

universal battery® batteries featuring **Nano-Silica Construction** and **Nano-Silica Colloidal Electrolyte** are capable of up to 350 cycles at 100% depth of discharge. Nano-Silica has superior cycle life to Sealed Lead-Acid batteries. Compared to Gel batteries, Nano-Silica has better charge currents at 25% of capacity and higher discharge current up to C/2. A low Self-Discharge rate of 2% a month makes for a long shelf life.

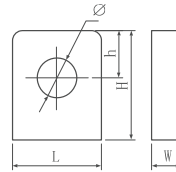
Specifications:

Nominal Voltage	12 Volts
Nominal Capacity	77° F (25° C)
20-hr. (13.0 A) (C/O 1.75V/Cell)	260 Ah
10-hr. (24.2 A) (C/O 1.75V/Cell)	242 Ah
5-hr. (44.2 A) (C/O 1.70V/Cell)	221 Ah
1-hr. (156 A) (C/O 1.70V/Cell)	156 Ah
Approximate Weight	151 lbs (68.5 kgs)
Operational Temperature	
Charge	-4°F to 140°F (-20°C to 60°C)
Discharge	-4°F to 140°F (-20°C to 60°C)
Storage Temperature	-4°F to 140°F (-20°C to 60°C)
Charge Method	(Constant Voltage)
Cycle Use (Repeating Use)	
Initial Current	65.0 A or smaller
Control Voltage	14.40 - 15.00 V
Float Use	
Control Voltage	13.80 - 14.10 V
Self Discharge Rate	2% per month @ 25 C
Container Material	ABS (UL94-HB)



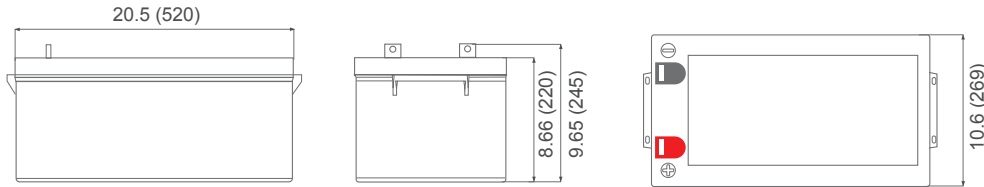
Due to continuous improvements to our products, product may vary slightly from depiction.

Terminals: L Type



Dimension Type	L	W	H	h	Ø
L4	26.5 mm 1.04 in	8.00 mm 0.32 in	24.5 mm 0.97 in	12.0 mm 0.47 in	9.00 mm 0.35 in

Physical Dimensions: in (mm)



L: 20.5 in (520mm)
W: 10.6 in (269mm)
H: 8.66 in (220 mm)
TH: 9.65 in (245 mm)

Tolerances are:
 +/- 0.04 in. (+/- 1mm) and
 +/- 0.08 in. (+/- 2mm) for height
 dimensions. All data subject to
 change without notice.

Constant Current Discharge Characteristics: Unit A (25°C , 77°F)

F.V. / Time	5 Min	10 Min	15 Min	30 Min	1 Hr	2 Hr	3 Hr	4 Hr	5 Hr	8 Hr	10 Hr	20 Hr
9.60V	886.1	646.6	455.0	277.1	143.7	85.5	61.6	47.9	39.7	27.7	25.3	13.7
10.2V	780.0	588.4	407.1	261.0	135.1	80.1	59.9	46.9	38.7	27.4	24.6	13.3
10.5V	752.6	561.1	386.6	253.2	130.0	78.0	58.5	45.8	38.3	27.0	23.9	13.0
10.8V	721.8	530.3	359.2	246.3	126.6	76.3	57.1	45.2	37.3	26.3	23.9	13.0
11.1V	694.5	502.9	335.3	239.5	123.2	74.2	55.1	43.8	36.3	25.7	22.9	12.3

