

### Specifications

|                                            |                                                                                                                                                                                           |
|--------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Voltage (Vdc)                              | 12                                                                                                                                                                                        |
| Nominal Capacity<br>(1.67 VPC @ 25°C)      | 21W @15min-rate                                                                                                                                                                           |
| Watts Per Cell<br>(30-Sec 1.67 VPC @ 25°C) | --                                                                                                                                                                                        |
| Watts Per Cell<br>(5-Min 1.67 VPC @ 25°)   | 52.5                                                                                                                                                                                      |
| Watts Per Cell<br>(15-Min 1.67 VPC @ 25°)  | 25.0                                                                                                                                                                                      |
| Max Charge Current (A)                     | 2.10                                                                                                                                                                                      |
| Max Discharge Current (A)                  | 90 *                                                                                                                                                                                      |
| Short Circuit Current (A)                  | 249                                                                                                                                                                                       |
| Internal Resistance (mΩ)                   | Approx. 23.0                                                                                                                                                                              |
| Terminal Type                              | F2-Faston Tab250 *                                                                                                                                                                        |
| Terminal Torque                            | --                                                                                                                                                                                        |
| Container Material                         | ABS (UL 94-HB) & Flame Retardant<br>(94-V0) available upon request                                                                                                                        |
| Weight (kg. / lb., Approx.)                | 1.80 / 3.97                                                                                                                                                                               |
| Length (L) (mm / in)                       | 90.0±1.0 / 3.54±0.04                                                                                                                                                                      |
| Width (W) (mm / in)                        | 70.0±1.0 / 2.76±0.04                                                                                                                                                                      |
| Height (H) (mm / in)                       | 106.1±1.5 / 4.18±0.06                                                                                                                                                                     |
| Design Life                                | Up to 5 Years in Standby Service at 25°C<br>Eurobat (20°C): 3-5 Years Standard Commercial                                                                                                 |
| Operating Temperature                      | Nominal: 25°C (77°F)<br>Discharge: -15°C - 50°C<br>(5°F-122°F)<br>Charge/Storage: -15°C - 40°C<br>(5°F - 104°F)                                                                           |
| Float Charging Voltage                     | 13.5 - 13.8 Vdc/battery<br>25°C (77°F)                                                                                                                                                    |
| Eq. Charging Voltage                       | 14.4 - 15.0 Vdc/battery<br>25°C (77°F)                                                                                                                                                    |
| Self-Discharge                             | Less than 10% after 90 days, can be stored up to 6 months at 25°C (77°F); Fully recharging is required before usage, and charged sooner if stored at higher temperature than 25°C (77°F). |



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Recognized (MH14533)





# HR Series

## HR 1221W Datasheet

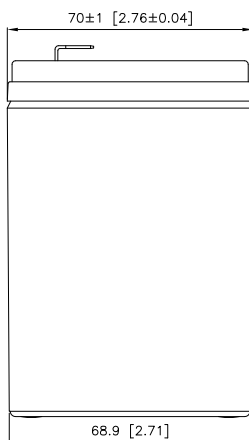
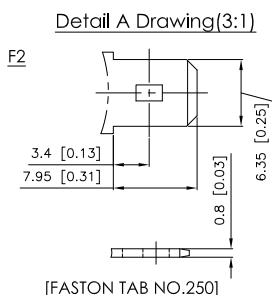
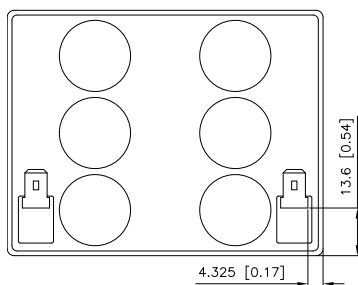
12V Top Terminal VRLA-AGM

