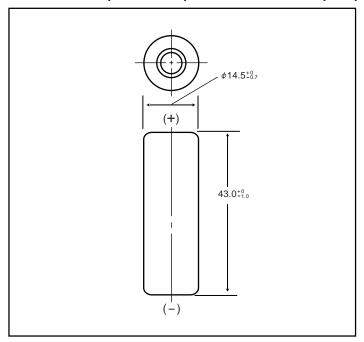
## HHR120AA Cylindrical 4/5AA size (HR 15/43)

### **Dimensions (with Tube)**

(mm)



### **Specifications**

	mm	inch
Diameter	14.5+0/-0.7	0.57+0/-0.03
Height	43.0+0/-1.0	1.69+0/-0.04
Approximate	Grams	Ounces
Weight	23	0.81

Nominal Voltage		1.2V		
Discharge Capacity*		Average**	1220 mAh	
		Rated (Min.)	1150 mAh	
	prox. Internal impedance 1000Hz at charged state.		19mΩ	
Charge Standard		120mA (0.1lt) x 16hrs.		
	90	Rapid	1200mA (1lt) x 1.2 hrs.	
		Standard	°C	°F
gu	Charge	Standard	0°C to 45°C	32°F to 113°F
i i j		Rapid	0°C to 40°C	32°F to 104°F
bie	Dis	charge	-10°C to 65°C	14°F to 149°F
Ambient Temperature		< 1 year	-20°C to 35°C	-4°F to 95°F
<u> </u>	Storage	< 3 months	-20°C to 45°C	-4°F to 113°F
		< 1 month	-20°C to 55°C	-4°F to 131°F

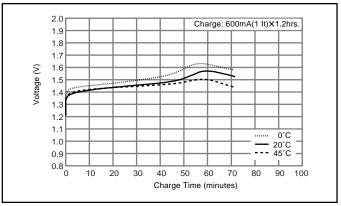
- \* After charging at 0.1lt for 16 hours, discharging at 0.2lt.
- \*\* For reference only.

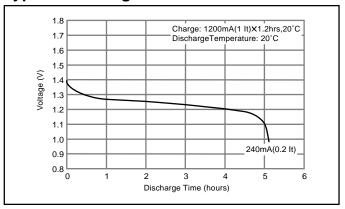
Battery performance and cycle life are strongly affected by how they are used. In order to maximize battery safety, please consult Panasonic when determining charge / discharge specs, warning label contents and unit design.

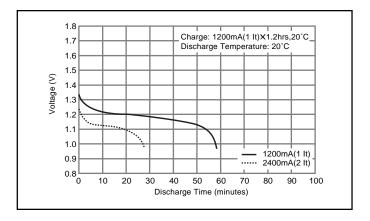
Note: [It] was previously expressed as [C]. [It] is an IEC standard expression for the amount of charge or discharge current and is expressed as: It(A) = Cn (Ah)/1h.

- [It] is the reference test current in ampres
- [Cn] is the rated capacity of the cell or battery in Ampere-hours. n = the time base [hours] for which the rated capacity is declared

### **Typical Charge Characteristics**



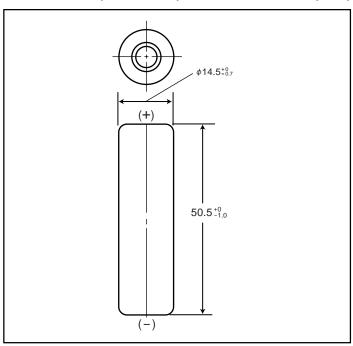




## HHR150AA Cylindrical AA size (HR 15/51)

### **Dimensions (with Tube)**

(mm)



### **Specifications**

	mm	inch
Diameter	14.5+0/-0.7	0.57+0/-0.03
Height	50.0+0/-1.0	1.97+0/-0.06
Approximate	Grams	Ounces
Weight	26	0.92

Nominal Voltage		1.2V		
Discharge Capacity*		Average**	1580 mAh	
		Rated (Min.)	1500 mAh	
Approx. Internal impedance at 1000Hz at charged state.		20mΩ		
Charge Standard		150mA (0.1lt) x 16hrs.		
	90	Rapid	1500mA (1lt) x 1.2 hrs.	
		Standard	°C	°F
gy .	Charge	Standard	0°C to 45°C	32°F to 113°F
其其		Rapid	0°C to 40°C	32°F to 104°F
Ambient Temperature	Dis	charge	-10°C to 65°C	14°F to 149°F
m M m		< 1 year	-20°C to 35°C	-4°F to 95°F
<u>P</u>	Storage	< 3 months	-20°C to 45°C	-4°F to 113°F
		< 1 month	-20°C to 55°C	-4°F to 131°F

- \* After charging at 0.1lt for 16 hours, discharging at 0.2lt.
- \*\* For reference only.

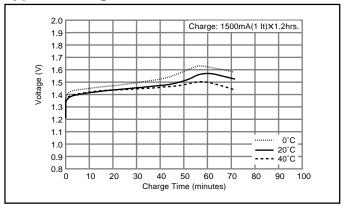
Battery performance and cycle life are strongly affected by how they are used. In order to maximize battery safety, please consult Panasonic when determining charge / discharge specs, warning label contents and unit design.

