

## ED Series

Maintenance-free Sealed Lead Acid Battery

ED Series Batteries For Solar Powered Systems Application



### 1. Brief Introduction for ED Series Batteries

The EPBLUE® ED Series Maintenance-free Sealed Lead Acid Battery should be used for solar systems and related storage energy fields, using 4BS paste technology and high temperature curing process to make battery has longer life; unique paste ration to assure battery has super charging and discharging capacity and resilience; plates twins pack technology to guarantee battery performance more stable.

### 2. Construction for ED Series Batteries

Component	Raw material
Positive Plate	Lead dioxide
Negative Plate	Lead
Container & Cover	ABS UL94HB/V0
Safety Valve	Rubber
Terminal	Copper / F11
Separator	Fiberglass
Electrolyte	Sulfuric acid

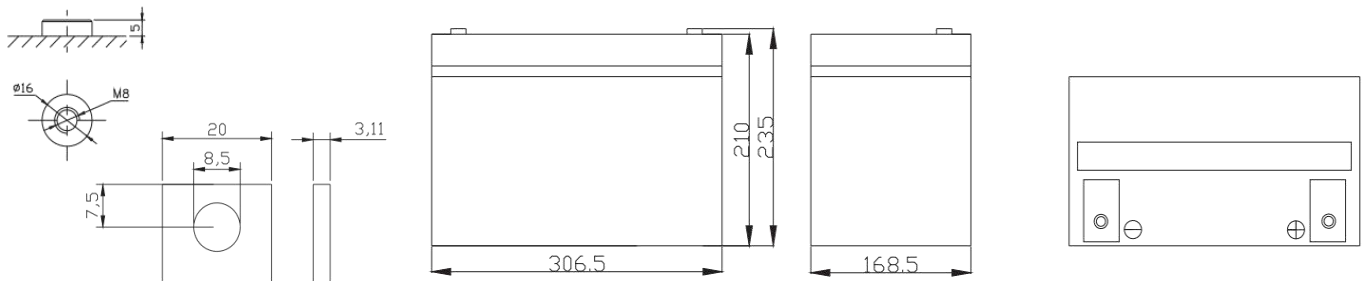
### 3. Specifications

Nominal Voltage	12 Volt		
Nominal Capacity (10HR)	85 Ah		
Dimension	Length	307 mm	12.1 in
	Width	169 mm	6.65 in
	Height	210 mm	8.27 in
	Total Height (with terminals)	214 mm	8.43 in
Weight	Approx.	25 kg	55.0 ibs

### 4. Characteristics

Rated Capacity 25°C (77°F)	C <sub>20</sub> 1.80V/Cell	89 Ah
	C <sub>10</sub> 1.80V/Cell	85 Ah
	C <sub>5</sub> 1.80V/Cell	71 Ah
	C <sub>1</sub> 1.70V/Cell	51 Ah
Capacity Affected by Temperature (10 HR)	40°C (104°F)	103%
	25°C (77°F)	100%
	0°C (32°F)	86%
Internal Resistance	5 mΩ	
Max. Discharge Current 25°C (77°F)	850 A (5S)	
Nominal Operating Temperature Range	25 ± 3°C (77 ± 5°F)	
Operating Temperature Range	Discharge : -15 ~ 50°C (5 ~ 122°F)	
	Charge: 0 ~ 40°C (32 ~ 104°F)	
	Storage: -15 ~ 40°C (5 ~ 104°F)	
Cycle Use	Initial charging current less than 0.3CA. Voltage 14.40V ~ 14.70V at 25°C (77°F) temperature coefficient -15mV/°C.	
Standby Use	No limit on Initial charging current, Voltage 13.50V ~ 13.80V at 25°C(77°F) temperature coefficient -10mV/°C.	
Self Discharge	The EPBLUE® ED 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.	

