	4.37	2.44	1.50	0.82	0.59	0.47	0.40	0.22	0.117
1.65 V	8.48	5.35	4.27	2.39	1.47	0.81	0.58	0.47	0.40	0.22	0.116
1.70 V	8.13	5.13	4.11	2.32	1.44	0.81	0.58	0.46	0.39	0.22	0.116
1.75 V	7.78	4.91	3.97	2.26	1.41	0.79	0.58	0.46	0.39	0.21	0.115
1.80 V	7.34	4.64	3.76	2.18	1.36	0.77	0.56	0.45	0.38	0.21	0.113

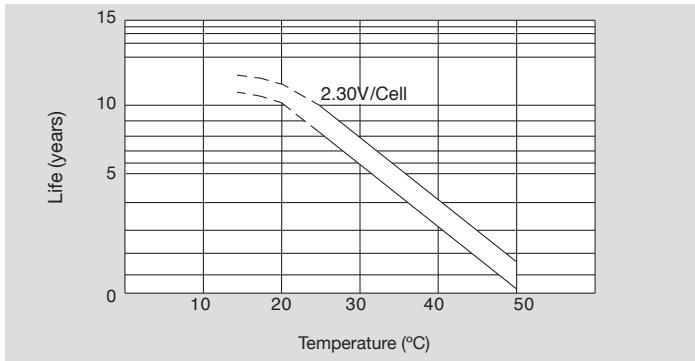
## Constant Power Discharge (Watts) at 25°C

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	97.5	62.3	49.8	27.9	17.3	9.56	6.97	5.59	4.76	2.61	1.40
1.65 V	94.6	60.4	48.6	27.4	17.1	9.50	6.93	5.56	4.73	2.60	1.40
1.70 V	90.7	57.9	46.8	26.5	16.6	9.42	6.88	5.52	4.70	2.58	1.39
1.75 V	86.8	55.4	45.2	25.9	16.3	9.28	6.83	5.48	4.67	2.57	1.38
1.80 V	81.9	52.3	42.8	24.9	15.8	9.04	6.63	5.31	4.53	2.52	1.35

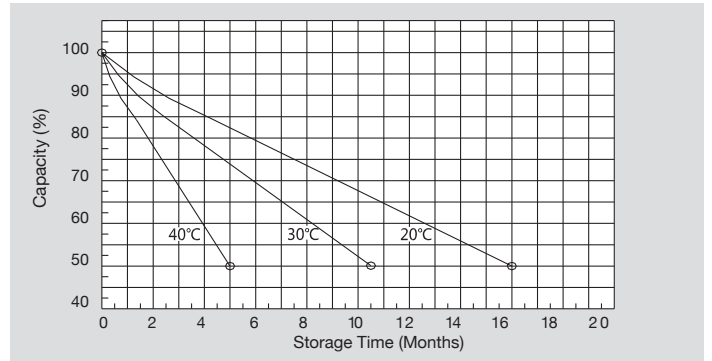
(Note) The above characteristics data are average values obtained within three charge/discharge cycles.

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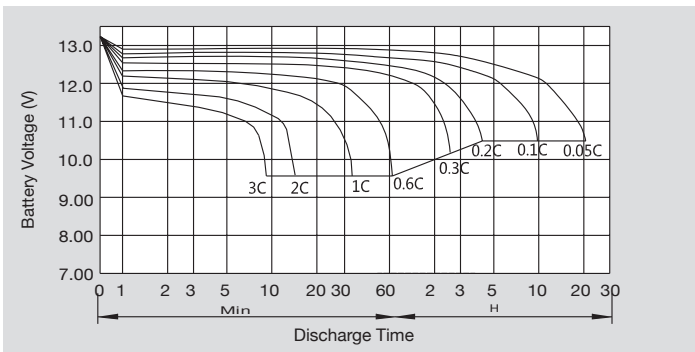
## Temperature Effects on Float Life