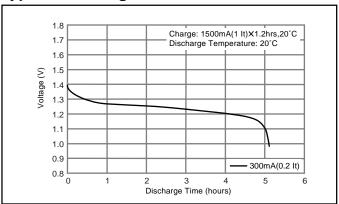
Note: [It] was previously expressed as [C]. [It] is an IEC standard expression for the amount of charge or discharge current and is expressed as:

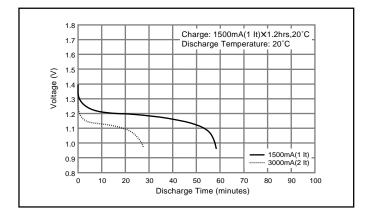
It(A) = Cn (Ah)/1h.

- [It] is the reference test current in ampres
- [Cn] is the rated capacity of the cell or battery in Ampere-hours. n = the time base [hours] for which the rated capacity is declared

### **Typical Charge Characteristics**



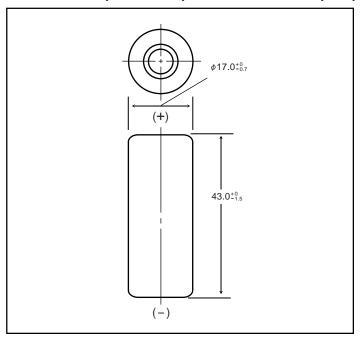




# HHR200A Cylindrical 4/5A size (HR 17/43)

### **Dimensions (with Tube)**

(mm)



### **Specifications**

	mm	inch
Diameter	17.0+0/-0.7	0.67+0/-0.03
Height	43.0+0/-1.5	1.69+0/-0.06
Approximate	Grams	Ounces
Weight	32	1.13

Nominal Voltage		1.2V		
Discharge Capacity*		Average**	2040 mAh	
		Rated (Min.)	2000 mAh	
Approx. Internal impedance at 1000Hz at charged state.		20mΩ		
Charge Standard		200mA (0.1lt) x 16hrs.		
	90	Rapid	2000mA (1lt) x 1.2 hrs.	
		Standard	°C	°F
ø	Charge	Standard	0°C to 45°C	32°F to 113°F
별		Rapid	0°C to 40°C	32°F to 104°F
bie	Dis	charge	-10°C to 65°C	14°F to 149°F
Ambient Temperature		< 1 year	-20°C to 35°C	-4°F to 95°F
_ P	Storage	< 3 months	-20°C to 45°C	-4°F to 113°F
		< 1 month	-20°C to 55°C	-4°F to 131°F

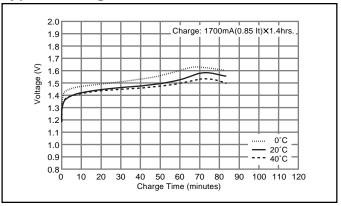
- \* After charging at 0.1lt for 16 hours, discharging at 0.2lt.
- \*\* For reference only.

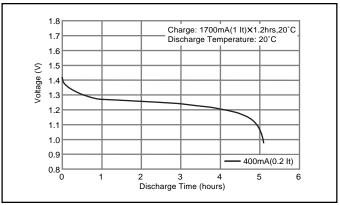
Battery performance and cycle life are strongly affected by how they are used. In order to maximize battery safety, please consult Panasonic when determining charge / discharge specs, warning label contents and unit design.

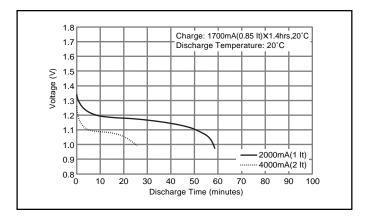
Note: [It] was previously expressed as [C]. [It] is an IEC standard expression for the amount of charge or discharge current and is expressed as: It(A) = Cn (Ah)/1h.

- [It] is the reference test current in ampres
- [Cn] is the rated capacity of the cell or battery in Ampere-hours. n = the time base [hours] for which the rated capacity is declared

### **Typical Charge Characteristics**



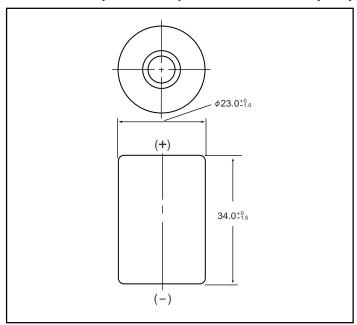




## HHR200SCP Cylindrical 4/5SC size (HR 23/34)

### **Dimensions (with Tube)**

(mm)



### **Specifications**

	mm	inch
Diameter	23.0+0/-0.1	0.91+0/-0.04
Height	34.0+0/-1.5	1.34+0/-0.06
Approximate	Grams	Ounces
Weight	42	1.48

Nominal Voltage		1.2V		
Discharge Capacity*		Average**	2100 mAh	
		Rated (Min.)	1900 mAh	
Approx. Internal impedance at 1000Hz at charged state.		5mΩ		
Charge Standard		200mA (0.1lt) x 16hrs.		
	90	Rapid	2000mA (1lt) x 1.2 hrs.	
		Standard	°C	°F
rt ure	Charge	Standard	0°C to 45°C	32°F to 113°F
ien		Rapid	0°C to 40°C	32°F to 104°F
m be	Dis	charge	-10°C to 65°C	14°F to 149°F
Ambient Temperature	Ctoroso	< 2 years	-20°C to 35°C	-4°F to 95°F
	Storage	< 6 months	-20°C to 45°C	-4°F to 113°F

- \* After charging at 0.1lt for 16 hours, discharging at 0.2lt.
- \*\* For reference only.

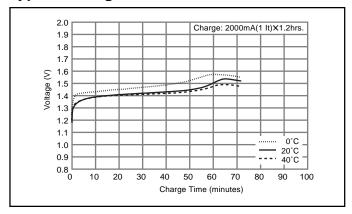
Battery performance and cycle life are strongly affected by how they are used. In order to maximize battery safety, please consult Panasonic when determining charge / discharge specs, warning label contents and unit design.