### Constant Current Discharge Characteristics Unit: A (25°C, 77°F)

| F.V/Time          | 2MIN | 4MIN | 5MIN | 6MIN | 8MIN | 10MIN | 15MIN | 20MIN | 30MIN | 45MIN | 60MIN | 90MIN |
|-------------------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|
| 10.02V (1.67 VPC) | 43.1 | 29.7 | 26.2 | 23.6 | 19.9 | 17.1  | 12.5  | 10.1  | 7.18  | 5.10  | 4.00  | 2.71  |
| 10.50V (1.75 VPC) | 37.4 | 27.4 | 24.4 | 22.2 | 19.0 | 16.3  | 12.1  | 9.70  | 7.07  | 5.05  | 3.98  | 2.56  |
| 10.80V (1.80 VPC) | 33.1 | 25.2 | 22.8 | 21.0 | 18.2 | 15.7  | 11.8  | 9.51  | 7.00  | 5.02  | 3.96  | 2.46  |

### Constant Power Discharge Characteristics Unit: W (25°C, 77°F)

| F.V/Time          | 2MIN | 4MIN | 5MIN | 6MIN | 8MIN | 10MIN | 15MIN | 20MIN | 30MIN | 45MIN | 60MIN | 90MIN |
|-------------------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|
| 10.02V (1.67 VPC) | 515  | 357  | 315  | 284  | 238  | 203   | 150   | 120   | 86.6  | 61.4  | 48.1  | 32.5  |
| 10.50V (1.75 VPC) | 451  | 329  | 293  | 266  | 226  | 194   | 145   | 116   | 85.8  | 61.0  | 47.9  | 30.7  |
| 10.80V (1.80 VPC) | 397  | 302  | 272  | 250  | 216  | 188   | 141   | 113   | 85.4  | 60.8  | 47.8  | 29.5  |



\* F1 terminal is available, Max Discharge Current = 60 A

### Specifications

|                                            |                                                                                                                                                                                           |
|--------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Voltage (Vdc)                              | 12                                                                                                                                                                                        |
| Nominal Capacity<br>(1.67 VPC @25°C)       | 24W @15min-rate                                                                                                                                                                           |
| Watts Per Cell<br>(30-Sec 1.67 VPC @ 25°C) | --                                                                                                                                                                                        |
| Watts Per Cell<br>(5-Min 1.67 VPC @ 25°)   | 54.8                                                                                                                                                                                      |
| Watts Per Cell<br>(15-Min 1.67 VPC @ 25°)  | 27.0                                                                                                                                                                                      |
| Max Charge Current (A)                     | 2.40                                                                                                                                                                                      |
| Max Discharge Current (A)                  | 130 *                                                                                                                                                                                     |
| Short Circuit Current (A)                  | 260                                                                                                                                                                                       |
| Internal Resistance (mΩ)                   | Approx. 20.6                                                                                                                                                                              |
| Terminal Type                              | F2-Faston Tab250 *                                                                                                                                                                        |
| Terminal Torque                            | --                                                                                                                                                                                        |
| Container Material                         | ABS (UL 94-HB) & Flame Retardant<br>(94-V0) available upon request                                                                                                                        |
| Weight (kg. / lb., Approx.)                | 1.95 / 4.30                                                                                                                                                                               |
| Length (L) (mm / in)                       | 150.9±2.0 / 5.94±0.08                                                                                                                                                                     |
| Width (W) (mm / in)                        | 51.0±1.0 / 2.01±0.04                                                                                                                                                                      |
| Height (H) (mm / in)                       | 98.6±1.0 / 3.89±0.04                                                                                                                                                                      |
| Design Life                                | Up to 5 Years in Standby Service at 25°C<br>Eurobat (20°C): 3-5 Years Standard Commercial                                                                                                 |
| Operating Temperature                      | Nominal: 25°C (77°F)<br>Discharge: -15°C - 50°C<br>(5°F-122°F)<br>Charge/Storage: -15°C - 40°C<br>(5°F - 104°F)                                                                           |
| Float Charging Voltage                     | 13.5 - 13.8 Vdc/battery<br>25°C (77°F)                                                                                                                                                    |
| Eq. Charging Voltage                       | 14.4 - 15.0 Vdc/battery<br>25°C (77°F)                                                                                                                                                    |
| Self-Discharge                             | Less than 10% after 90 days, can be stored up to 6 months at 25°C (77°F); Fully recharging is required before usage, and charged sooner if stored at higher temperature than 25°C (77°F). |



