# Sigma Power Systems

## SG12750I4 (12V 75.0Ah) Group 24

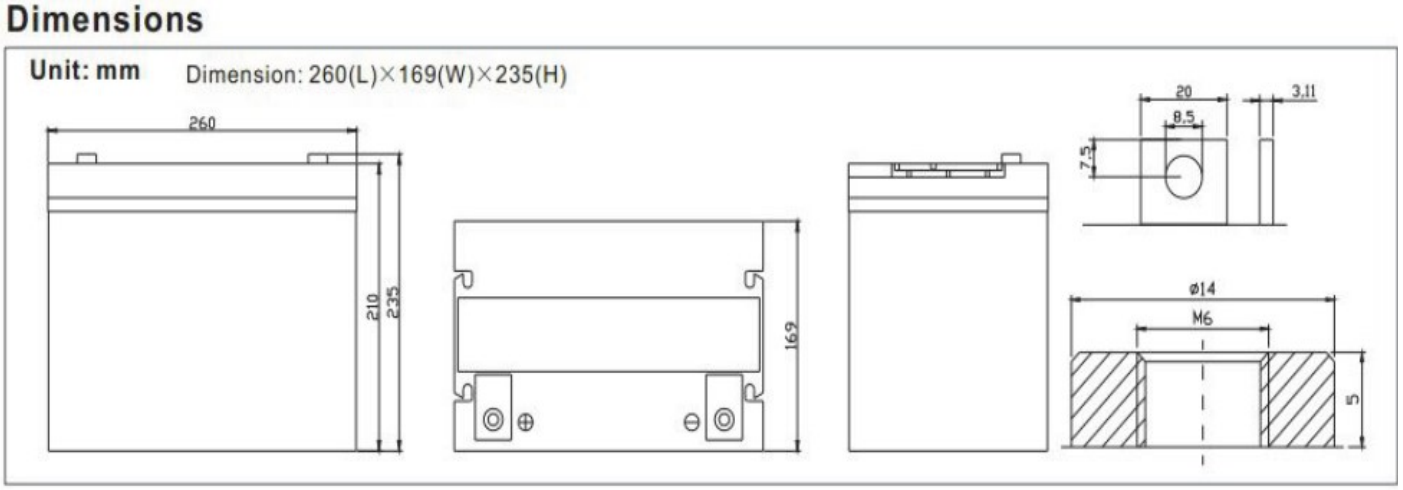
This product is a general purpose rechargeable battery Sealed Lead Acid (SLA) Technology. It is also called Valve Regulated Lead Acid (VRLA) battery. The design life is 5 years at 25 C (77°F) when used under normal operating conditions. Higher temperatures, higher charging voltage, storing at lower state of charge are some of the factors affect the life of the SLA battery. Capacity will vary depending on the temperature. Check the graphs below for details. Always follow the safety instructions while handling the battery.

## Specification

| | |
|---|---|
| **Cells per Unit** | 6 |
| **Nominal Voltage per cell/battery** | 2/12 V |
| **Capacity** | 75.0 Ah at 20 hr.-rate to 1.75V per cell at 25° C |
| **Weight** | Approximately 21.50 KG/47.41 lbs. (Tolerance ± 3%) |
| **Maximum Charge Current** | 18.75 A |
| **Operating Temperature Range** | Discharge: -20°C ~ 60°C<br>Charge: 0°C ~ 50°C<br>Storage: -20°C ~ 60°C |
| **Nominal Operating Temperature Range** | 25 ± 5°C |
| **Float Charge Voltage** | 13.6 to 13.8 VDC/unit Average at 25°C |
| **Maximum Discharging Current Limit** | 750 Amp (5 seconds) |


| | |
|---|---|
| **Equalization and Cycle Service** | 14.6 to 14.8 VDC/unit Average at 25°C |
| **Self Discharge** | Self-discharge ratio less than 3% per month at 25°C. Please charge batteries before using. |
| **Terminals** | RT |
| **Jar Material** | A.B.S UL94-HB |

## Physical Dimensions: in (mm)



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Use this chart to estimate the current for various times and end of discharge of voltages (EDV)

