



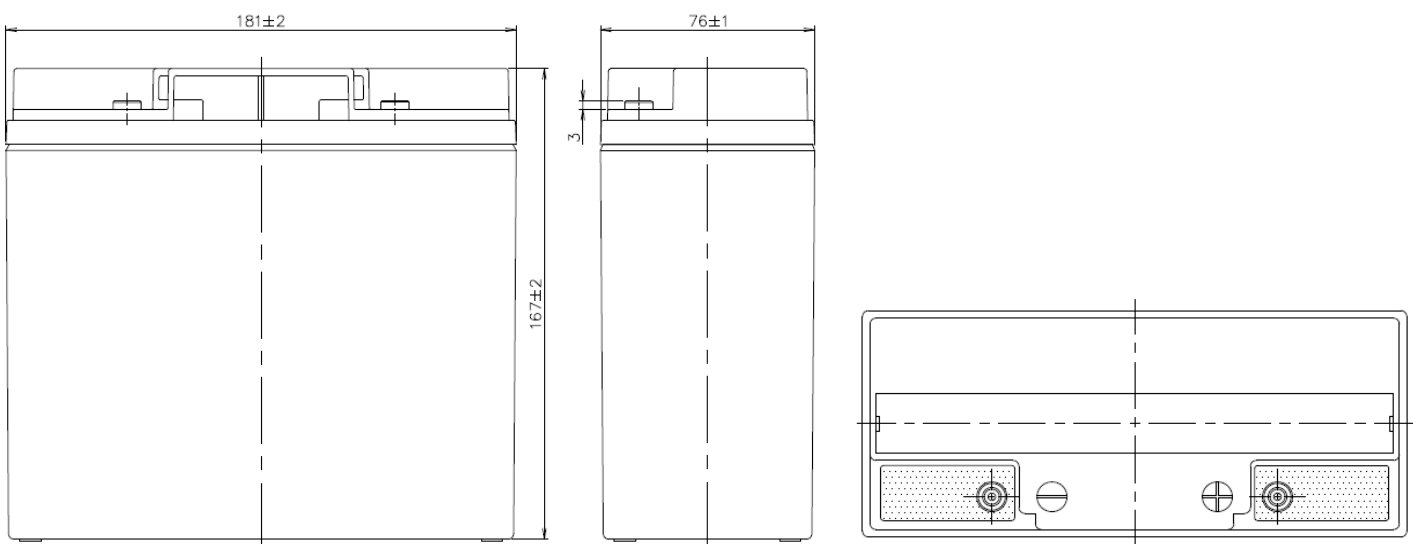
Developed by the world renowned GS Yuasa Corporation, Yuasa REC batteries are a range of sealed maintenance free, VRLA batteries designed to deliver superior cycling performance in high rate discharge applications. Yuasa REC batteries incorporate Yuasa's unique electrolyte retention system, heavy duty lead acid calcium alloy grids and specialist raw materials for extra performance in both cyclic and float applications.

The sealed maintenance free design enables operation in any orientation* without compromising performance or risk of electrolyte leakage, making Yuasa REC batteries ideal for use in a diverse range of applications:

- ✓ Mobility scooters
- ✓ Electric toys
- ✓ Caravans & motorhomes
- ✓ Golf trundles
- ✓ Electric bikes & vehicles
- ✓ Auxiliary field equipment

Product Specification

| | | | |
|---|--|---|---------------------------|
| Voltage | 12V | Weight | Approx. 6.2kg |
| Capacity | 22Ah @ 20hr-rate | Max. Discharge Current | 330A [^] (5 sec) |
| Operating Temperature Range | Discharge: -15°C~45°C Charge: -15°C~45°C Storage: -15°C~45°C | Internal Resistance | Approx. 8.2mΩ |
| Normal Operating Temperature Range | 25±2°C | Container Material | A.B.S (UL94HB) |
| Terminal | M5 Insert Tightening torque 2.0~3.0Nm (20~30kgf · cm) | | |
| Dimensions | Length: 181±2mm Width: 76±1mm | Case Height: 167±2mm Overall Height: 167±2mm | |