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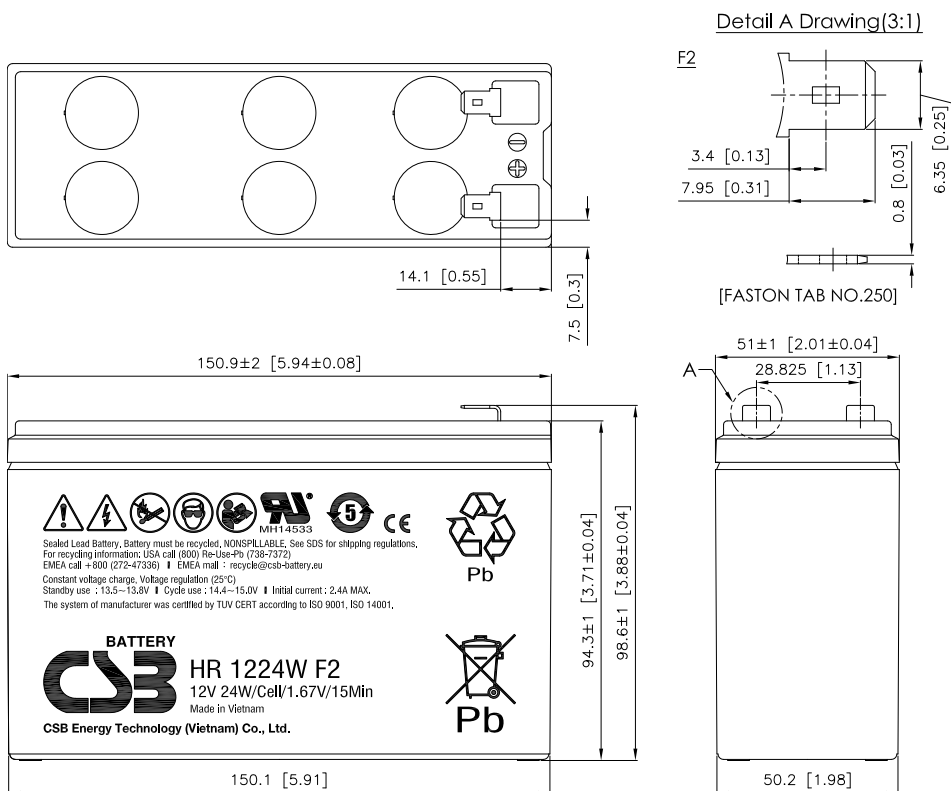


### Constant Current Discharge Characteristics Unit: A (25°C, 77°F)

| F.V/Time          | 2MIN | 4MIN | 5MIN | 6MIN | 8MIN | 10MIN | 15MIN | 20MIN | 30MIN | 45MIN | 60MIN | 90MIN |
|-------------------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|
| 10.02V (1.67 VPC) | 44.1 | 31.1 | 27.4 | 24.7 | 21.0 | 18.0  | 13.5  | 10.6  | 7.76  | 5.42  | 4.20  | 3.34  |
| 10.50V (1.75 VPC) | 40.5 | 28.8 | 25.4 | 23.0 | 19.8 | 17.0  | 12.8  | 10.2  | 7.56  | 5.29  | 4.10  | 3.26  |
| 10.80V (1.80 VPC) | 38.4 | 27.4 | 24.4 | 22.2 | 19.1 | 16.4  | 12.5  | 10.0  | 7.49  | 5.23  | 4.06  | 3.22  |