### 5. Physical Dimensions: mm



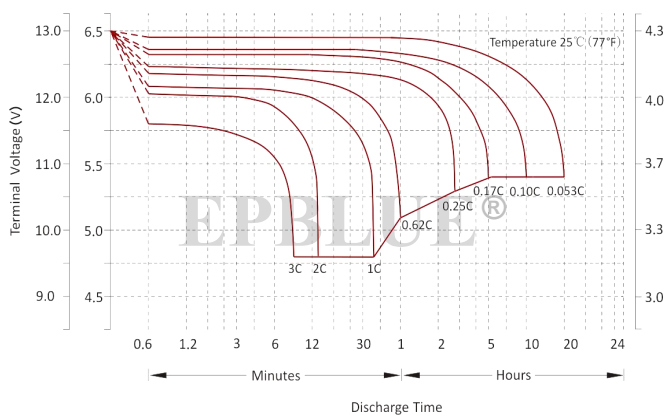
### 6. Constant Current Discharge (Amperes) at 25°C

F.V/Time	5Min	15Min	30Min	1Hr	2Hr	3Hr	5Hr	8Hr	10Hr	20Hr
9.60V	280.10	153.80	80.38	49.93	30.83	20.95	14.00	9.25	8.32	4.41
10.02V	272.00	150.70	79.35	49.27	30.21	20.55	13.90	9.20	8.24	4.32
10.20V	264.00	148.30	78.14	48.80	29.89	20.40	13.80	9.12	8.16	4.24
10.50V	237.00	141.20	75.95	48.20	29.50	20.20	13.70	9.05	8.08	4.16
10.80V	213.90	130.20	73.47	47.53	29.26	19.96	13.60	9.00	8.00	4.10
11.10V	182.70	116.80	70.69	46.41	28.10	19.55	13.50	8.93	7.90	3.95

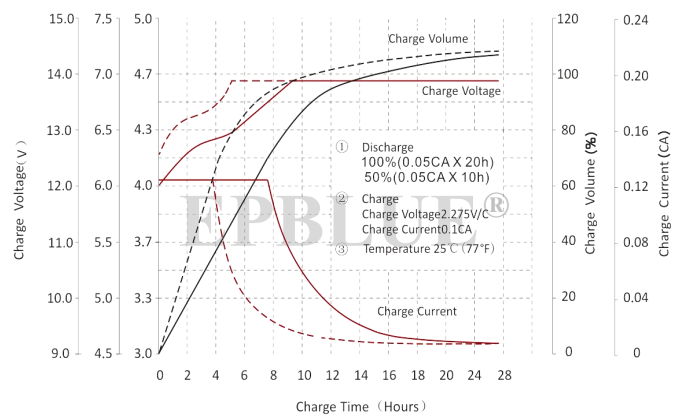
### 7. Constant Power Discharge (Watts) at 25°C

F.V/Time	5Min	15Min	30Min	1Hr	2Hr	3Hr	5Hr	8Hr	10Hr	20Hr
9.60V	2955.0	1677.0	920.0	578.0	361.0	246.00	168.00	110.60	99.83	53.10
10.02V	2897.0	1650.0	910.0	573.0	356.0	243.00	166.00	110.10	99.00	52.15
10.20V	2864.0	1632.0	902.0	570.0	354.0	241.00	165.00	109.50	98.15	51.20
10.50V	2607.0	1556.0	884.0	566.0	349.0	240.00	164.00	108.50	97.20	50.20
10.80V	2375.0	1439.0	863.0	559.0	347.0	237.00	163.00	108.00	96.25	49.75
11.10V	2086.0	1295.0	839.0	550.0	334.0	233.00	162.00	107.20	95.20	47.95