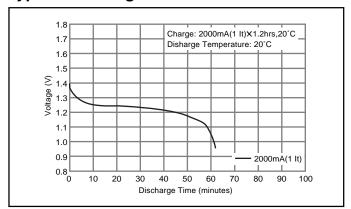
Note: [It] was previously expressed as [C]. [It] is an IEC standard expression for the amount of charge or discharge current and is expressed as: It(A) = Cn (Ah)/1h.

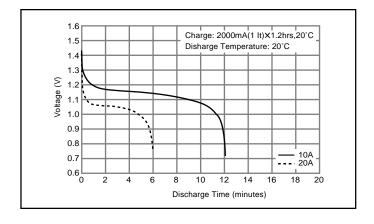
- [It] is the reference test current in ampres
- [Cn] is the rated capacity of the cell or battery in Ampere-hours.

  n = the time base [hours] for which the rated capacity is declared

### **Typical Charge Characteristics**



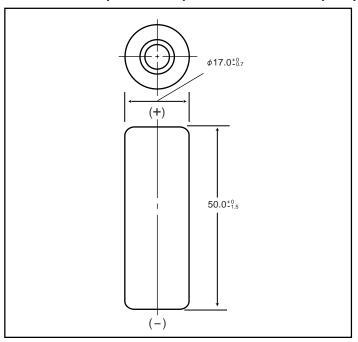




### HHR210A Cylindrical A size (HR 17/50)

### **Dimensions (with Tube)**

(mm)



#### **Specifications**

	mm	inch
Diameter	17.0+0/-0.7	0.67+0/-0.03
Height	50.0+0/-1.5	1.97+0/-0.06
Approximate	Grams	Ounces
Weight	38	1.34

Nominal Voltage		1.2V		
Discharge Capacity*		Average**	2200 mAh	
		Rated (Min.)	2100 mAh	
Approx. Internal impedance at 1000Hz at charged state.		20mΩ		
Charge Standard		210mA (0.1lt) x 16hrs.		
	90	Rapid	2100mA (1lt) x 1.2 hrs.	
		01	°C	°F
gy .	Charge	Standard	0°C to 45°C	32°F to 113°F
별		Rapid	0°C to 40°C	32°F to 104°F
bie	Dis	charge	-10°C to 65°C	14°F to 149°F
Ambient Temperature		< 1 year	-20°C to 35°C	-4°F to 95°F
_ P	Storage	< 3 months	-20°C to 45°C	-4°F to 113°F
		< 1 month	-20°C to 55°C	-4°F to 131°F

- \* After charging at 0.1lt for 16 hours, discharging at 0.2lt.
- \*\* For reference only.

Battery performance and cycle life are strongly affected by how they are used. In order to maximize battery safety, please consult Panasonic when determining charge / discharge specs, warning label contents and unit design.

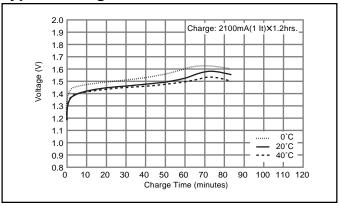
Note: [It] was previously expressed as [C]. [It] is an IEC standard expression for the amount of charge or discharge current and is expressed as:

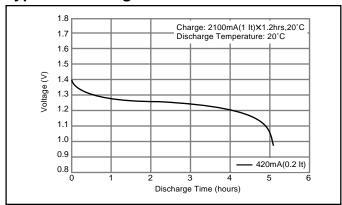
It(A) = Cn (Ah)/1h.

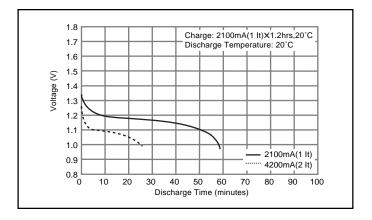
- [It] is the reference test current in ampres
- [Cn] is the rated capacity of the cell or battery in Ampere-hours.

  n = the time base [hours] for which the rated capacity is declared

### **Typical Charge Characteristics**



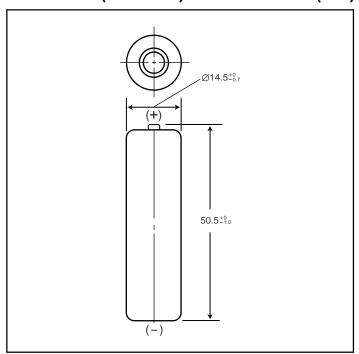




# HHR210AA/B Cylindrical AA size (HR 15/51)

### **Dimensions (with Tube)**

(mm)



### **Specifications**

	mm	inch
Diameter	14.5 +0/-0.7	0.57 +0/-0.3
Height	50.5 +0/-1.0	1.99 +0/-0.5
Approximate	Grams	Ounces
Weight	29	1.02

Nominal Voltage		1.2V		
Discharge Capacity*		Average**	2080mAh	
		Rated (Min.)	2000mAh	
Approx. internal Impedance at 1000Hz at charged state.		25m <b>Ω</b>		
Charge Standard		Standard	200mA (0.1lt) x 16 hrs.	
	Charge Rapid		1200mA (1lt) x 2 hrs.	
		Standard	°C	°F
ب ا	Charge		0°C to 45°C	32°F to 113°F
ent		Rapid	0°C to 40°C	32°F to 113°F
Ambient Temperature	Disch	narge	-10°C to 65°C	14°F to 149°F
Ar em		< 1 year	-20°C to 35°C	-4°F to 95°F
-	Storage	< 3 months	-20°C to 45°C	-4°F to 113°F
		< 1 month	-20°C to 55°C	-4°F to 131°F

<sup>\*</sup> After charging at 0.1lt for 16 hours, discharging at 0.2lt.

