



SB SERIES-General Purpose

SB12-28LL (12V28AH)

Specification

Nominal Voltage	12V	
Nominal Capacity(20HR)	28.0AH	
Design life	10 years	
Dimension	Length	166±1mm (6.54 inches)
	Width	175±1mm (6.93 inches)
	Container Height	125±1mm (4.92 inches)
	Total Height (with Terminal)	125±1mm (4.92 inches)
Approx Weight	Approx 8.4 kg (18.50lbs)	
Terminal	T12	
Container Material	ABS	
Rated Capacity	28.0 AH/1.40A	(20hr, 1.75V/cell, 25°C/77°F)
	26.3 AH/2.63A	(10hr, 1.75V/cell, 25°C/77°F)
	23.9 AH/4.78A	(5hr, 1.75V/cell, 25°C/77°F)
	21.2 AH/7.08A	(3hr, 1.75V/cell, 25°C/77°F)
	18.2 AH/18.2A	(1hr, 1.60V/cell, 25°C/77°F)
Max. Discharge Current	420A (5s)	
Internal Resistance	Approx 14mΩ	
Operating Temp. Range	Discharge : -15~50°C (5~122°F)	
	Charge : 0~40°C (32~104°F)	
	Storage : -15~40°C (5~104°F)	
Nominal Operating Temp. Range	25±3°C (77±5°F)	
Cycle Use	Initial Charging Current less than 8.4A. Voltage	
	14.4V~15.0V at 25°C(77°F)Temp. Coefficient -30mV/°C	
Standby Use	No limit on Initial Charging Current Voltage	
	13.5V~13.8V at 25°C(77°F)Temp. Coefficient -20mV/°C	
Capacity affected by Temperature	40°C (104°F)	103%
	25°C (77°F)	100%
	0°C (32°F)	86%
Self Discharge	SB series batteries may be stored for up to 6 months at 25°C(77°F) and then a freshening charge is required. For higher temperatures the time interval will be shorter.	



Applications

- ◆ All purpose
- ◆ Uninterruptable Power Supply (UPS)
- ◆ Electric Power System (EPS)
- ◆ Emergency backup power supply
- ◆ Emergency light
- ◆ Railway signal
- ◆ Aircraft signal
- ◆ Alarm and security system
- ◆ Electronic apparatus and equipment
- ◆ Communication power supply
- ◆ DC power supply
- ◆ Auto control system

Constant Current Discharge (Amperes) at 25 °C (77°F)

F.V/Time	5min	10min	15min	20min	30min	45min	1h	2h	3h	4h	5h	6h	8h	10h	20h
1.85V/cell	73.1	53.3	43.1	35.5	26.8	20.0	16.5	9.50	6.86	5.46	4.65	3.98	3.14	2.57	1.37
1.80V/cell	78.6	56.5	45.3	36.9	27.7	20.5	16.9	9.68	6.97	5.54	4.72	4.04	3.18	2.60	1.38
1.75V/cell	82.8	58.8	46.8	37.9	28.4	21.0	17.3	9.85	7.08	5.62	4.78	4.09	3.22	2.63	1.40
1.70V/cell	86.7	61.1	48.3	39.0	29.1	21.4	17.6	10.0	7.18	5.70	4.84	4.14	3.25	2.65	1.41
1.67V/cell	89.7	62.8	49.5	39.8	29.6	21.8	17.8	10.1	7.25	5.75	4.89	4.18	3.28	2.67	1.42
1.60V/cell	95.2	65.5	51.2	41.0	30.4	22.3	18.2	10.3	7.39	5.85	4.96	4.24	3.32	2.71	1.44

Constant Power Discharge (Watts) at 25 °C (77°F)

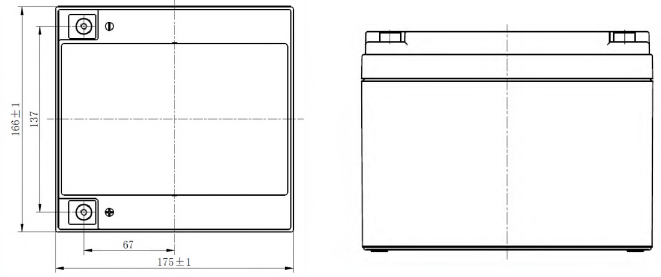
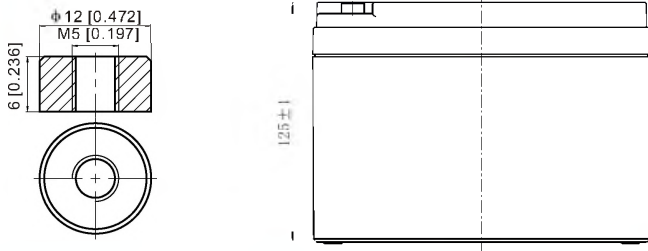
F.V/Time	5min	10min	15min	20min	30min	45min	1h	2h	3h	4h	5h	6h	8h	10h	20h
1.85V/cell	138.3	101.4	82.6	68.4	51.8	38.7	32.1	18.6	13.5	10.8	9.18	7.88	6.22	5.10	2.74
1.80V/cell	147.2	106.8	86.2	70.7	53.2	39.6	32.8	18.9	13.7	10.9	9.30	7.99	6.30	5.16	2.77
1.75V/cell	153.5	110.3	88.5	72.3	54.3	40.3	33.3	19.2	13.9	11.0	9.41	8.07	6.37	5.21	2.80
1.70V/cell	159.1	113.9	90.9	74.0	55.5	41.1	33.8	19.4	14.0	11.2	9.52	8.16	6.43	5.26	2.82
1.67V/cell	163.3	116.5	92.8	75.3	56.3	41.6	34.3	19.6	14.2	11.3	9.59	8.23	6.47	5.29	2.84
1.60V/cell	169.9	119.9	95.4	77.2	57.6	42.4	34.9	19.9	14.4	11.4	9.72	8.32	6.56	5.36	2.88



