

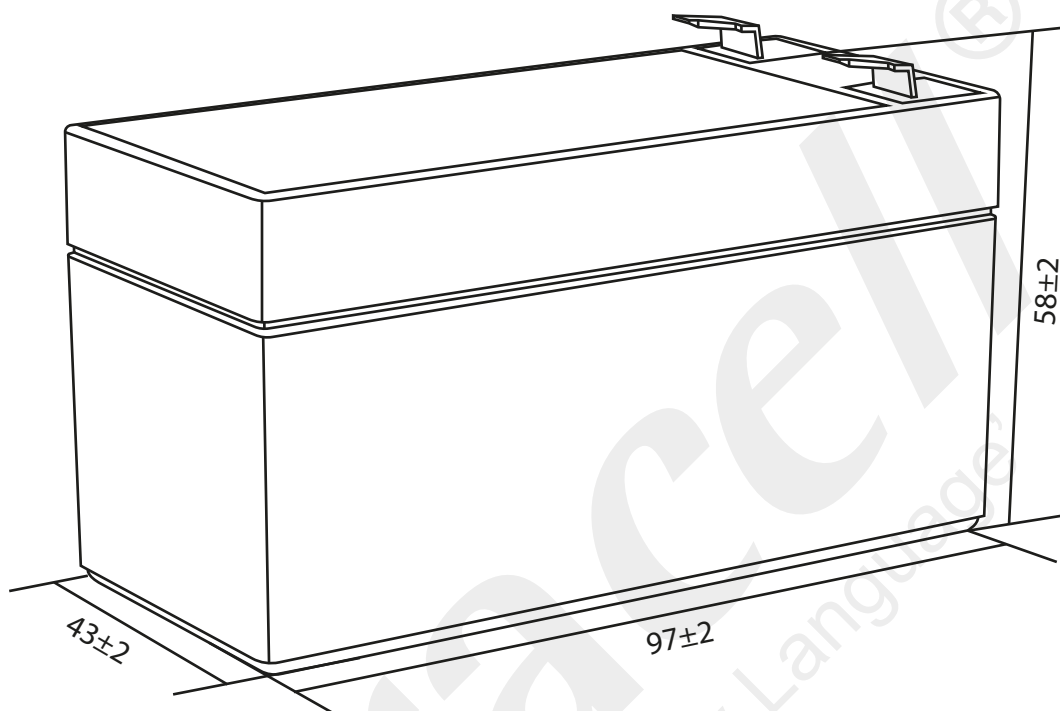
# Ultracell®

'Quality in Every Language'

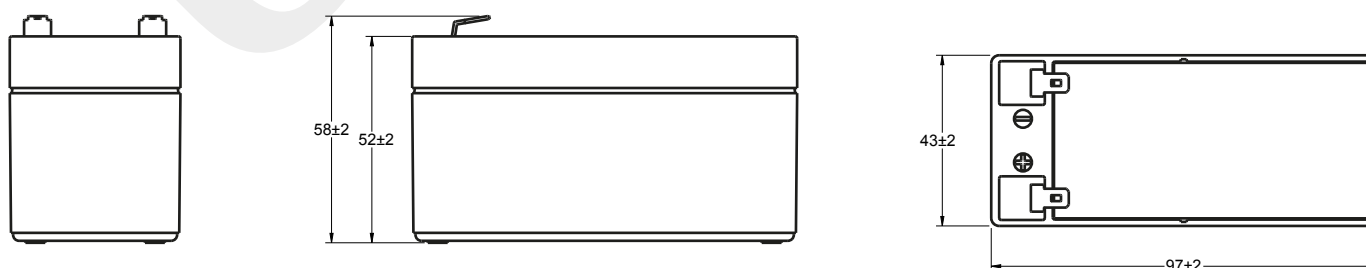
UL1.3-12

12V 1.3Ah

General Series



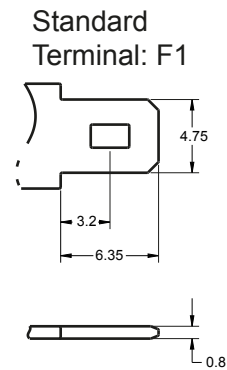
## Technical Dimensions (mm)



Image



Terminal Dimensions (mm)