Battery performance and cycle life are strongly affected by how they are used. In order to maximize battery safety, please consult Panasonic when determining charge / discharge specs, warning label contents and unit design.

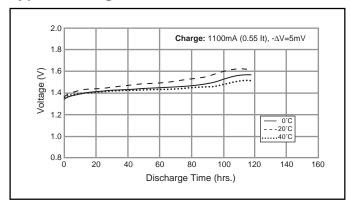
#### Note:

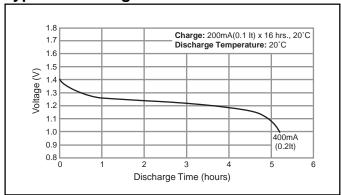
[It] was previously expressed as [C]. [It] is an IEC standard expression for the amount of charge or discharge current and is expressed as:  $It(A) = Cn \ (Ah)/1h$ 

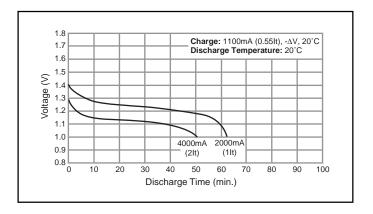
- \* [It] is the reference test current in ampres
- \* [Cn] is the rated capacity of the cell or battery in Ampere-hours.

  n = the time base [hours] for which the rated capacity is declared

### **Typical Charge Characteristics**





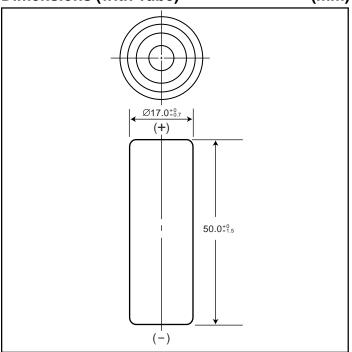


<sup>\*\*</sup> For reference only.

## HHR210AH Cylindrical A size (HR 17/50)

### **Dimensions (with Tube)**





### **Specifications**

	mm	inch
Diameter	17.0+0/-0.7	0.67+0/-0.03
Height	50.0+0/-1.5	1.97+0/-0.06
Approximate	Grams	Ounces
Weight	38	1.34

Nominal Voltage		1.2V		
Discharge Capacity <sup>1</sup>		Average <sup>2</sup>	2050	)mAh
		Rated (Min.)	1900mAh	
Approx. internal Impedance at 1000Hz at charged state.		20mΩ		
Standard		210mA (0.1	It) x 16 hrs.	
j	Charge Rapid		-	
		Standard	°C	°F
	Charge	Standard	-10°C to 60°C	14°F to 140°F
it ure		Rapid	-	-
bier erat	Discl	narge	-10°C to 60°C	14°F to 140°F
Ambient Temperature		< 1 year	-20°C to 35°C	-4°F to 95°F
	Storage	< 3 months	-20°C to 45°C	-4°F to 113°F
	Storage	< 1 month	-20°C to 55°C	-4°F to 131°F
		< 1 week	-20°C to 60°C	-4°F to 140°F

- After charging at 0.1lt for 16 hours, discharging at 0.2lt.
- <sup>2</sup> For reference only.

Battery performance and cycle life are strongly affected by how they are used. In order to maximize battery safety, please consult Panasonic when determining charge / discharge specs, warning label contents and unit design.

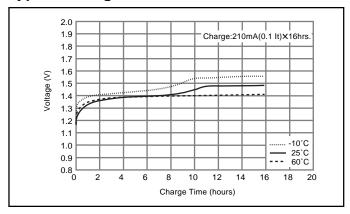
Note: [It] was previously expressed as [C]. [It] is an IEC standard expression for the amount of charge or discharge current and is expressed as:

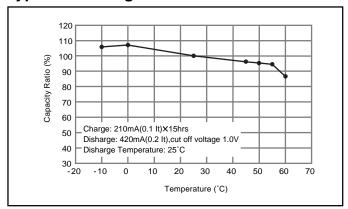
It(A) = Cn (Ah)/1h.

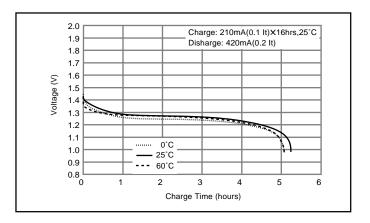
- [It] is the reference test current in ampres
- [Cn] is the rated capacity of the cell or battery in Ampere-hours.

  n = the time base [hours] for which the rated capacity is declared

### **Typical Charge Characteristics**



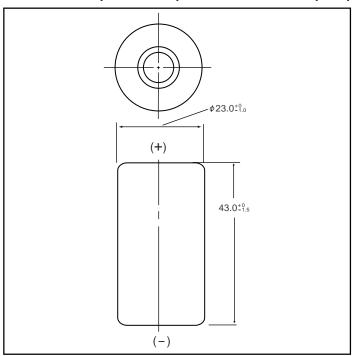




## HHR250SCH Cylindrical SC size (HR 23/43)

### **Dimensions (with Tube)**

(mm)



### **Specifications**

	mm	inch
Diameter	23.0+0/-1.0	0.91+0/-0.04
Height	43.0+0/-1.5	1.69+0/-0.06
Approximate	Grams	Ounces
Weight	55	1.94

