



ES7-12SA

SPECIFICATIONS

Nominal Voltage (V) 12V

Nominal Capacity

20 hour rate (0.35A to 10.50V)	7Ah
10 hour rate (0.665A to 10.50V)	6.65Ah
5 hour rate (1.19A to 10.20V)	5.95Ah
1C (7A to 9.60V)	4.43Ah
3C (21A to 9.60V)	2.8Ah

Weight Approx. 4.84Lbs. (2.20kg)

Internal Resistance (at 1KHz) Approx. 19 mΩ

Maximum Discharge Current for 5 seconds : 105A

Operating Temperature Range

Charge	-15°C (5°F) to 40°C (104°F)
Discharge	-15°C (5°F) to 50°C (122°F)
Storage	-15°C (5°F) to 40°C (104°F)

Charge Retention (shelf life) at 20°C (68°F)

1 month	92%
3 months	90%
6 months	80%

Charging Methods at 25°C (77°F)

Cycle Use : Charging Voltage 14.4 to 15.0V
Coefficient -5.0mv / °C / cell
Maximum Charging Current : 2.1A

Standby Use : Float Charging Voltage 13.50 to 13.80V
Coefficient -3.0mv / °C / cell

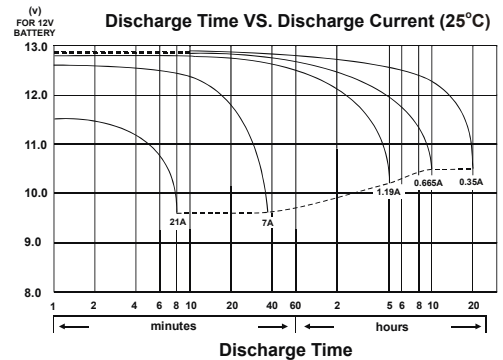
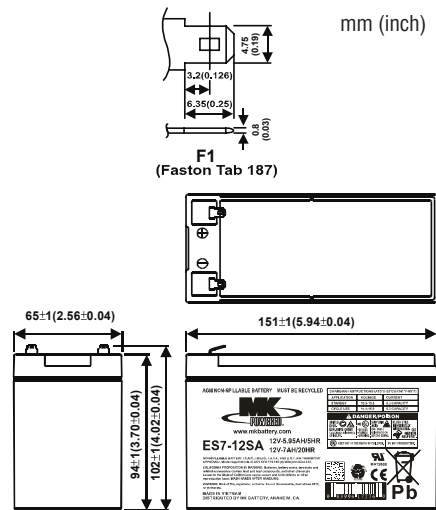
Case Material : ABS
(Option : UL94 HB Flame Retardant Case Material)

Terminal : F1

Maintenance-Free Rechargeable Sealed Lead-Acid Battery



DIMENSIONS



MK Battery

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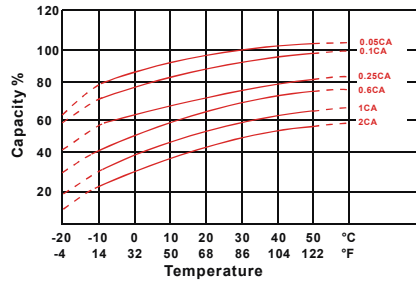
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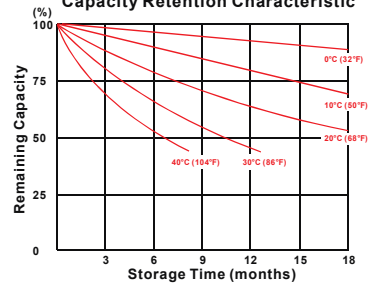


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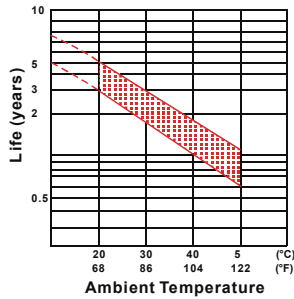
Effect of Temperature on Capacity 25°C (77°F)



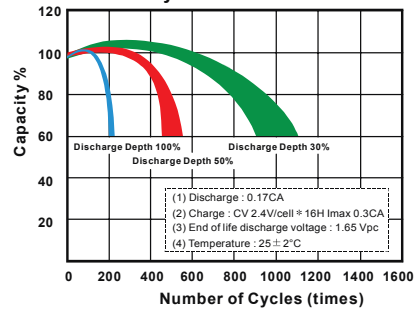
Capacity Retention Characteristic



Trickle (or float) Service Life



Cycle Service Life



- PERFORMANCE DATA

Discharge Rates in Watts to Various End Voltages at 25°C (77°F)

Time	End Voltage	1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
5	min	43.8	47.0	49.0	51.0	51.8	52.8	54.3
10	min	30.0	31.8	33.2	34.3	34.8	35.5	36.5
15	min	24.0	25.2	25.8	26.5	26.8	27.3	28.0
30	min	12.1	12.9	13.6	14.1	14.3	14.4	14.6
60	min	7.70	8.38	8.63	8.87	8.97	9.08	9.23
120	min	4.10	4.52	4.72	4.92	4.98	5.07	5.20
180	min	3.08	3.32	3.48	3.62	3.67	3.72	3.80
240	min	2.85	2.93	3.00	3.05	3.07	3.10	3.15
300	min	2.47	2.53	2.58	2.62	2.63	2.65	2.68
600	min	1.36	1.40	1.42	1.43	1.44	1.44	1.45
1200	min	0.690	0.705	0.718	0.728	0.732	0.737	0.743

- Discharge Rates in Amperes to Various End Voltages at 25°C (77°F)

Time	End Voltage	1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
5	min	23.1	26.2	27.8	29.1	29.6	30.5	31.7
10	min	16.1	17.3	18.1	18.6	18.9	19.2	19.8
15	min	12.6	13.1	13.5	13.8	14.0	14.1	14.3
30	min	6.54	7.05	7.28	7.47	7.56	7.68	7.85
60	min	4.02	4.25	4.41	4.52	4.58	4.63	4.71
120	min	2.26	2.38	2.45	2.49	2.51	2.54	2.57
180	min	1.65	1.74	1.79	1.82	1.83	1.85	1.88
240	min	1.35	1.40	1.44	1.47	1.49	1.51	1.53
300	min	1.10	1.16	1.21	1.25	1.27	1.28	1.29
600	min	0.667	0.675	0.682	0.687	0.690	0.694	0.698
1200	min	0.339	0.346	0.350	0.353	0.355	0.357	0.359

All data on the spec. sheet is an average value:

The tolerance range : $X < 6\text{min}$ (+15%~-15%), $6\text{min} \leq X < 10\text{min}$ (+12%~-12%), $10\text{min} \leq X < 60\text{min}$ (+8%~-8%), $X \geq 60\text{min}$ (+5%~-5%)

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