



# ES7-12FR

## SPECIFICATIONS

**Nominal Voltage (V)** 12V

### Nominal Capacity

20 hour rate ( 0.36A to 10.50V )	7.2Ah
10 hour rate ( 0.684A to 10.50V )	6.84Ah
5 hour rate ( 1.224A to 10.20V )	6.12Ah
1C ( 7.2A to 9.60V )	4.08Ah
3C ( 21.6A to 9.60V )	2.88Ah

**Weight** Approx. 5.28Lbs. (2.4kg)

**Internal Resistance (at 1KHz)** Approx. 22 mΩ

**Maximum Discharge Current for 5 seconds :** 108A

### 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 : 2.16A

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

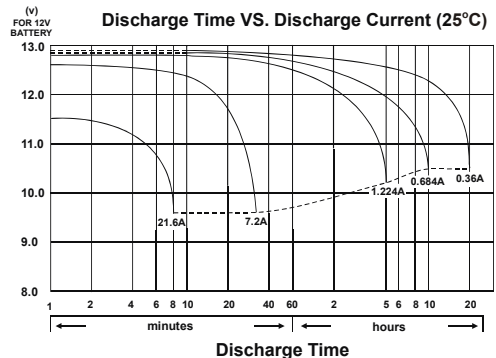
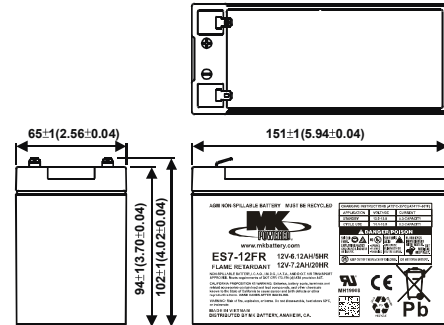
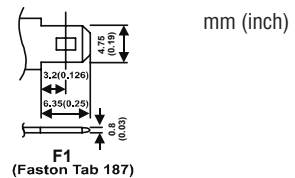
**Case Material :** ABS UL94 V-0 Flame Retardant

**Terminal :** F1

## Maintenance-Free Rechargeable Sealed Lead-Acid Battery



## DIMENSIONS



## MK Battery

1631 South Sinclair Street • Anaheim, California 92806

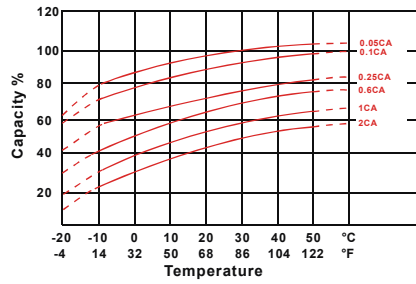
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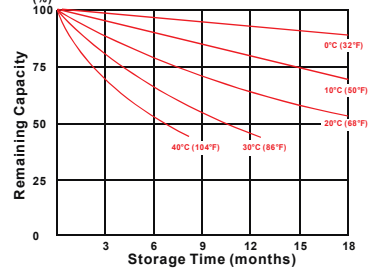


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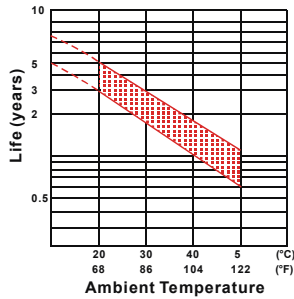
Effect of Temperature on Capacity 25°C (77°F)



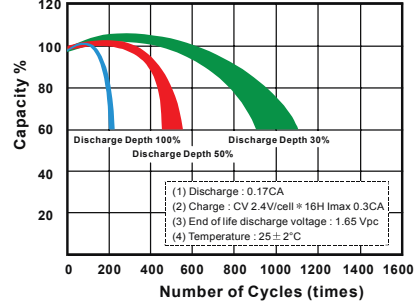
Capacity Retention Characteristic



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	42.8	48.0	50.3	52.5	53.5	54.3	55.8
10	min	29.8	31.3	32.7	34.0	34.8	35.3	36.3
15	min	24.5	25.5	26.2	26.8	27.0	27.5	28.2
30	min	13.0	13.7	14.1	14.5	14.6	14.7	14.9
60	min	8.43	8.73	8.97	9.15	9.22	9.30	9.45
120	min	4.21	4.39	4.63	5.22	5.27	5.32	5.40
180	min	3.27	3.45	3.60	3.73	3.77	3.82	3.87
240	min	2.87	3.01	3.10	3.15	3.17	3.20	3.23
300	min	2.47	2.54	2.63	2.68	2.70	2.72	2.73
600	min	1.36	1.39	1.42	1.44	1.44	1.45	1.46
1200	min	0.694	0.718	0.737	0.750	0.755	0.760	0.770

- 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	23.5	26.4	28.1	29.7	30.5	31.3	32.6
10	min	16.2	17.0	18.2	18.6	18.8	19.1	19.8
15	min	12.5	13.1	13.6	13.9	14.0	14.2	14.5
30	min	6.61	6.92	7.14	7.30	7.38	7.45	7.61
60	min	3.98	4.13	4.25	4.36	4.39	4.42	4.48
120	min	2.05	2.14	2.21	2.27	2.29	2.32	2.35
180	min	1.63	1.69	1.75	1.80	1.82	1.84	1.87
240	min	1.30	1.37	1.42	1.45	1.46	1.47	1.49
300	min	1.11	1.16	1.23	1.25	1.26	1.27	1.28
600	min	0.650	0.680	0.721	0.728	0.732	0.737	0.747
1200	min	0.341	0.357	0.377	0.382	0.384	0.387	0.392

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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