Nominal Voltage			1.2V		
Discharge Average <sup>2</sup>		2650 mAh			
Capacity <sup>1</sup> Rated (Min.)		2500	mAh		
	pprox. Internal impedance it 1000Hz at charged state.		5n	5mΩ	
Standard		250mA	x 16hrs.		
CI	narge	Rapid <sup>3</sup>	1250mA	x 2.4 hrs.4	
Low Rate		125mA x 32 hrs. 83mA x 48 hrs.			
	Charge	Standard	<b>°C</b> -10°C to 60°C	<b>°F</b> 14°F to 140°F	
Ambient Temperature	Onlange	Rapid	-10°C to 45°C	14°F to 113°F	
ien ratı	Dis	charge	-10°C to 60°C	14°F to 140°F	
nb pe		< 1 year	-20°C to 35°C	-4°F to 95°F	
en Al	Storage < 6 months	< 6 months	-20°C to 45°C	-4°F to 113°F	
-	Otorage	< 1 month	-20°C to 55°C	-4°F to 131°F	
		< 1 week	-20°C to 65°C	-4°F to 149°F	

- $\stackrel{1}{\circ}$  After charging at 0.1lt for 16 hours, discharging at 0.2lt.
- <sup>2</sup> For reference only.
- Need specially designed control system Control System:

dT/dt cut-off; 1 to 2°C/min

 $-\triangle V$  cut-off;  $-\triangle V$  per cell = 5 to 10 mV

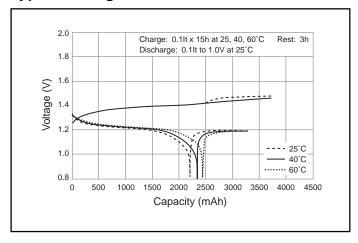
T-control; T=65°C

Rapid charger timer; 2.4h (at 1.25a)

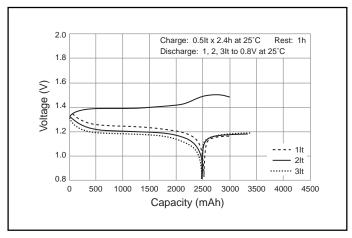
Trickle timer; within 2h 4 With control system

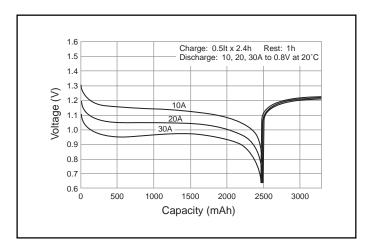
Battery performance and cycle life are strongly affected by how they are used. In order to maximize battery safety, please consult Panasonic when determining charge / discharge specs, warning label contents and unit design.

### **Typical Charge Characteristics**



### **Typical Discharge Characteristics**





[It] was previously expressed as [C]. [It] is an IEC standard expression for the amount of charge or discharge current and is expressed as: lt(A) = Cn (Ah)/1h

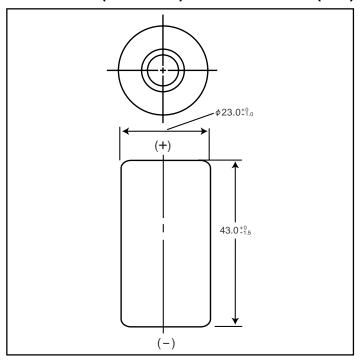
- \* [It] is the reference test current in ampres
- \* [Cn] is the rated capacity of the cell or battery in Ampere-hours. n = the time base [hours] for which the rated capacity is declared



# HHR260SCP Cylindrical SC size (HR 23/43)

### **Dimensions (with Tube)**

(mm)



### **Specifications**

	mm	inch
Diameter	23.0+0/-1.0	0.91+0/-0.04
Height	43.0+0/-1.5	1.69+0/-0.06
Approximate	Grams	Ounces
Weight	55	1.94

Nominal Voltage		1.2V			
Discharge Average <sup>2</sup>		2600 mAh			
Cap	Capacity <sup>1</sup> Rated (Min.)		2450	mAh	
		impedance	5n	<b>~</b> O	
at 100	00Hz at cha	rged state.	311	122	
Charge Standard		260mA x 16hrs.			
Ci	large	Rapid	2600mA x 1.2 hrs.		
		Standard	°C	°F	
อ	Charge	Stariuaru	0°C to 45°C	32°F to 113°F	
atn		Rapid	10°C to 40°C	50°F to 104°F	
bio	Dis	charge	-10°C to 65°C	14°F to 149°F	
Ambient Temperature		< 1 year	-20°C to 35°C	-4°F to 95°F	
e	Storage	< 3 months	-20°C to 45°C	-4°F to 113°F	
		< 1 month	-20°C to 55°C	-4°F to 131°F	

<sup>&</sup>lt;sup>1</sup> After charging at 0.1lt for 16 hours, discharging at 0.2lt.

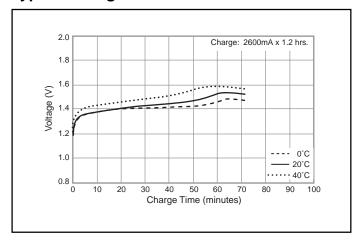
Battery performance and cycle life are strongly affected by how they are used. In order to maximize battery safety, please consult Panasonic when determining charge / discharge specs, warning label contents and unit design.

