

## REC50-12



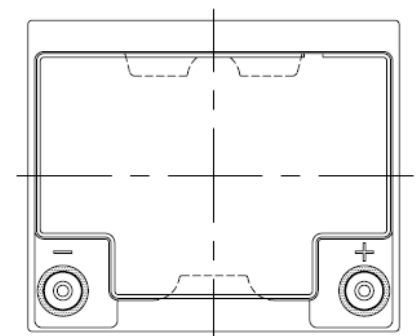
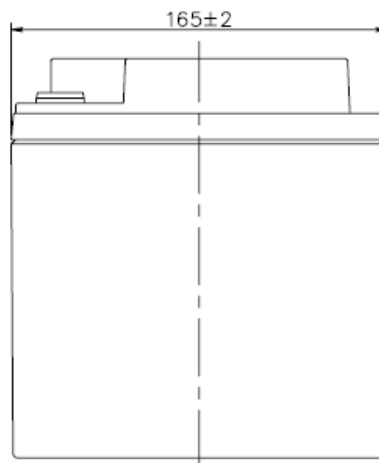
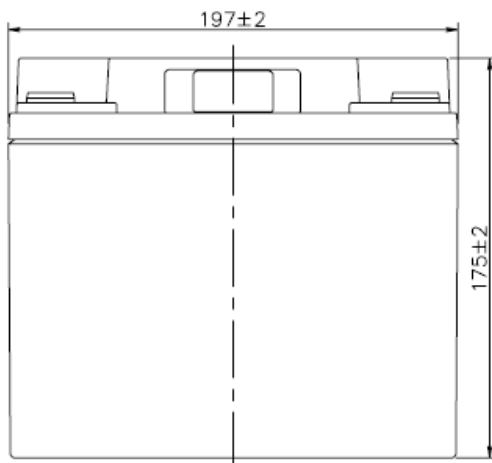
Developed by the world renowned GS Yuasa Corporation, Yuasa REC batteries are a range of sealed maintenance free, VRLA batteries designed to deliver superior cycling performance in high rate discharge applications. Yuasa REC batteries incorporate Yuasa's unique electrolyte retention system, heavy duty 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

<b>Voltage</b>	12V	<b>Weight</b>	Approx. 15.3kg
<b>Capacity</b>	50Ah @ 20hr-rate	<b>Max. Discharge Current</b>	300A <sup>*</sup> (5 sec)
<b>Operating Temperature Range</b>	Discharge: -15°C~45°C Charge: -15°C~45°C Storage: -15°C~45°C	<b>Internal Resistance</b>	Approx. 5.7mΩ
<b>Normal Operating Temperature Range</b>	25±2°C	<b>Container Material</b>	A.B.S (UL94HB)
<b>Terminal</b>	M5 Insert Tightening torque 2.0~3.0Nm (20~30kgf · cm)		
<b>Dimensions</b>	Length: 197±2mm Width: 165±2mm	Case Height: 175±2mm Overall Height: 175±2mm	



\*Excluding continuous inverted use. \*Tested at 600% of the rated Ah.

# Charging

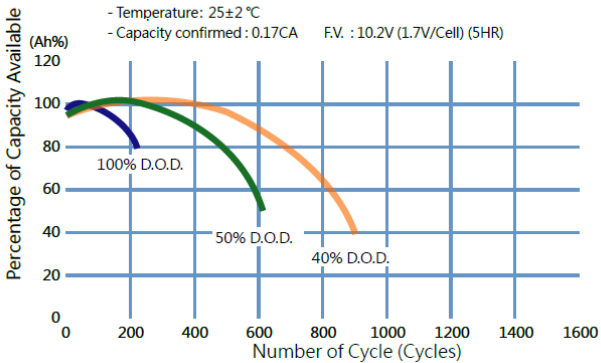
Method	Given Voltage	Maximum Charging Current	Special Conditions
Float Charging	13.5V~13.8V	12.5A	As the average ambient temperature rises, charging voltage should be reduced to prevent overcharge. Accordingly, the recommended compensation factor is $-3mV/^{\circ}C/cell$ at $25^{\circ}C$ of standard centre point.
Cyclic Charging	14.4V~15.0V	12.5A	As the average ambient temperature rises, charging voltage should be reduced to prevent overcharge. Accordingly, the recommended compensation factor is $-4mV/^{\circ}C/cell$ at $25^{\circ}C$ 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:

