

# UL2.8-12

12V 2.8AH

General

# Ultracell®

Quality in Every Language

## UL2.8-12

Awaiting Image

## Physical Specification

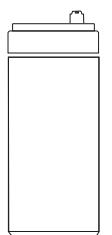
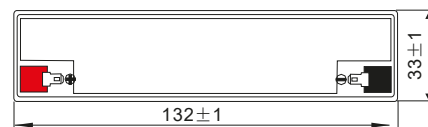
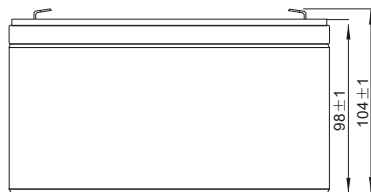
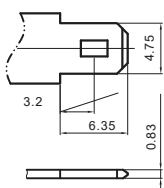
Part Number	UL2.8-12
Length	132 ± 2 mm
Width	33 ± 2 mm
Container Height	98 ± 2 mm
Total Height (with terminal)	104 ± 2 mm
Approx Weight	1.18 kg

## Specifications

	Nominal Voltage	12V	
	Nominal Capacity (20HR)	2.8AH	
Terminal Type	Standard Terminal	F1	
	Optional Terminal		
Container Material	Standard Option	ABS	
	Flame Retardant Option (FR)	UL94:VO	
Rated Capacity	20hr, 1.80V/cell, 25°C	2.80 AH/0.14A	
	10hr, 1.80V/cell, 25°C	2.60 AH/0.26A	
	5hr, 1.75V/cell, 25°C	2.40 AH/0.48A	
	1hr, 1.60V/cell, 25°C	1.76 AH/1.76A	
Max Discharge Current	42.0A (5s)		
Internal Resistance	Approx 55mΩ		
Discharge Characteristics	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 0.84A. Voltage 14.4V ~ 15.0V Temp. Coefficient -30mV/°C	
	Standby Use	No limit on Initial Charging Current Voltage 13.5V ~ 13.8V Temp. Coefficient -20mV/°C	
Capacity affect by Temperature	40°C	103%	
	25°C	100%	
	0°C	86%	
Design Floating Life at 20°C	5 Years		
Self Discharge	Ultracell batteries may be stored for up to 6 months at 25°C(77°F) and then a refresh charge is required. For higher temperatures the time interval will be shorter.		

## Dimensions

### F1 Terminal



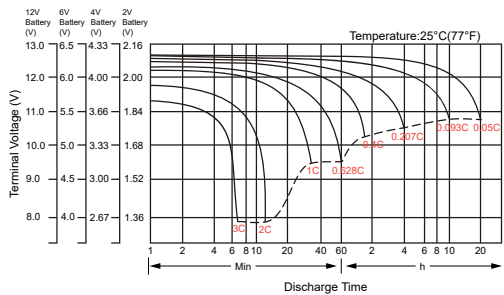
## Constant Current Discharge (Amperes) at 20°C

F.V/Time	5 min	10 min	15 min	20 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	20h
1.85V/cell	5.33	4.09	3.39	2.93	2.27	1.67	1.41	0.83	0.65	0.53	0.432	0.375	0.302	0.253	0.139
1.80V/cell	7.16	5.23	4.10	3.47	2.68	1.94	1.58	0.91	0.70	0.57	0.464	0.402	0.321	0.260	0.140
1.75V/cell	8.07	5.75	4.48	3.73	2.78	2.02	1.65	0.94	0.71	0.58	0.476	0.413	0.326	0.267	0.141
1.70V/cell	8.89	6.27	4.78	3.92	2.89	2.10	1.70	0.97	0.73	0.59	0.488	0.422	0.331	0.273	0.144
1.65V/cell	9.80	6.76	5.08	4.16	3.05	2.15	1.74	0.98	0.77	0.61	0.501	0.431	0.336	0.278	0.146
1.60V/cell	10.81	7.34	5.43	4.44	3.22	2.24	1.76	1.02	0.79	0.63	0.518	0.440	0.339	0.281	0.147