## Constant Current Discharge Characteristics: Amp (25°C)

| EDV | 5 Min. | 10 Min. | 15 Min. | 30 Min. | 1 Hr. | 2 Hr. | 3 Hr. | 5 Hr. | 8 Hr. | 10 Hr. | 20 Hr. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 9.60 V | 251.3 | 185.0 | 144.2 | 87.89 | 48.75 | 29.15 | 20.13 | 14.04 | 9.59 | 7.95 | 4.24 |
| 10.0 V | 244.0 | 176.0 | 141.3 | 86.38 | 48.53 | 28.93 | 20.05 | 13.96 | 9.51 | 9.88 | 4.17 |
| 10.2 V | 236.8 | 169.8 | 139.1 | 84.78 | 48.08 | 28.72 | 19.90 | 13.87 | 9.43 | 7.80 | 4.09 |
| 10.5 V | 212.6 | 156.7 | 132.4 | 84.14 | 47.63 | 28.50 | 19.82 | 13.71 | 9.36 | 7.73 | 4.01 |
| 10.8 V | 191.9 | 142.9 | 122.0 | 82.70 | 46.50 | 27.98 | 19.28 | 13.46 | 9.20 | 7.65 | 3.94 |
| 11.1 V | 163.9 | 127.7 | 109.5 | 77.43 | 44.18 | 26.74 | 18.43 | 12.88 | 8.81 | 7.42 | 3.70 |

Use this chart to estimate the power for various times and end of discharge voltages (EDV)

## Constant Power Discharge Characteristics: Watt (25°C)

| EDV | 5 Min. | 10 Min. | 15 Min. | 30 Min. | 1 Hr. | 2 Hr. | 3 Hr. | 5 Hr. | 8 Hr. | 10 Hr. | 20 Hr. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 9.60 V | 2651 | 1970 | 1572 | 986.3 | 563.3 | 343.6 | 239.6 | 167.5 | 114.5 | 95.06 | 50.89 |
| 10.0 V | 2599 | 1910 | 1547 | 974.2 | 562.0 | 341.8 | 239.7 | 167.1 | 114.0 | 94.46 | 50.01 |
| 10.2 V | 2569 | 1860 | 1530 | 967.3 | 557.6 | 339.7 | 238.6 | 166.5 | 113.2 | 93.62 | 49.08 |
| 10.5 V | 2339 | 1732 | 1459 | 960.6 | 552.6 | 337.3 | 237.7 | 164.5 | 112.3 | 92.70 | 48.15 |
| 10.8 V | 2130 | 1596 | 1349 | 945.2 | 542.4 | 333.0 | 231.3 | 161.5 | 110.4 | 91.78 | 47.23 |
| 11.1 V | 1871 | 1443 | 1214 | 890.3 | 519.2 | 320.6 | 221.2 | 154.6 | 105.7 | 89.03 | 44.45 |

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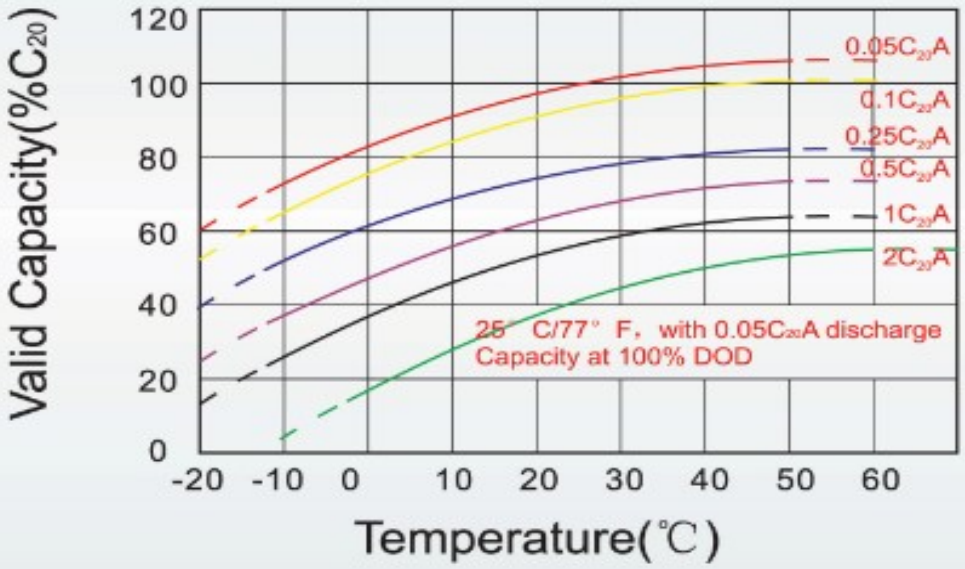
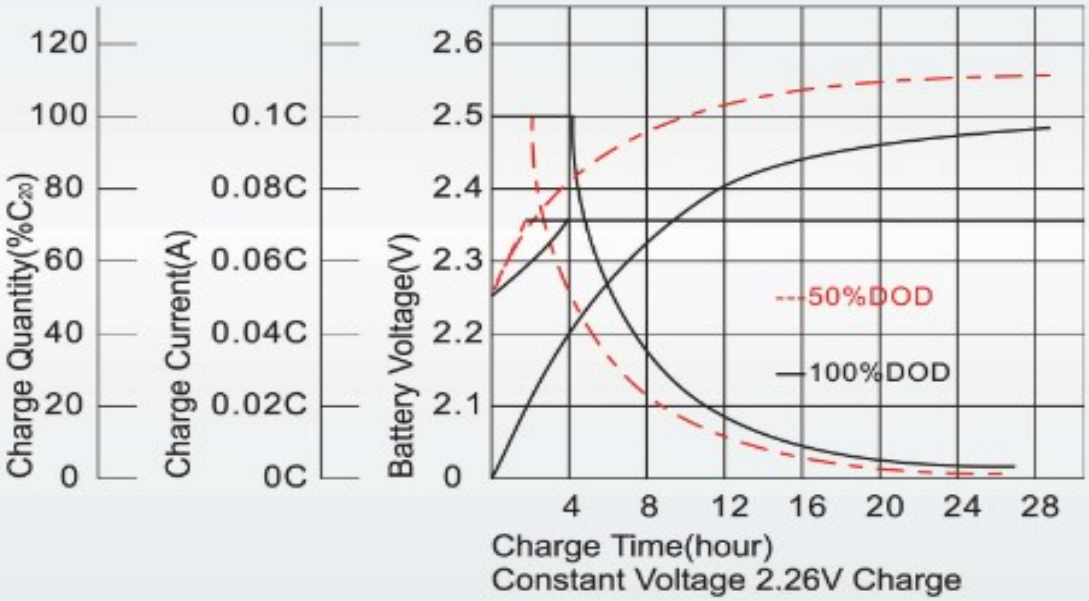
## Temperature and Valid Capacity