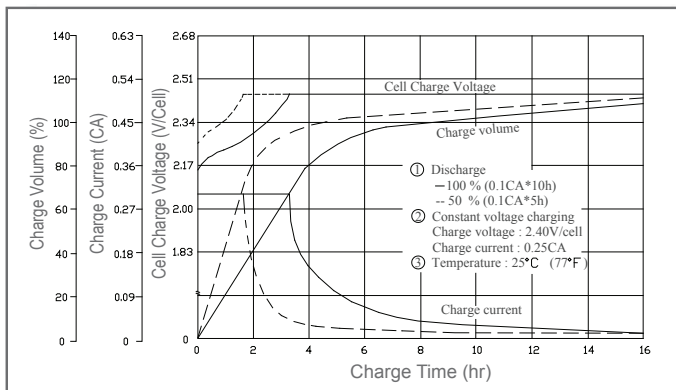
Constant Power Discharge Characteristics: Unit W (25°C , 77°F)

F.V. / Time	5 Min	10 Min	15 Min	30 Min	1 Hr	2 Hr	3 Hr	4 Hr	5 Hr	8 Hr	10 Hr	20 Hr
9.60V	9684	7068	4972	3011	1711	1000	733	570	472	331	299	162
10.2V	9036	6730	4652	2983	1609	954	715	556	461	324	292	158
10.5V	8779	6539	4472	3118	1560	930	697	549	458	324	289	156
10.8V	8666	6370	4303	2954	1514	912	683	535	447	317	285	155
11.1V	8508	6159	4106	2933	1497	909	676	535	447	313	278	150

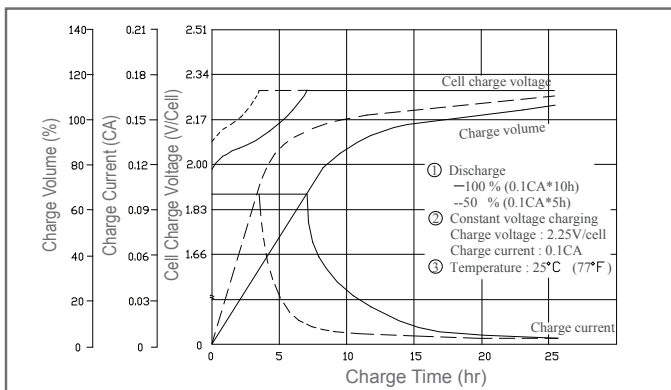
universal battery®

Nano-Silica Battery - 8D

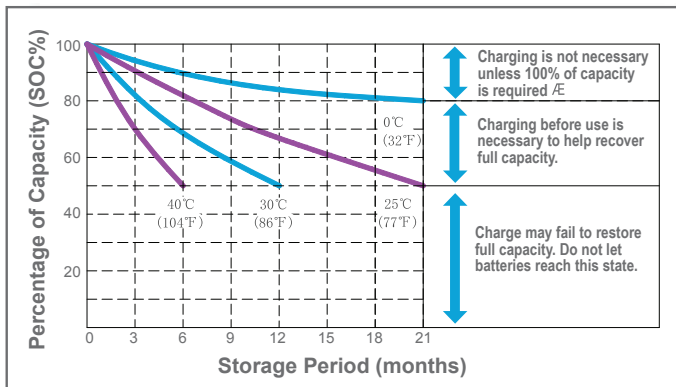
Battery Charging Characteristics for Cyclic Use



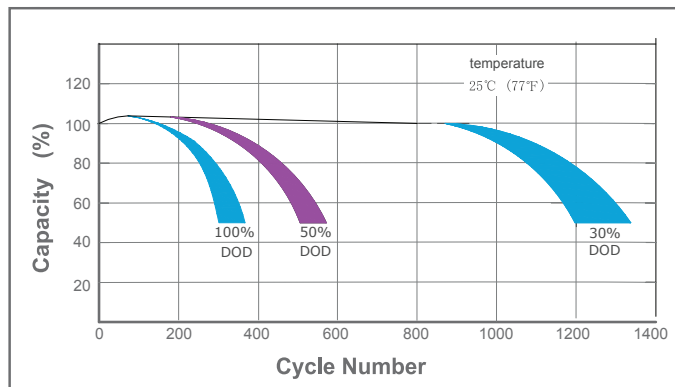
Battery Charging Characteristics for Standby Use