Charging

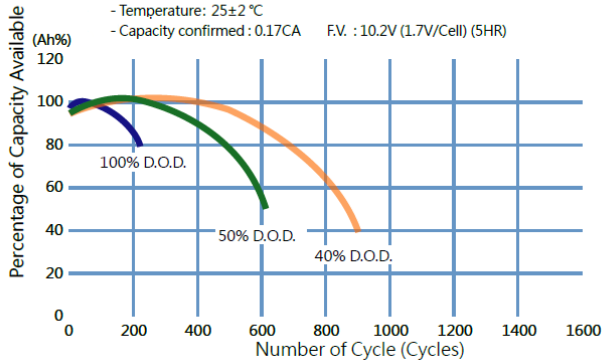
| Method | Given Voltage | Maximum Charging Current | Special Conditions |
|-----------------|---------------|--------------------------|---|
| Float Charging | 13.5V~13.8V | 5.5A | As the average ambient temperature rises, charging voltage should be reduced to prevent overcharge. Accordingly, the recommended compensation factor is $-3\text{mV}/^\circ\text{C}/\text{cell}$ at 25°C of standard centre point. |
| Cyclic Charging | 14.4V~15.0V | 5.5A | As the average ambient temperature rises, charging voltage should be reduced to prevent overcharge. Accordingly, the recommended compensation factor is $-4\text{mV}/^\circ\text{C}/\text{cell}$ at 25°C of standard centre point. Caution: This needs to be terminated with appropriate charging period in order to avoid excess over charging that can result in the damage of the batteries. |

Storage Period without Charge:

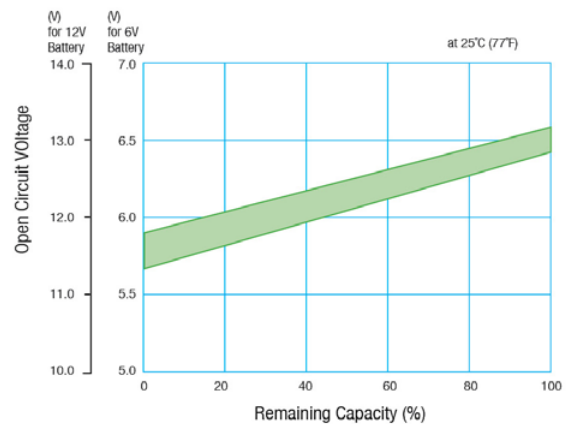
| Storage Temperature | Max. Storage Period |
|---|---------------------|
| Temp. $\leq 25^\circ\text{C}$ | 6 months |
| $25 < \text{Temp.} \leq 30^\circ\text{C}$ | 4 months |
| $30 < \text{Temp.} \leq 35^\circ\text{C}$ | 3 months |
| $35 < \text{Temp.} \leq 40^\circ\text{C}$ | 2 months |

CYCLE SERVICE LIFE IN RELATION TO DEPTH OF DISCHARGE

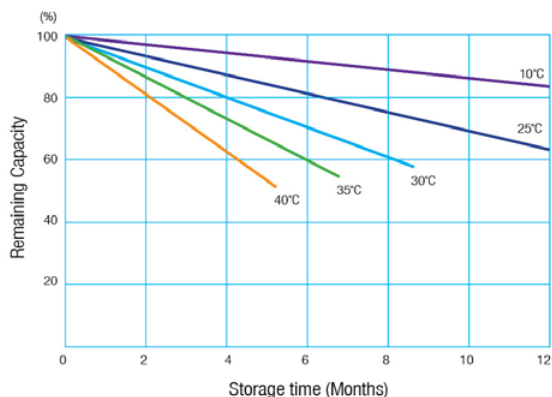
Testing Conditions:
 - Discharge: Constant Current 0.17CA (5HR)
 - Charge: Constant Voltage 14.4~14.7V (2.4~2.45V/Cell)
 Maximum Current 0.25CA
 Discharge capacity than 105 ~ 115%
 - Temperature: $25 \pm 2^\circ\text{C}$
 - Capacity confirmed: 0.17CA E.V. : 10.2V (1.7V/Cell) (5HR)



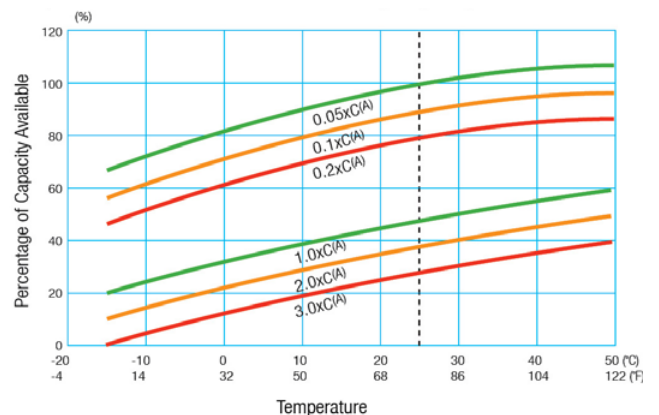
OPEN CIRCUIT VOLTAGE VS REMAINING CAPACITY