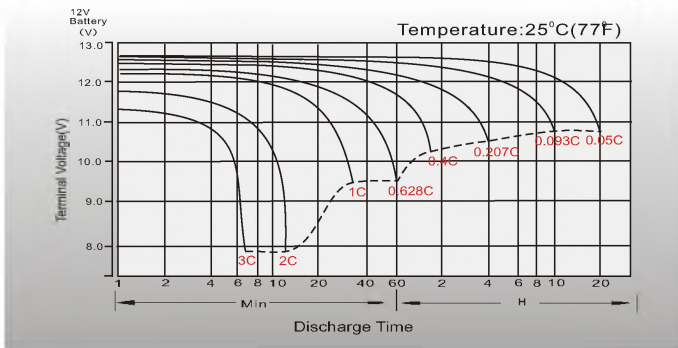
Dimensions

T12 Terminal

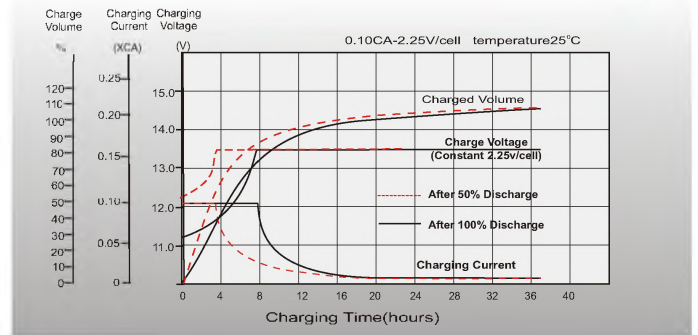
Unit: mm [inches]



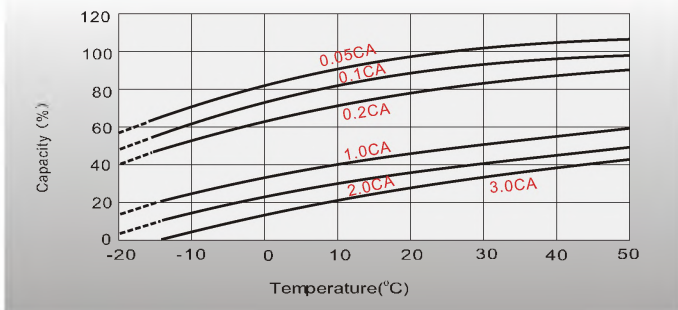
Discharge Characteristics



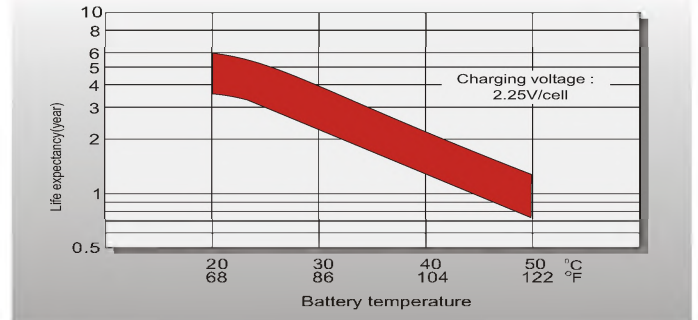
Float Charging Characteristics



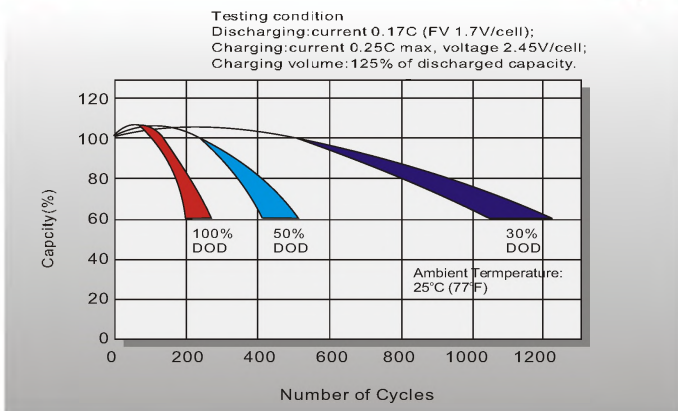
Temperature Effects in Relation to Battery Capacity



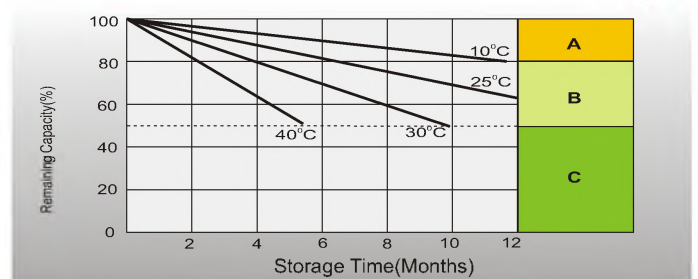
Effect of Temperature on Long Term Float Life



Cycle Life in Relation to Depth of Discharge



Self Discharge Characteristics



- A** No supplementary charge required (Carry out 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 2.45V/cell.
 3. Charged for 8-10 hours at limited current 0.05CA.
- C** Supplementary charge may often fail to recover the capacity. The battery should never be left standing till this is reached.