## Charge Characteristics for Float Use @ 25°C/77°F



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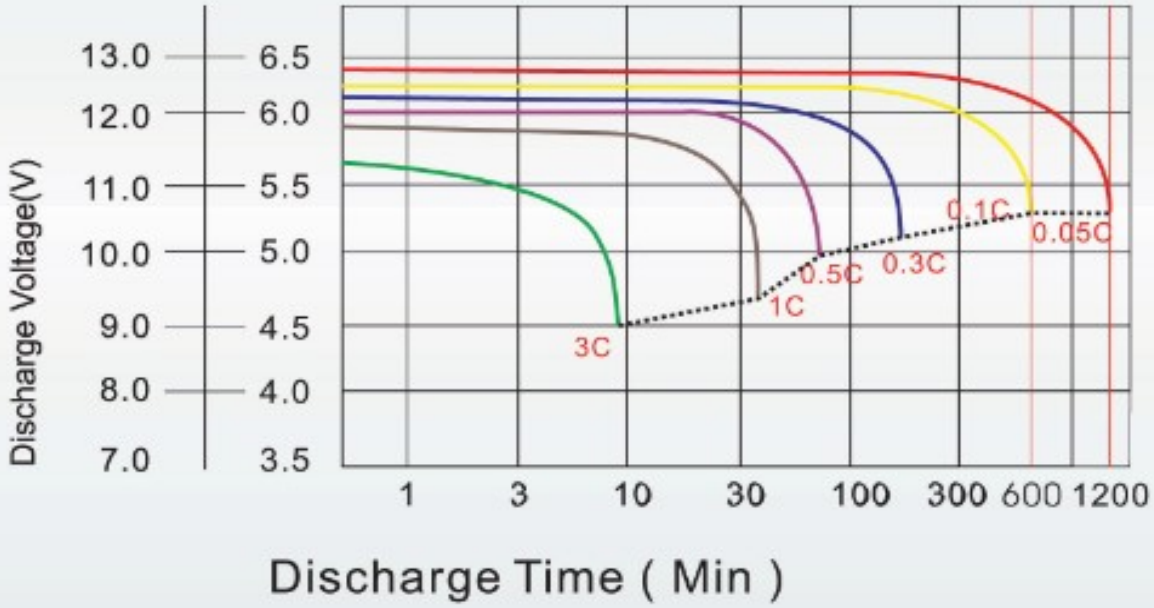
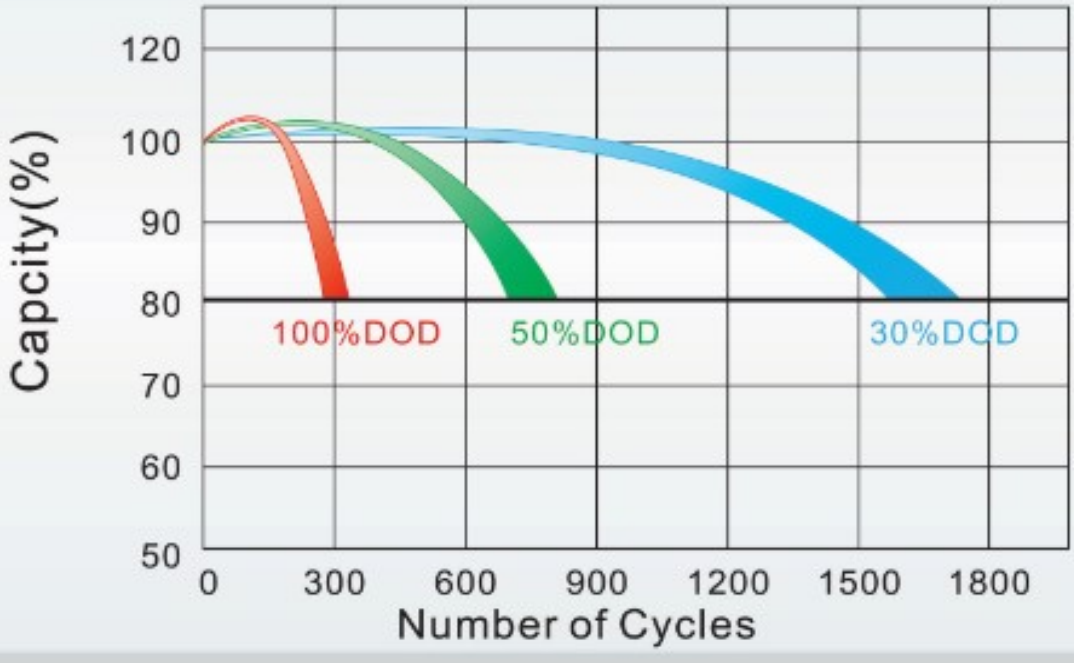
## Discharge Characteristics at Various Rates @ 25°C/77°F




