

FEATURES

ES4.5-12 is a standby using battery with 3~5 years service life under normal float charge at 25°C. LCB batteries are rechargeable Seal Lead highly efficient, leak proof and maintenance free.

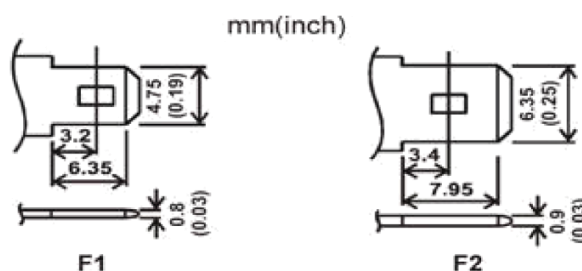
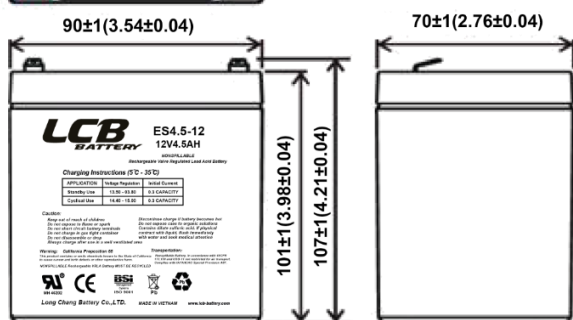
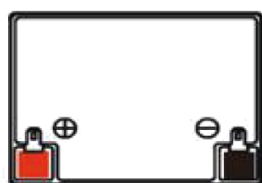


SPECIFICATION

Cell per unit	6	Ambient temperature	
Nominal Voltage (V)	12	Charge	0°C (32°F) to 40°C (104°F)
Nominal Capacity (Ah)	4.5Ah@ 20hour rate F.V(1.75/cell)	Discharge	-15°C (5°F) to 50°C (122°F)
Weight	Approx1.50kg	Storage	-15°C (5°F) to 40°C (104°F)
Internal Resistance (1KHz)	30mΩ	Max charge Current	
Max Discharge Current (5s)	50A		Max charge current : 1.35A
Battery Life :	Stand by : 3~5 years	Cycle use :	Charge voltage: 14.4 to 15.0V
Terminal Type	F1/F2	Stand by :	Charge voltage: 13.50 to 13.80V
Container Material	ABS(Option : 94-HB & 94V-0 flame retardant case)		



DIMENSIONS	Length	Width	Height	Total Height
Unit: mm	90±1	70±1	101±1	107±1
Unit: inch	3.54±0.04	2.76±0.04	3.98±0.04	4.21±0.04



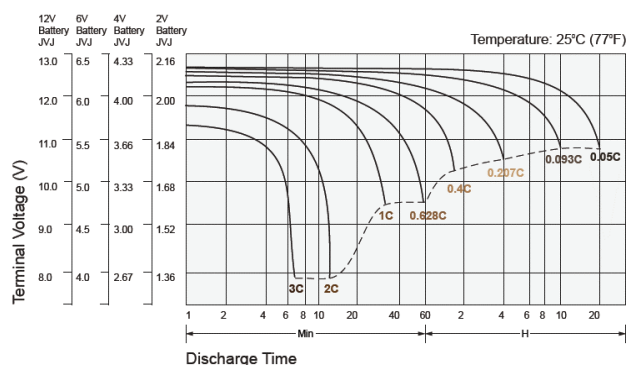
Constant current discharge characteristics Unit:A(25°C 77°F)

F.V/Time	5MIN	10MIN	15MIN	30MIN	60MIN	2HR	3HR	5HR	10HR	20HR
1.60V	18.0	10.2	7.7	5.15	2.76	1.51	1.16	78.00	0.43	0.240
1.67V	17.5	9.9	7.6	5.05	2.74	1.48	1.15	0.77	0.42	0.230
1.70V	16.9	9.6	7.5	4.87	2.70	1.47	1.14	0.77	0.42	0.230
1.75V	16.3	9.4	7.2	4.70	2.60	1.43	1.12	0.76	0.41	0.225
1.80V	15.7	9.0	7.0	4.57	2.49	1.37	1.10	0.75	0.40	0.220

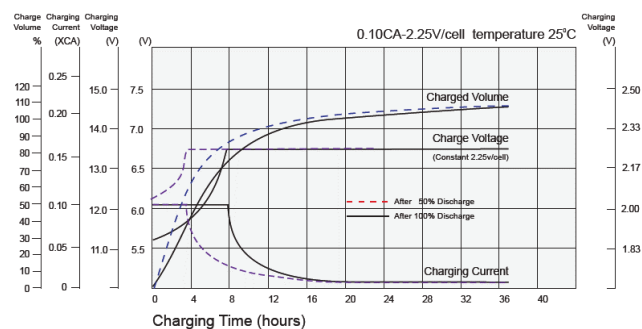
Constant power discharge characteristics Unit:W(25°C 77°F)