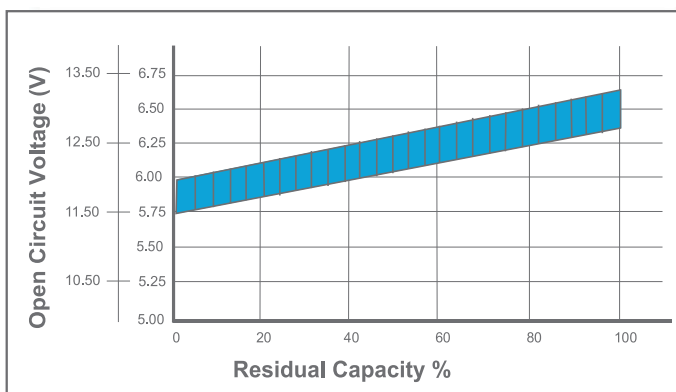
Shelf Life & Storage



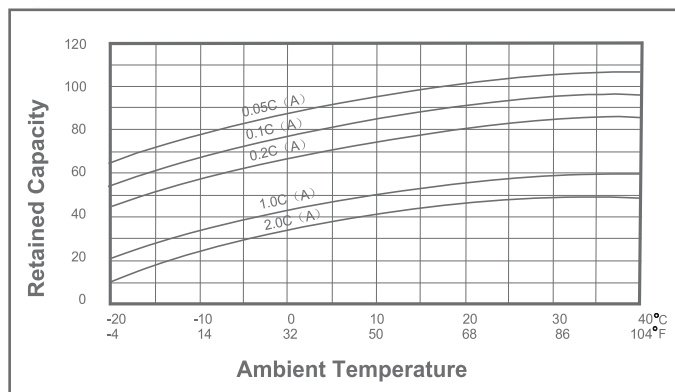
Cycle Life vs Depth of Discharge



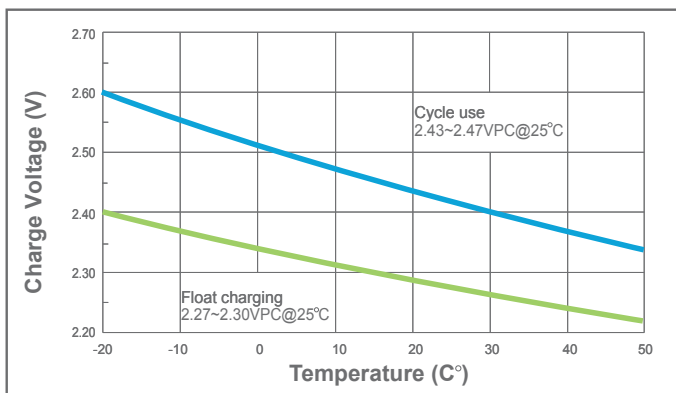
Open Circuit Voltage vs Residual Capacity



Effect of Temperature on Capacity



Relationship Between Charging Voltage & Temp.



Charge Current

Application	Charge Voltage(V/Cell)			Max.Charge Current
	Temperature	Set Point	Allowable Range	
Cycle Use	25°C (77°F)	2.45	2.40~2.50	0.25C
Standby	25°C (77°F)	2.33	2.30~2.35	

Final Discharge Voltage

Final Discharge Voltage V/Cell	1.75	1.70	1.60	1.30
Discharge Current (A)	0.2C>(A)	0.2C<(A)<0.5C	0.5C<(A)<1.0C	(A)>1.0C