### Constant Power Discharge Characteristics Unit: W (25°C, 77°F)

| F.V/Time          | 2MIN | 4MIN | 5MIN | 6MIN | 8MIN | 10MIN | 15MIN | 20MIN | 30MIN | 45MIN | 60MIN | 90MIN |
|-------------------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|
| 10.02V (1.67 VPC) | 529  | 373  | 329  | 297  | 251  | 217   | 162   | 128   | 92.9  | 64.9  | 50.3  | 40.2  |
| 10.50V (1.75 VPC) | 486  | 346  | 306  | 277  | 238  | 204   | 154   | 123   | 90.8  | 63.5  | 49.3  | 39.2  |
| 10.80V (1.80 VPC) | 461  | 329  | 293  | 266  | 229  | 197   | 149   | 121   | 89.9  | 62.9  | 48.8  | 38.8  |



\* F1 terminal is available, Max Discharge Current = 100 A

### Specifications

|                                            |                                                                                                                                                                                                                    |
|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Voltage (Vdc)                              | 12                                                                                                                                                                                                                 |
| Nominal Capacity<br>(1.67 VPC @25°C)       | 27W @15min-rate                                                                                                                                                                                                    |
| Watts Per Cell<br>(30-Sec 1.67 VPC @ 25°C) | --                                                                                                                                                                                                                 |
| Watts Per Cell<br>(5-Min 1.67 VPC @ 25°)   | 53.0                                                                                                                                                                                                               |
| Watts Per Cell<br>(15-Min 1.67 VPC @ 25°)  | 27.0                                                                                                                                                                                                               |
| Max Charge Current (A)                     | 2.70                                                                                                                                                                                                               |
| Max Discharge Current (A)                  | 130 *                                                                                                                                                                                                              |
| Short Circuit Current (A)                  | 424                                                                                                                                                                                                                |
| Internal Resistance (mΩ)                   | Approx. 19.9                                                                                                                                                                                                       |
| Terminal Type                              | F2-Faston Tab250 *                                                                                                                                                                                                 |
| Terminal Torque                            | --                                                                                                                                                                                                                 |
| Container Material                         | ABS (UL 94-HB) & Flame Retardant<br>(94-V0) available upon request                                                                                                                                                 |
| Weight (kg. / lb., Approx.)                | 1.97 / 4.34                                                                                                                                                                                                        |
| Length (L) (mm / in)                       | 90.0±1.0 / 3.54±0.04                                                                                                                                                                                               |
| Width (W) (mm / in)                        | 70.0±1.0 / 2.76±0.04                                                                                                                                                                                               |
| Height (H) (mm / in)                       | 106.1±1.5 / 4.18±0.06                                                                                                                                                                                              |
| Design Life                                | Up to 5 Years in Standby Service at<br>25°C<br>Eurobat (20°C): 3-5 Years Standard<br>Commercial<br>Nominal: 25°C (77°F)<br>Discharge: -15°C - 50°C<br>(5°F-122°F)<br>Charge/Storage: -15°C - 40°C<br>(5°F - 104°F) |
| Operating Temperature                      |                                                                                                                                                                                                                    |
| Float Charging Voltage                     | 13.5 - 13.8 Vdc/battery<br>25°C (77°F)                                                                                                                                                                             |
| Eq. Charging Voltage                       | 14.4 - 15.0 Vdc/battery<br>25°C (77°F)                                                                                                                                                                             |
| Self-Discharge                             | Less than 10% after 90 days, can<br>be stored up to 6 months at 25°C<br>(77°F); Fully recharging is required<br>before usage, and charged sooner<br>if stored at higher temperature<br>than 25°C (77°F).           |