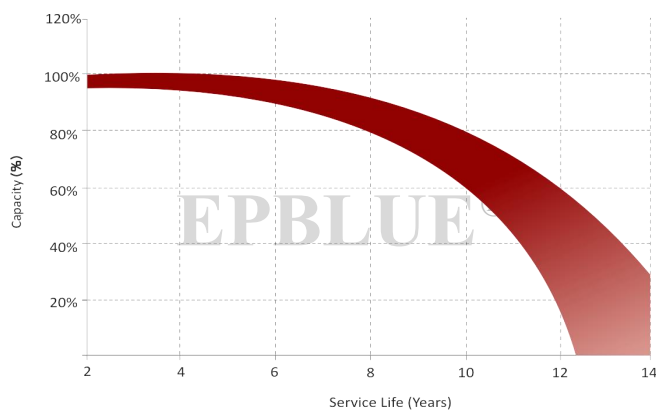
### 8. Discharge Characteristics



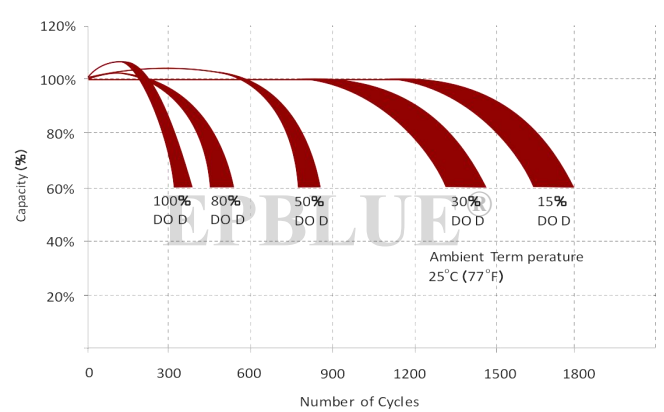
### 9. Float Charging Characteristics



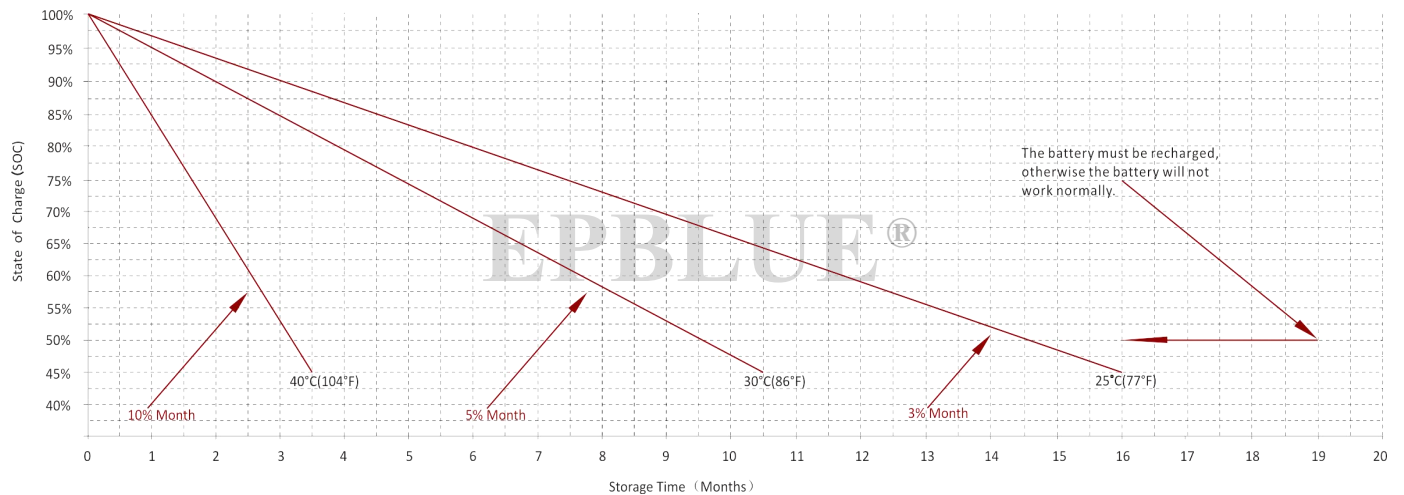
### 10. Float Service Life vs Capacity (%)



### 11. Cycle Life vs Depth of Discharge (DOD%)



### 12. Self Discharge Characteristics



### 13. Maintenance & Cautions

#### Cycle Service:

- > Avoid battery over discharge, especially battery series connection use.
- > Charged with recommend voltage, ensure battery can be full recharged. In general, recharge capacity should be 1.1-1.15 times discharge capacity.
- > Effect of temperature on float charge voltage:  $-4\text{mV}/^{\circ}\text{C}/\text{Cell}$ .

- > There are a number of factors that will affect the length of cyclic service. The most significant are depth of discharge, ambient temperature, discharge rate, and the manner in which the battery is recharged. Generally speaking, the most important factors is depth of discharge.