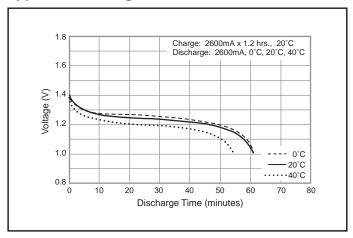
Note: [It] was previously expressed as [C]. [It] is an IEC standard expression for the amount of charge or discharge current and is expressed as: It(A) = Cn (Ah)/1h

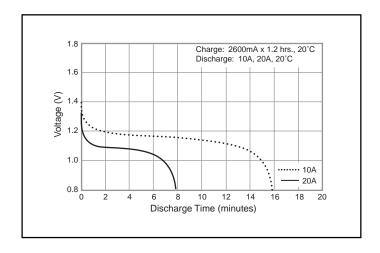
- \* [It] is the reference test current in ampres
- \* [Cn] is the rated capacity of the cell or battery in Ampere-hours.

  n = the time base [hours] for which the rated capacity is declared

### **Typical Charge Characteristics**





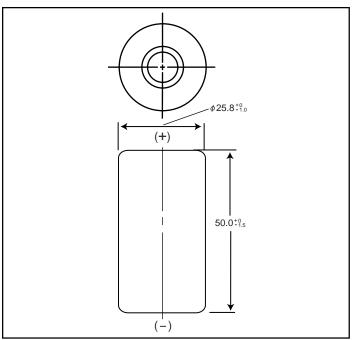


<sup>&</sup>lt;sup>2</sup> For reference only.

# HHR300CH Cylindrical C size (HR 26/50) for backup use

### **Dimensions (with Tube)**

(mm)



### **Specifications**

	mm	inch
Diameter	25.8+0/-1.0	1.02+0/-0.04
Height	50.0+0/-1.5	1.97+0/-0.06
Approximate	Grams	Ounces
Weight	80	2.82

Nominal Voltage		1.2V			
Discharge Average <sup>2</sup> Capacity <sup>1</sup> Rated (Min.)		3300 mAh			
		Rated (Min.)	3100	mAh	
Approx. Internal impedance at 1000Hz at charged state.		5mΩ			
Charge Standard  Charge Rapid <sup>3</sup> Low Rate		300mA (0.1	1lt) x 16hrs.		
		1500mA (1lt) x 2.4 hrs.4			
		155mA x 32 hrs. 100mA x 48 hrs.			
		Standard	°C	°F	
	Chargo	Standard	0°C to 45°C	32°F to 113°F	
t ure	Charge	Rapid	10°C to 40°C	32°F to 104°F	
ien ratı		Low Rate	-10°C to 45°C	14°F to 149°F	
mb odr	Discharge		-10°C to 65°C	14°F to 113°F	
A Ten	Storage < 3 m	< 1 year	-20°C to 35°C	-4°F to 95°F	
•		< 3 months	-20°C to 35°C	-4°F to 95°F	
		< 1 month	-20°C to 55°C	-4°F to 131°F	

- <sup>1</sup> After charging at 0.1lt for 16 hours, discharging at 0.2lt.
- 2 For reference only.
- <sup>3</sup> Need specially designed control system

#### Control System:

dT/dt cut-off; 1 to 2°C/min

- $\triangle$ V cut-off; - $\triangle$ V per cell = 5 to 10 mV

T-control; T=65°C

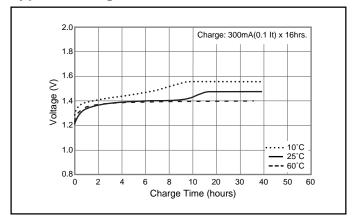
Rapid charger timer; 2.4h (at 1.25a)

Trickle timer; within 2h

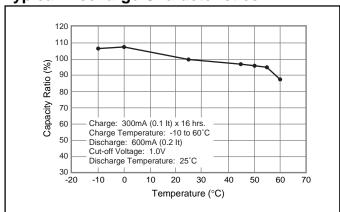
<sup>4</sup> With control system

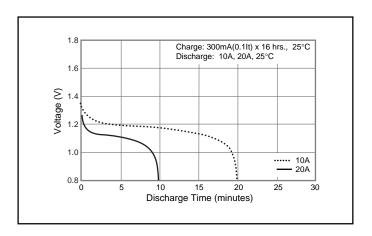
Battery performance and cycle life are strongly affected by how they are used. In order to maximize battery safety, please consult Panasonic when determining charge / discharge specs, warning label contents and unit design.

### **Typical Charge Characteristics**



### **Typical Discharge Characteristics**





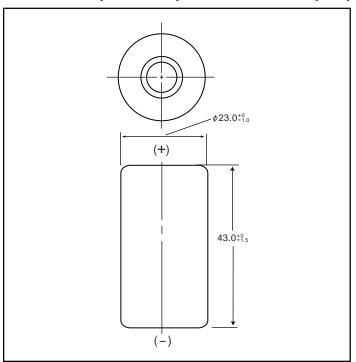
Note: [It] was previously expressed as [C]. [It] is an IEC standard expression for the amount of charge or discharge current and is expressed as: It(A) = Cn (Ah)/1h.