Technical Specification

<b>Output</b>	Nominal Voltage	12V
	Nominal Capacity (20HR)	1.3Ah
<b>Terminal Type</b>	Standard Terminal	F1
<b>Container Material</b>	Standard Option	ABS
	Flame Retardant Option (FR)	ABS (UL94:VO)
<b>Rated Capacity</b>	(20HR 1.80V/cell, 25°C)	1.30 Ah/0.065A
	(10HR 1.80V/cell, 25°C)	1.12 Ah/0.112A
	(5HR 1.75V/cell, 25°C)	1.01 Ah/0.202A
	(3HR 1.75V/cell, 25°C)	0.882 Ah/0.294A
	(1HR 1.60V/cell, 25°C)	0.728 Ah/0.728A
<b>Max Discharge Current</b>	18A (5s)	
<b>Internal Resistance</b>	Approx 90mΩ	
<b>Discharge Characteristics</b>	Operating Temp Range	Discharge: -15 ~ 50°C Charge: 0 ~ 40°C Storage: -15 ~ 40°C
	Nominal Operating Temp Range	25 ± 3°C
	Cycle Use	Initial Charging Current less than 0.36A. Voltage 14.4V ~ 15.0V @ 25°C Temp. Coefficient -30mV/°C
	Standby Use	No limit on initial charging current. Voltage 13.5V ~ 13.8V @ 25°C Temp. Coefficient -20mV/°C
	Capacity affected by Temperature	40°C 103% 25°C 100% 0°C 86%
<b>Design Floating Life at 20°C</b>	5 Years	

Self Discharge

Ultracell® UL batteries may be stored for up to 6 months at 25°C and then a refresh charge is required. For higher temperatures the time intervals will be shorter.

Constant Current Discharge / Constant Power Discharge At 25°C (Amperes & Watts/Cell)

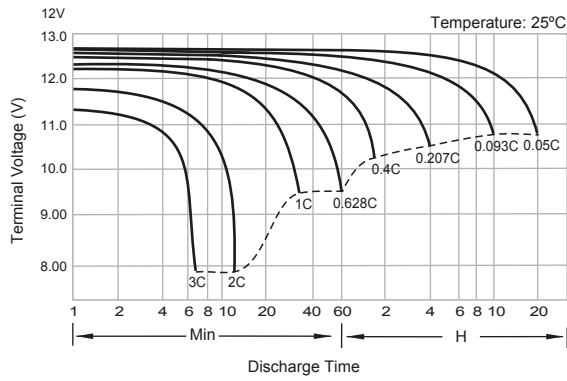
A = Amperes W = Watts

F.V/TIME	5 min	10 min	15 min	20 min	30 min	45 min	60 min	2 hours	3 hours	4 hours	5 hours	6 hours	8 hours	10 hours	20 hours
<b>1.85V/cell</b>	2.30	1.61	1.32	1.15	0.922	0.709	0.580	0.354	0.270	0.222	0.188	0.163	0.130	0.108	0.064
<b>1.80V/cell</b>	4.35	3.06	2.55	2.23	1.80	1.39	1.14	0.701	0.536	0.442	0.377	0.327	0.261	0.217	0.120
<b>1.75V/cell</b>	2.83	1.92	1.54	1.30	1.02	0.773	0.624	0.376	0.284	0.233	0.196	0.170	0.134	0.112	0.065
<b>1.70V/cell</b>	5.28	3.61	2.93	2.50	1.98	1.51	1.22	0.741	0.560	0.462	0.390	0.339	0.269	0.224	0.121
<b>1.65V/cell</b>	3.36	2.17	1.69	1.41	1.09	0.821	0.656	0.392	0.294	0.240	0.202	0.174	0.138	0.114	0.066
<b>1.60V/cell</b>	6.18	4.05	3.20	2.70	2.10	1.59	1.28	0.768	0.577	0.474	0.399	0.345	0.274	0.226	0.121
<b>1.55V/cell</b>	3.81	2.39	1.83	1.52	1.14	0.853	0.684	0.409	0.303	0.246	0.207	0.179	0.140	0.116	0.067
<b>1.50V/cell</b>	6.93	4.42	3.43	2.88	2.19	1.64	1.33	0.796	0.592	0.483	0.406	0.352	0.277	0.229	0.122
<b>1.45V/cell</b>	4.20	2.57	1.94	1.59	1.19	0.886	0.713	0.421	0.311	0.251	0.211	0.182	0.142	0.117	0.068
<b>1.40V/cell</b>	7.54	4.69	3.59	2.99	2.26	1.70	1.37	0.814	0.604	0.490	0.413	0.357	0.280	0.231	0.124
<b>1.35V/cell</b>	4.41	2.68	2.02	1.65	1.23	0.906	0.728	0.434	0.318	0.258	0.216	0.186	0.145	0.119	0.069
<b>1.30V/cell</b>	7.79	4.82	3.70	3.05	2.30	1.72	1.39	0.834	0.615	0.499	0.419	0.362	0.284	0.234	0.124