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# HR Series

## HR 1227W Datasheet

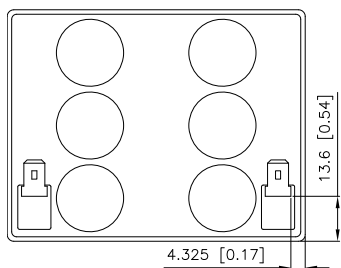
12V Top Terminal VRLA-AGM

### Constant Current Discharge Characteristics Unit: A (25°C, 77°F)

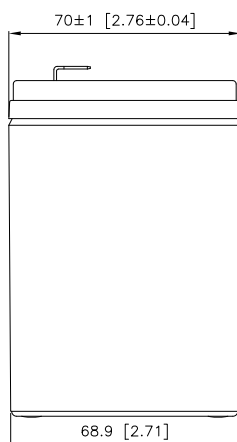
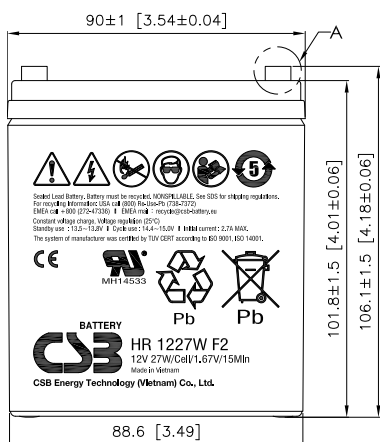
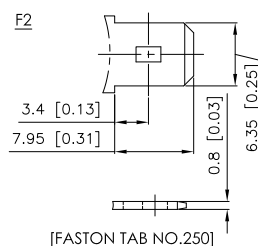
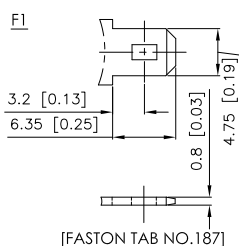
| F.V/Time          | 2MIN | 4MIN | 5MIN | 6MIN | 8MIN | 10MIN | 15MIN | 20MIN | 30MIN | 45MIN | 60MIN | 90MIN |
|-------------------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|
| 10.02V (1.67 VPC) | 50.4 | 34.3 | 29.8 | 26.5 | 21.4 | 18.3  | 13.5  | 10.8  | 7.83  | 5.66  | 4.49  | 3.18  |
| 10.50V (1.75 VPC) | 41.0 | 29.9 | 26.6 | 24.2 | 20.0 | 17.2  | 12.8  | 10.6  | 7.68  | 5.57  | 4.43  | 3.13  |
| 10.80V (1.80 VPC) | 36.4 | 27.5 | 24.7 | 22.7 | 18.9 | 16.3  | 12.4  | 10.3  | 7.49  | 5.45  | 4.35  | 3.08  |

### Constant Power Discharge Characteristics Unit: W (25°C, 77°F)

| F.V/Time          | 2MIN | 4MIN | 5MIN | 6MIN | 8MIN | 10MIN | 15MIN | 20MIN | 30MIN | 45MIN | 60MIN | 90MIN |
|-------------------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|
| 10.02V (1.67 VPC) | 541  | 358  | 318  | 288  | 242  | 211   | 162   | 126   | 91.6  | 66.0  | 52.3  | 37.3  |
| 10.50V (1.75 VPC) | 454  | 327  | 293  | 268  | 229  | 200   | 158   | 124   | 90.3  | 65.2  | 51.8  | 36.8  |
| 10.80V (1.80 VPC) | 403  | 309  | 278  | 255  | 218  | 192   | 153   | 120   | 88.2  | 64.2  | 51.3  | 36.7  |



Detail A Drawing(3:1)