SELF DISCHARGE CHARACTERISTICS



TEMPERATURE EFFECTS IN RELATION TO BATTERY CAPACITY



Discharge Capacity

Constant Current Discharge Characteristics: Watts (25°C)

| F.V./ TIME | 3M | 5M | 6M | 8M | 10M | 15M | 30M | 1H | 2H | 3H | 5H | 10H | 20H |
|---------------|------|------|------|-----|-----|-----|-----|-----|------|------|------|------|-------|
| 10.8V | 1145 | 954 | 890 | 749 | 668 | 501 | 301 | 172 | 94.1 | 67.2 | 44.1 | 23.1 | 12.91 |
| 10.5V | 1213 | 999 | 926 | 779 | 692 | 514 | 307 | 174 | 96.2 | 68.7 | 45.3 | 23.8 | 12.99 |
| 10.2V | 1288 | 1041 | 957 | 805 | 709 | 523 | 311 | 176 | 97.1 | 69.4 | 45.7 | 24.1 | 13.04 |
| 10.0V | 1340 | 1067 | 974 | 820 | 717 | 527 | 313 | 177 | 97.8 | 69.9 | 46.1 | 24.3 | 13.17 |
| 9.6V | 1469 | 1124 | 1005 | 846 | 725 | 531 | 315 | 178 | 98.6 | 70.4 | 46.5 | 24.5 | 13.31 |

Constant Current Discharge Characteristics: Amps (25°C)

| F.V./ TIME | 3M | 5M | 6M | 8M | 10M | 15M | 30M | 1H | 2H | 3H | 5H | 10H | 20H |
|---------------|-----|-----|----|----|-----|------|------|------|------|------|------|------|------|
| 10.8V | 102 | 84 | 78 | 66 | 58 | 43.1 | 25.6 | 14.5 | 7.97 | 5.69 | 3.75 | 1.97 | 1.06 |
| 10.5V | 111 | 89 | 82 | 69 | 61 | 44.3 | 26.1 | 14.7 | 8.05 | 5.75 | 3.78 | 1.99 | 1.07 |
| 10.2V | 119 | 94 | 85 | 71 | 62 | 45.0 | 26.5 | 14.8 | 8.11 | 5.79 | 3.80 | 1.99 | 1.07 |
| 10.0V | 126 | 98 | 88 | 74 | 64 | 45.7 | 26.7 | 14.9 | 8.16 | 5.83 | 3.83 | 2.01 | 1.08 |
| 9.6V | 140 | 104 | 91 | 77 | 65 | 46.8 | 27.5 | 15.3 | 8.34 | 5.95 | 3.89 | 2.04 | 1.10 |

Installation Conditions

Storage container for rechargeable battery must not be of sealed and air tight construction; the container must be equipped with appropriate ventilation system, such as ventilation holes leading to the outside.

The following applies to using a rechargeable battery inside a metallic storage box: to prevent the rechargeable battery from leaking fluid due to a breakage in the electrolytic cell, thus forming a leak circuit between the battery and the storage box (or fixed frame), install between these two items a heat and acid resistant insulating sheet (or tray) that will not be damaged by periodic stress. Alternatively, place the rechargeable battery inside an insulating bag but ensure it remains unsealed.

For the above described insulation material, do not use any material that can be stained with grease.

Do not allow the rechargeable battery to come into contact with vinyl tape containing plasticizer, insulation sheet, solvent, or grease.

Caution

It is not recommended to mix different kinds of batteries / capacities / new and used in series string connections.

It is not recommended to use more than 3 parallel string connections.

Also available in REC36-12, REC50-12 & REC80-12

For more information contact a Yuasa battery specialist:

Australia:
49-65 Cobalt Street
Carole Park, QLD 4300
T: 1300 362 287
yuasabatteries.com.au

New Zealand:
259 Church Street
Onehunga, Auckland 1643
T: 0800 498 272
yuasabatteries.co.nz