F.V/Time	5MIN	10MIN	15MIN	30MIN	60MIN	2HR	3HR	5HR	10HR	20HR
1.60V	188.0	113.0	90.0	57.0	32.8	20.8	13.60	9.92	5.04	2.80
1.67V	186.0	112.0	88.0	54.5	32.4	19.9	13.50	9.81	5.05	2.74
1.70V	181.0	110.0	86.0	53.0	32.1	19.2	13.40	9.62	5.00	2.73
1.75V	175.7	108.0	84.0	52.9	31.5	18.8	13.20	9.35	4.98	2.72
1.80V	170.0	101.0	80.0	52.0	30.6	18.2	13.10	9.03	4.97	2.70

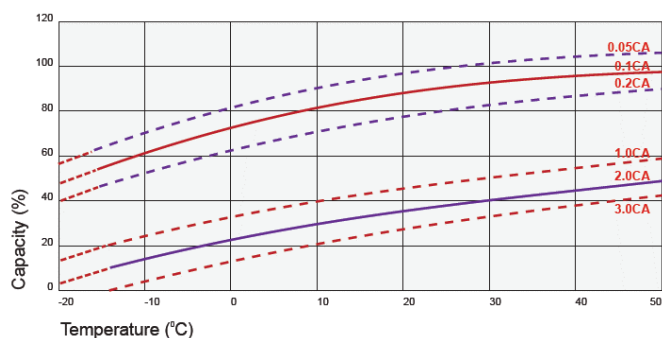
Battery Discharge Characteristics (25°C/77°F)



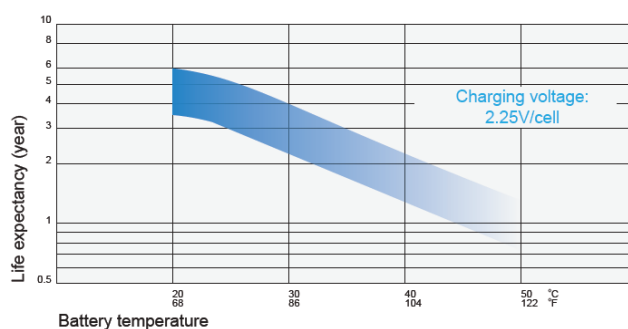
Battery Charge Characteristic for standby use



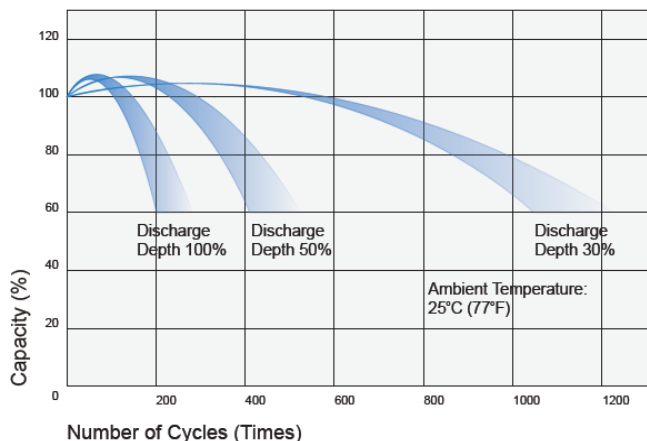
Temperature Effects in Relation to Battery Capacity



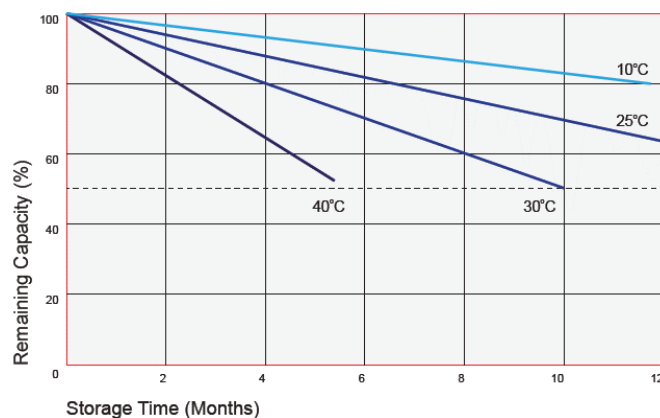
Temperature Effects on Long Term Float Life



Cycle Service Life



Self Discharge Characteristics



Charging Procedures

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)	2.275	2.25~2.30	

Discharge Current VS. Discharge Voltage

Final Discharge Voltage V/cell	1.75	1.70	1.65	1.60
Discharge Current (A)	0.2C > (A)	0.2C < (A)	0.5C < (A)	(A) > 1.0C

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