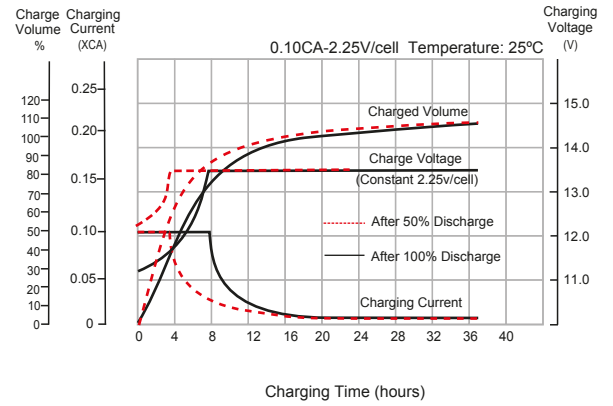




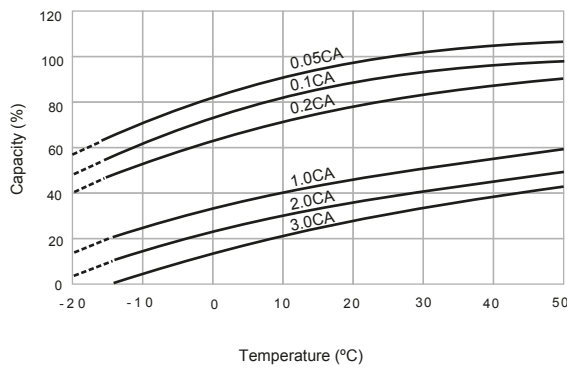
## Discharge Characteristics



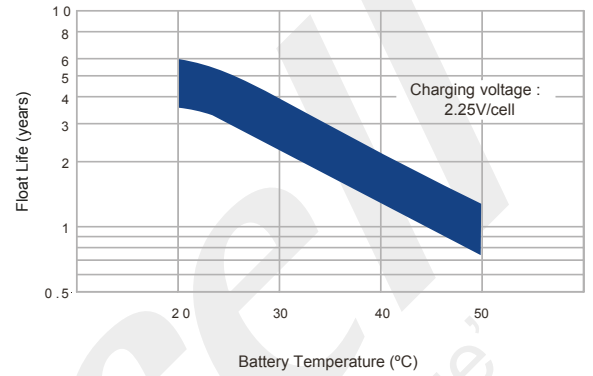
## Float Charging Characteristics



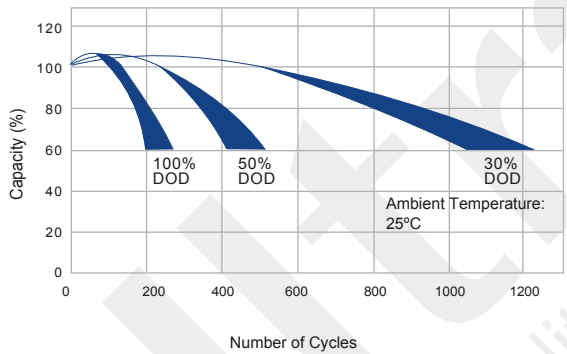
## Temperature Effects in Relation to Battery Capacity



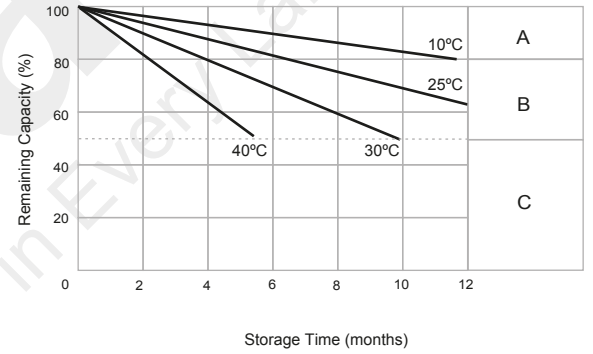
## Effects of Temperature on Long Term Float Life



## Cycle Life in Relation to Depth of Discharge



## General Relation of Capacity vs. Storage Time



## General Relation of Capacity vs. Storage Time (Notes)

- A) No supplementary charge required.  
(Carryout supplementary charge before use if 100% capacity is required.)
- B) Supplementary charge required before use. Optional charging way as below:
  1. Charged for above 3 days at limited current 0.25CA and constant voltage 2.25V/cell.
  2. Charged for above 20 hours at limited current 0.25CA and constant voltage 2.25V/cell.
  3. Charged for 8 ~ 10 hours at limited current 0.05 CA.
- C) Supplementary charge may often fail to recover the capacity.  
The battery should never be left standing till this is reached.