\* F1 terminal is available, Max Discharge Current = 100 A



# HR Series

## HR 1234W Datasheet

12V Top Terminal VRLA-AGM

### Specifications

|                                            |                                                                                                                                                                                                                    |
|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Voltage (Vdc)                              | 12                                                                                                                                                                                                                 |
| Nominal Capacity<br>(1.67 VPC @25°C)       | 34W @15min-rate                                                                                                                                                                                                    |
| Watts Per Cell<br>(30-Sec 1.67 VPC @ 25°C) | --                                                                                                                                                                                                                 |
| Watts Per Cell<br>(5-Min 1.67 VPC @ 25°)   | 73.0                                                                                                                                                                                                               |
| Watts Per Cell<br>(15-Min 1.67 VPC @ 25°)  | 34.3                                                                                                                                                                                                               |
| Max Charge Current (A)                     | 3.40                                                                                                                                                                                                               |
| Max Discharge Current (A)                  | 130                                                                                                                                                                                                                |
| Short Circuit Current (A)                  | 349                                                                                                                                                                                                                |
| Internal Resistance (mΩ)                   | Approx. 19.0                                                                                                                                                                                                       |
| Terminal Type                              | F2-Faston Tab250                                                                                                                                                                                                   |
| Terminal Torque                            | --                                                                                                                                                                                                                 |
| Container Material                         | ABS (UL 94-HB) & Flame Retardant<br>(94-V0) available upon request                                                                                                                                                 |
| Weight (kg. / lb., Approx.)                | 2.50 / 5.51                                                                                                                                                                                                        |
| Length (L) (mm / in)                       | 150.9±2.0 / 5.94±0.08                                                                                                                                                                                              |
| Width (W) (mm / in)                        | 64.8±1.0 / 2.55±0.04                                                                                                                                                                                               |
| Height (H) (mm / in)                       | 98.6±1.0 / 3.88±0.04                                                                                                                                                                                               |
| Design Life                                | Up to 5 Years in Standby Service at<br>25°C<br>Eurobat (20°C): 3-5 Years Standard<br>Commercial<br>Nominal: 25°C (77°F)<br>Discharge: -15°C - 50°C<br>(5°F-122°F)<br>Charge/Storage: -15°C - 40°C<br>(5°F - 104°F) |
| Operating Temperature                      |                                                                                                                                                                                                                    |
| Float Charging Voltage                     | 13.5 - 13.8 Vdc/battery<br>25°C (77°F)                                                                                                                                                                             |
| Eq. Charging Voltage                       | 14.4 - 15.0 Vdc/battery<br>25°C (77°F)                                                                                                                                                                             |
| Self-Discharge                             | Less than 10% after 90 days, can<br>be stored up to 6 months at 25°C<br>(77°F); Fully recharging is required<br>before usage, and charged sooner<br>if stored at higher temperature<br>than 25°C (77°F).           |



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# HR Series

## HR 1234W Datasheet

12V Top Terminal VRLA-AGM

### Constant Current Discharge Characteristics Unit: A (25°C, 77°F)

| F.V/Time          | 2MIN | 4MIN | 5MIN | 6MIN | 8MIN | 10MIN | 15MIN | 20MIN | 30MIN | 45MIN | 60MIN | 90MIN |
|-------------------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|
| 10.02V (1.67 VPC) | 67.3 | 47.5 | 40.7 | 35.8 | 29.0 | 24.5  | 17.8  | 14.1  | 10.2  | 7.34  | 5.82  | 4.20  |
| 10.50V (1.75 VPC) | 58.3 | 42.8 | 37.5 | 33.6 | 27.6 | 23.5  | 17.4  | 13.9  | 10.0  | 7.27  | 5.77  | 4.17  |
| 10.80V (1.80 VPC) | 52.6 | 39.1 | 34.7 | 31.2 | 26.0 | 22.4  | 16.8  | 13.5  | 9.83  | 7.12  | 5.67  | 4.11  |

### Constant Power Discharge Characteristics Unit: W (25°C, 77°F)

| F.V/Time          | 2MIN | 4MIN | 5MIN | 6MIN | 8MIN | 10MIN | 15MIN | 20MIN | 30MIN | 45MIN | 60MIN | 90MIN |
|-------------------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|
| 10.02V (1.67 VPC) | 688  | 502  | 438  | 391  | 324  | 277   | 206   | 164   | 119   | 86.5  | 68.9  | 50.0  |
| 10.50V (1.75 VPC) | 633  | 466  | 413  | 372  | 312  | 268   | 202   | 161   | 117   | 85.7  | 68.4  | 49.8  |
| 10.80V (1.80 VPC) | 584  | 434  | 388  | 351  | 298  | 257   | 196   | 157   | 116   | 84.3  | 67.4  | 49.2  |