- [It] is the reference test current in ampres
- [Cn] is the rated capacity of the cell or battery in Ampere-hours. n = the time base [hours] for which the rated capacity is declared

# HHR300SCP Cylindrical SC size (HR 23/43)

### **Dimensions (with Tube)**

(mm)



### **Specifications**

	mm	inch
Diameter	23.0+0/-0.1	0.91+0/-0.04
Height	43.0+0/-1.5	1.69+0/-0.06
Approximate	Grams	Ounces
Weight	57	2.01

Nominal Voltage		1.2V		
Discharge Capacity*		Average**	3050 mAh	
		Rated (Min.)	2800 mAh	
Approx. Internal impedance at 1000Hz at charged state.		4mΩ		
Charge Standard		300mA (0.1lt) x 16hrs.		
	g-	Rapid	3000mA (1lt) x 1.2 hrs.	
_		Standard	°C	°F
ıt ure	Charge	Standard	0°C to 45°C	32°F to 113°F
ien		Rapid	0°C to 40°C	32°F to 104°F
m adu	Discharge		-10°C to 65°C	14°F to 149°F
Ambient Temperature	Ctorogo	< 2 years	-20°C to 35°C	-4°F to 95°F
⊢ Storage	< 6 months	-20°C to 45°C	-4°F to 113°F	

- \* After charging at 0.1lt for 16 hours, discharging at 0.2lt.
- \*\* For reference only.

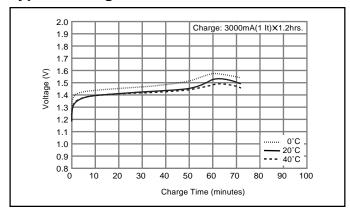
Battery performance and cycle life are strongly affected by how they are used. In order to maximize battery safety, please consult Panasonic when determining charge / discharge specs, warning label contents and unit design.

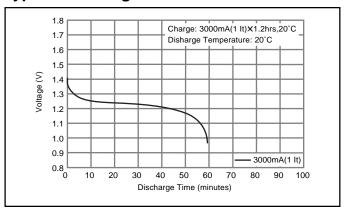
Note: [It] was previously expressed as [C]. [It] is an IEC standard expression for the amount of charge or discharge current and is expressed as: It(A) = Cn (Ah)/1h.

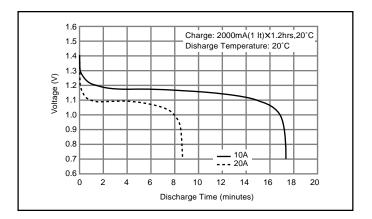
- [It] is the reference test current in ampres
- [Cn] is the rated capacity of the cell or battery in Ampere-hours.

  n = the time base [hours] for which the rated capacity is declared

### **Typical Charge Characteristics**



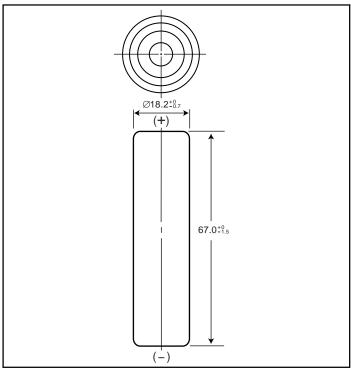




# HHR330APH Cylindrical L-Fat A size (HR 18/67)

### **Dimensions (with Tube)**

(mm)



#### **Specifications**

	mm	inch
Diameter	18.2+0/-0.7	0.72+0/-0.03
Height	67.0+0/-1.5	2.64+0/-0.06
Approximate	Grams	Ounces
Weight	60	2.12

	Nominal Voltage		1.2V	
Discharge Average <sup>2</sup>		3300 mAh		
Cap	Capacity <sup>1</sup> Rated (Min.)		3200	mAh
Appro	x. Internal	impedance	5.5	mΩ
at 100	00Hz at cha	rged state.	5.5	11122
	Standard		330mA	x 16hrs.
CI	harge	Rapid <sup>3</sup>	1650mA	x 2.4 hrs.4
		Low Rate	165mA x 32 hrs.	
		LOW Rate	110mA x 48 hrs.	
		Standard	°C	°F
•	Charge	Standard	-10°C to 60°C	14°F to 140°F
ıt ure		Rapid	-10°C to 45°C	14°F to 113°F
ien rat	Dis	charge	-10°C to 60°C	14°F to 140°F
Ambient Temperature		< 1 year	-20°C to 35°C	-4°F to 95°F
A E Storog	Storage	< 6 months	-20°C to 45°C	-4°F to 113°F
<u> </u>	Otorage	< 1 month	-20°C to 55°C	-4°F to 131°F
		< 1 week	-20°C to 65°C	-4°F to 149°F

- After charging at 0.1lt for 16 hours, discharging at 0.2lt.
- <sup>2</sup> For reference only.
- Need specially designed control system

#### Control System:

dT/dt cut-off; 1 to 2°C/min

 $-\triangle V$  cut-off;  $-\triangle V$  per cell = 5 to 10 mV

T-control; T=65°C

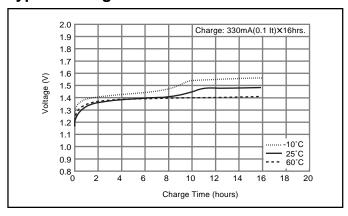
Rapid charger timer; 2.4h (at 1.25a)

Trickle timer; within 2h

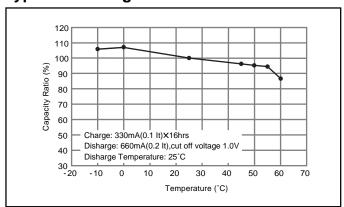
<sup>4</sup> With control system

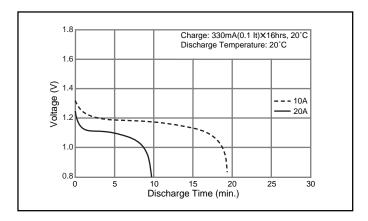
Battery performance and cycle life are strongly affected by how they are used. In order to maximize battery safety, please consult Panasonic when determining charge / discharge specs, warning label contents and unit design.