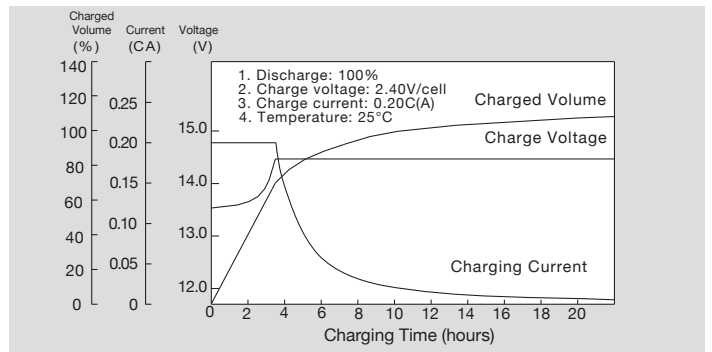
## Self Discharge Characteristics



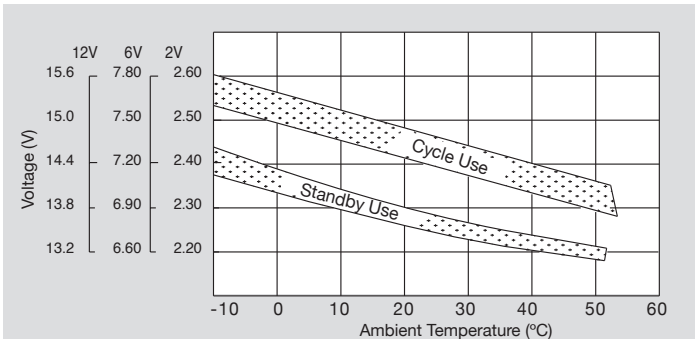
## Discharge Characteristics (25°C)



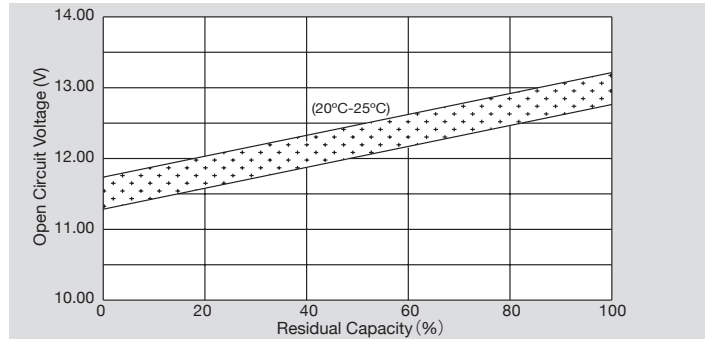
## Constant Voltage Charging Characteristic 25°C



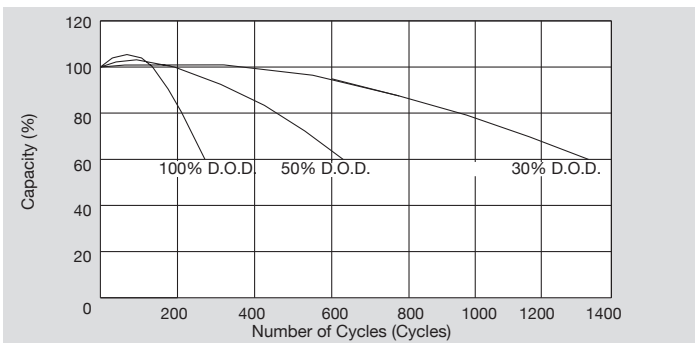
## Relationship Between Charging Voltage and Temperature



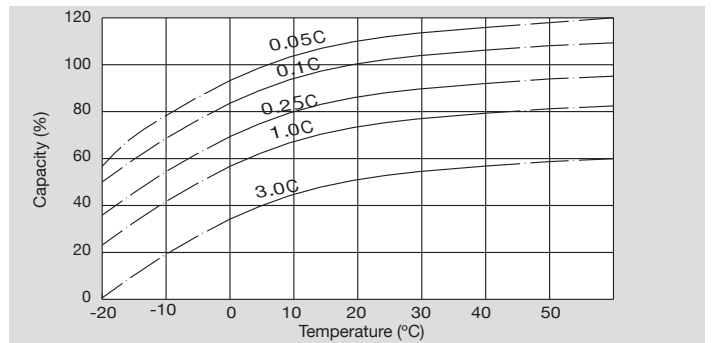
## Relationship Between Open Circuit Voltage and Residual Capacity (25°C)



## Cycle Service Life in Relation to Depth of Discharge



## Temperature Effects on Capacity



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