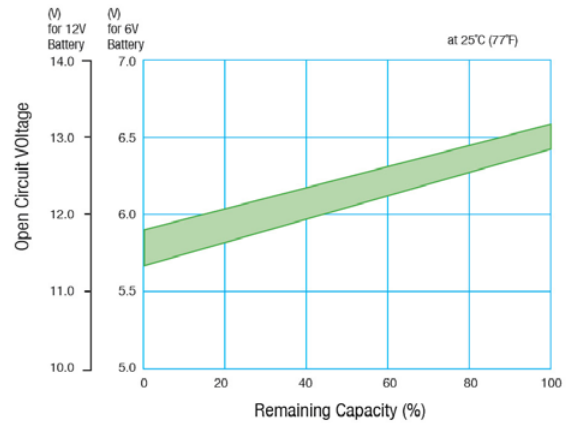
Storage Temperature	Max. Storage Period
Temp. $\leq 25^{\circ}C$	6 months
$25 < \text{Temp.} \leq 30^{\circ}C$	4 months
$30 < \text{Temp.} \leq 35^{\circ}C$	3 months
$35 < \text{Temp.} \leq 40^{\circ}C$	2 months

### CYCLE SERVICE LIFE IN RELATION TO DEPTH OF DISCHARGE

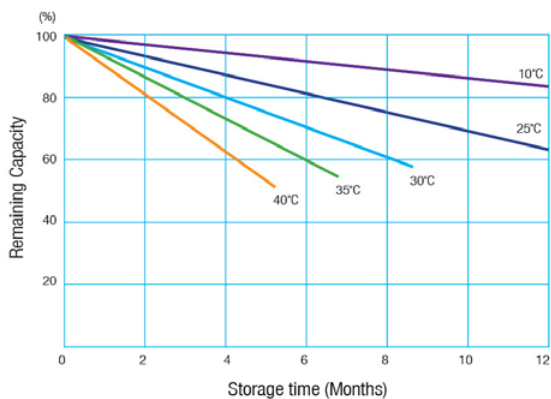
Testing Conditions:  
 - Discharge: Constant Current 0.17CA (5HR)  
 - Charge: Constant Voltage 14.4~14.7V (2.4~2.45V/Cell)  
 Maximum Current 0.25CA  
 Discharge capacity than 105 ~ 115%  
 - Temperature:  $25 \pm 2^{\circ}C$   
 - Capacity confirmed: 0.17CA E.V. : 10.2V (1.7V/Cell) (5HR)



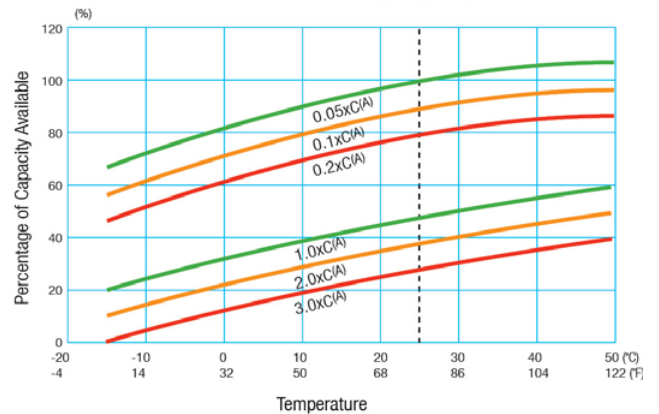
### OPEN CIRCUIT VOLTAGE VS REMAINING CAPACITY



### SELF DISCHARGE CHARACTERISTICS



### TEMPERATURE EFFECTS IN RELATION TO BATTERY CAPACITY



## Discharge Capacity

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

F.V./ TIME	5M	10M	15M	20M	30M	45M	1H	2H	3H	4H	5H	10H	20H
10.95V	1444	1066	842	704	537	402	325	186.0	131.4	105.1	89.3	47.5	26.0
10.80V	1588	1166	927	763	573	423	337	194.1	137.6	110.1	93.5	49.9	27.3
10.50V	1699	1222	958	785	587	432	344	196.4	138.8	111.0	94.3	50.2	27.4
10.20V	1811	1270	980	800	596	437	346	197.6	139.6	111.6	94.9	50.5	27.5
10.02V	1846	1288	987	804	598	438	34	197.8	139.7	111.7	95.0	50.6	27.6
9.60V	1943	1340	1008	818	606	441	347	198.4	140.1	112.1	95.2	50.7	27.7

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

F.V./ TIME	5M	10M	15M	20M	30M	45M	1H	2H	3H	4H	5H	10H	20H
10.95V	133	95.8	75.4	62.2	47.1	34.9	28.0	15.89	11.18	8.94	7.60	4.04	2.28
10.80V	144	101	80.0	65.0	49.1	36.1	28.7	16.29	11.47	9.17	7.80	4.14	2.49
10.50V	154	108	83.0	68.0	50.6	37.0	29.2	16.51	11.59	9.27	7.88	4.18	2.50
10.20V	167	114	85.0	69.0	51.4	37.4	29.4	16.57	11.62	9.29	7.90	4.19	2.51
10.02V	171	115	85.8	69.5	51.6	37.5	29.5	16.59	11.63	9.30	7.91	4.20	2.51
9.60V	183	121	88.0	71.0	52.5	37.9	29.6	16.65	11.67	9.34	7.94	4.21	2.52

## 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 use 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 REC22-12, REC36-12 & REC80-12

For more information contact a Yuasa battery specialist:

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