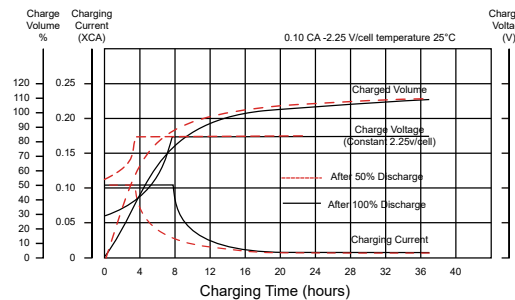
## Constant Power Discharge (Watts) at 20°C

F.V/Time	5 min	10 min	15 min	20 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	20h
1.85V/cell	9.75	7.56	6.33	5.53	4.32	3.21	2.72	1.62	1.27	1.04	0.847	0.737	0.597	0.500	0.275
1.80V/cell	12.9	9.55	7.54	6.44	5.02	3.71	3.03	1.75	1.36	1.10	0.905	0.787	0.631	0.515	0.277
1.75V/cell	14.3	10.3	8.14	6.86	5.17	3.81	3.15	1.81	1.38	1.12	0.926	0.806	0.641	0.528	0.279
1.70V/cell	15.3	11.0	8.57	7.16	5.35	3.95	3.24	1.85	1.41	1.15	0.948	0.822	0.649	0.538	0.284
1.65V/cell	16.6	11.8	9.04	7.54	5.60	4.01	3.29	1.87	1.47	1.18	0.970	0.837	0.658	0.548	0.288
1.60V/cell	17.9	12.5	9.51	7.95	5.87	4.16	3.31	1.94	1.51	1.22	0.999	0.853	0.663	0.553	0.289

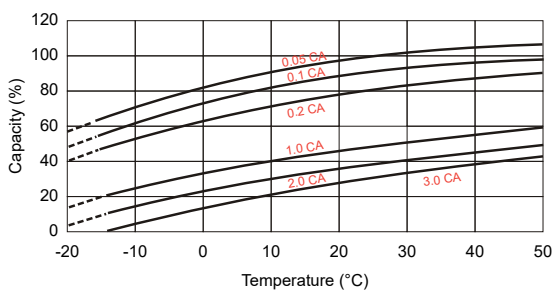
## Discharge Characteristics



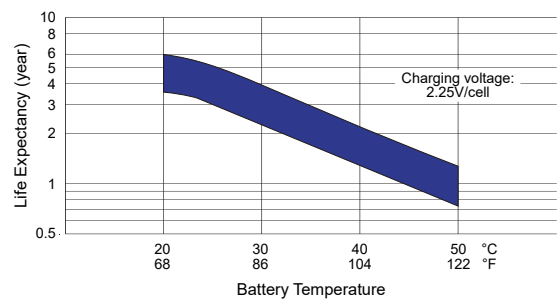
## Float Charging Characteristics



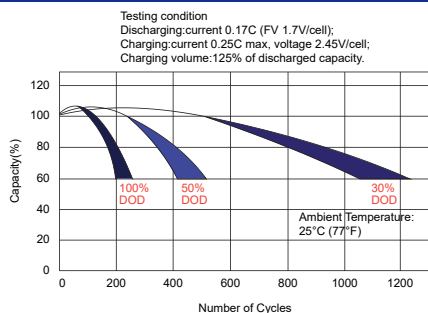
## Temperature Effects in Relation to Battery Capacity



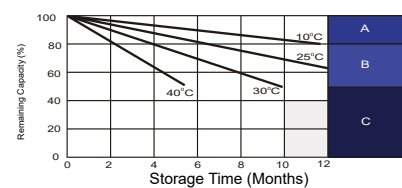
## Effect of Temperature on Long Term Float Life



## Cycle Life in Relation to Depth of Discharge



## General Relation of Capacity VS. Storage Time



- A** No supplementary 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.