



ES20-12C FT

SPECIFICATIONS

Nominal Voltage (V) 12V

Nominal Capacity

| | |
|---------------------------------|---------|
| 20 hour rate (1A to 10.50V) | 20Ah |
| 10 hour rate (1.9A to 10.50V) | 19Ah |
| 5 hour rate (3.4A to 10.20V) | 17Ah |
| 1C (20A to 9.60V) | 11.33Ah |
| 3C (60A to 9.60V) | 8Ah |

Weight Approx. 13.09Lbs. (5.95kg)

Internal Resistance (at 1KHz) Approx. 10 mΩ

Maximum Discharge Current for 5 seconds : 300A

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 : 6A

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

Case Material : ABS UL94 HB

Terminal : F6

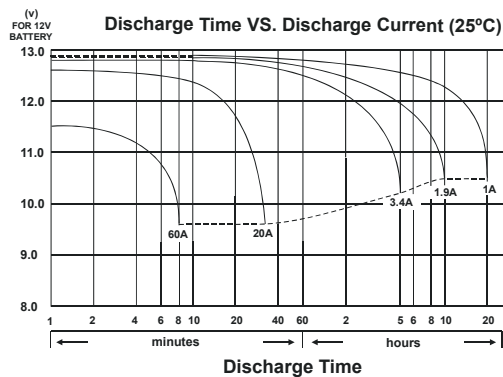
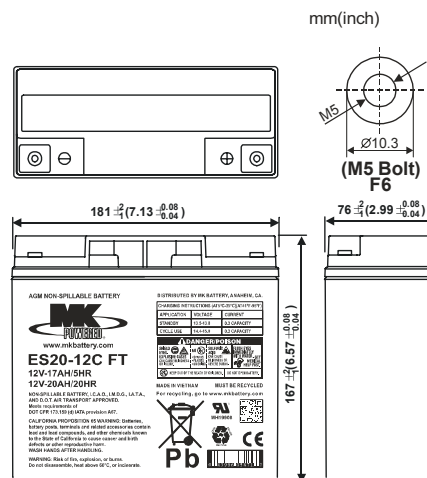
Terminal Hardware Torque Value :

| | |
|-------------------|---------------------|
| Recommended | M5: 5 Nm (51kgf-cm) |
| Maximum Allowable | M5: 6 Nm (61kgf-cm) |

Maintenance-Free Rechargeable Sealed Lead-Acid Battery



DIMENSIONS



MK Battery

1631 South Sinclair Street • Anaheim, California 92806

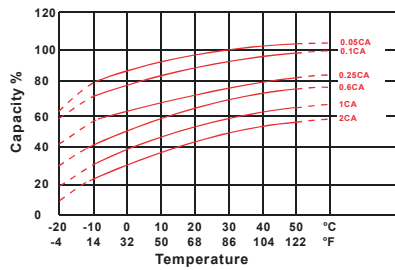
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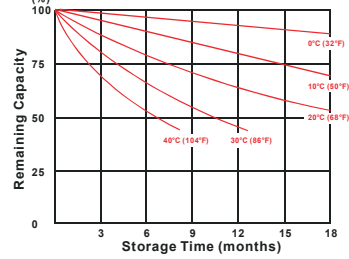


ES20-12C FT

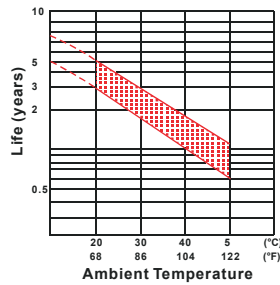
Effect of Temperature on Capacity 25°C (77°F)



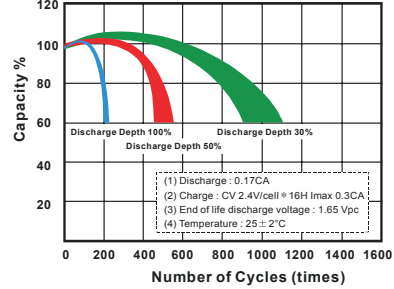
Capacity Retention Characteristic



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 | 110 | 128 | 139 | 146 | 148 | 150 | 152 |
| 10 | min | 78.7 | 88.8 | 96.2 | 101 | 102 | 103 | 105 |
| 15 | min | 68.2 | 75.5 | 80.4 | 83.5 | 84.3 | 85.2 | 85.9 |
| 30 | min | 35.5 | 37.9 | 40.6 | 42.2 | 42.7 | 43.1 | 43.6 |
| 60 | min | 22.2 | 23.2 | 24.0 | 24.7 | 24.8 | 25.2 | 25.5 |
| 120 | min | 12.2 | 12.7 | 13.0 | 13.5 | 13.6 | 13.7 | 13.8 |
| 180 | min | 9.53 | 9.88 | 10.1 | 10.3 | 10.4 | 10.5 | 10.6 |
| 240 | min | 7.63 | 7.93 | 8.12 | 8.27 | 8.32 | 8.38 | 8.46 |
| 300 | min | 6.65 | 6.88 | 7.00 | 7.10 | 7.13 | 7.18 | 7.24 |
| 600 | min | 3.87 | 3.98 | 4.07 | 4.13 | 4.15 | 4.19 | 4.22 |
| 1200 | min | 2.05 | 2.12 | 2.17 | 2.20 | 2.22 | 2.23 | 2.25 |

- 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 | 69.6 | 75.4 | 79.1 | 82.3 | 83.7 | 85.1 | 87.6 |
| 10 | min | 46.7 | 49.9 | 52.4 | 54.6 | 55.5 | 56.5 | 58.2 |
| 15 | min | 35.4 | 38.1 | 39.8 | 41.3 | 41.9 | 42.6 | 43.5 |
| 30 | min | 18.9 | 20.4 | 21.5 | 22.4 | 22.7 | 23.1 | 23.6 |
| 60 | min | 11.1 | 11.7 | 12.2 | 12.6 | 12.7 | 12.9 | 13.1 |
| 120 | min | 6.25 | 6.47 | 6.61 | 6.73 | 6.77 | 6.82 | 6.89 |
| 180 | min | 4.73 | 4.90 | 5.00 | 5.08 | 5.11 | 5.15 | 5.21 |
| 240 | min | 3.88 | 3.97 | 4.04 | 4.09 | 4.11 | 4.14 | 4.17 |
| 300 | min | 3.41 | 3.48 | 3.53 | 3.57 | 3.58 | 3.60 | 3.62 |
| 600 | min | 1.97 | 2.00 | 2.02 | 2.04 | 2.05 | 2.06 | 2.07 |
| 1200 | min | 1.00 | 1.03 | 1.05 | 1.07 | 1.08 | 1.09 | 1.10 |

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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