## Cycle Life in Relation to Depth of Discharge



# Sigma Power Systems

**SG12750 (12V 75.0Ah)**

## Capacity at Different Temperatures

| Battery Type | | -20℃ | -10℃ | 0℃ | 5℃ | 10℃ | 20℃ | 25℃ | 30℃ | 40℃ | 45℃ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| GEL Battery | 6V & 12V | 50% | 70% | 83% | 85% | 90% | 98% | 100% | 102% | 104% | 105% |
| | 2V | 60% | 75% | 85% | 88% | 92% | 99% | 100% | 103% | 105% | 106% |
| AGM Battery | 6V & 12V | 46% | 66% | 76% | 83% | 90% | 98% | 100% | 103% | 107% | 109% |
| | 2V | 55% | 70% | 80% | 85% | 92% | 99% | 100% | 104% | 108% | 110% |

## Discharge Current Vs. Discharge Voltage

| | | | |
|---|---|---|---|
| **Final Discharge Voltage V/cell** | 1.75V | 1.70V | 1.60V |
| **Discharge Current (A)** | A≤0.2C | 0.2C≤A≤1.0C | ≥1.0C |

## Charging Method

| | |
|---|---|
| **Constant Voltage** | -0.2C*2h+2.4-2.45V/cell*24h, Max. Current 0.3CA |
| **Constant Current** | -0.2C*2h+0.1CA*12h |
| **Fast** | -0.2C*2h+0.3CA*4.0h |

General applications – Emergency lights, solar, UPS, Alarm systems, Security systems, wheelchairs, flash lights, toys etc.

Charge the batteries at least once every six months, if they are stored at 25℃

## Safety & Maintenance Tips

- Do not charge the battery in air tight atmosphere.
- Do not short the terminals.
- Avoid leaving them in hot environment.
- Charge the batteries at least once in 6 months when the batteries are at 77F
- Max. charge current 0.3CA, constant voltage 2.4-2.45V/Cell charge 24h
- Effect of temperature on float charge voltage: -3mV/Cell.
- Life will be reduced by number and depth of discharge.
- Do not discharge below the minimum recommended voltage.
- Leaving a discharged battery without charge for a long period of time will affect the life of the batteries.


www.sigmapowersystems.com

506 Business Pkwy,
Richardson, TX 75081
(877) 394-3941
mmoorthi@sigmapowersystems.com