#### **Typical Charge Characteristics**



### **Typical Discharge Characteristics**





Note: [It] was previously expressed as [C]. [It] is an IEC standard expression for the amount of charge or discharge current and is expressed as: It(A) = Cn (Ah)/1h.

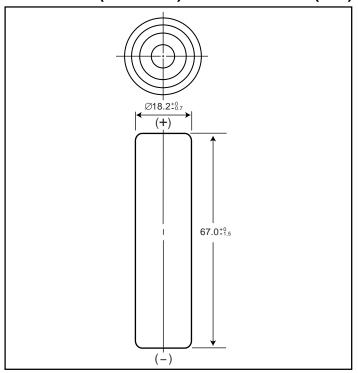
- [It] is the reference test current in ampres
- [Cn] is the rated capacity of the cell or battery in Ampere-hours. n = the time base [hours] for which the rated capacity is declared



### HHR370AH Cylindrical L-Fat A size (HR 18/67)

### **Dimensions (with Tube)**

(mm)



### **Specifications**

	mm	inch
Diameter	18.2+0/-0.7	0.72+0/-0.03
Height	67.0+0/-1.5	2.64+0/-0.06
Approximate	Grams	Ounces
Weight	60	2.12

Nominal Voltage			1.2V			
Discharge		Average <sup>2</sup>	3700 mAh			
Cap	acity <sup>1</sup>	Rated (Min.)	3500 mAh			
Approx. Internal impedance at 1000Hz at charged state.		20mΩ				
Standard		370mA	x 16hrs.			
CI	narge	Rapid <sup>3</sup>	1750mA	x 2.4 hrs.4		
Low Rate		185mA x 32 hrs. 123mA x 48 hrs.				
		Standard	°C	°F		
4	Charge	Stariuaru	-10°C to 60°C	14°F to 140°F		
# E		Rapid	-10°C to 45°C	14°F to 113°F		
ien	Dis	charge	-10°C to 60°C	14°F to 140°F		
nb pe		< 1 year	-20°C to 35°C	-4°F to 95°F		
Ambient Temperature	Storage	< 6 months	-20°C to 45°C	-4°F to 113°F		
	Otorage	< 1 month	-20°C to 55°C	-4°F to 131°F		
		< 1 week	-20°C to 65°C	-4°F to 149°F		

- After charging at 0.1lt for 16 hours, discharging at 0.2lt.
- <sup>2</sup> For reference only.
- Need specially designed control system

#### Control System:

dT/dt cut-off; 1 to 2°C/min

 $-\triangle V$  cut-off;  $-\triangle V$  per cell = 5 to 10 mV

T-control; T=65°C

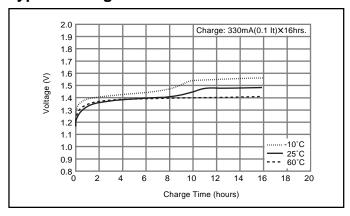
Rapid charger timer; 2.4h (at 1.25a)

Trickle timer; within 2h

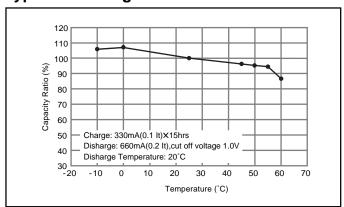
<sup>4</sup> With control system

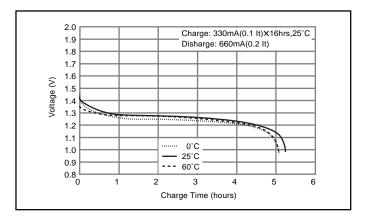
Battery performance and cycle life are strongly affected by how they are used. In order to maximize battery safety, please consult Panasonic when determining charge / discharge specs, warning label contents and unit design.

#### **Typical Charge Characteristics**



### **Typical Discharge Characteristics**





Note: [It] was previously expressed as [C]. [It] is an IEC standard expression for the amount of charge or discharge current and is expressed as: It(A) = Cn (Ah)/1h.

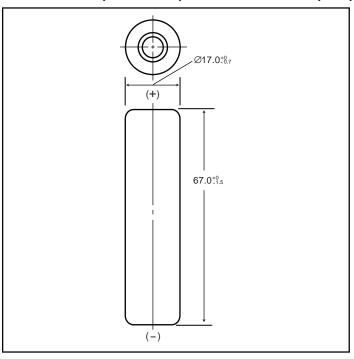
- [It] is the reference test current in ampres
- [Cn] is the rated capacity of the cell or battery in Ampere-hours. n = the time base [hours] for which the rated capacity is declared



## HHR380A Cylindrical L-A size (HR 17/67)

### **Dimensions (with Tube)**

(mm)



### **Specifications**

	mm	inch
Diameter	17.0+0/-0.7	0.67+0/-0.03
Height	67.0+0/-1.5	2.64+0/-0.06
Approximate	Grams	Ounces
Weight	53	1.87

Nominal Voltage		1.2V		
Discharge		Average**	3800 mAh	
Сар	acity*	Rated (Min.)	3700 mAh	
		impedance rged state.	25mΩ	
Charge Standard		370mA (0.1	IIt) x 16hrs.	
	Rapid***		2000mA dT/dt	
		Standard	°C	°F
စ	Charge		0°C to 45°C	32°F to 113°F
t I		Rapid	0°C to 40°C	32°F to 104°F
Ambient Temperature	Dis	charge	-10°C to 65°C	14°F to 149°F
Am		< 1 year	-20°C to 35°C	-4°F to 95°F
₽	Storage	< 3 months	-20°C to 45°C	-4°F to 113°F
		< 1 month	-20°C to 55°C	-4°F to 131°F

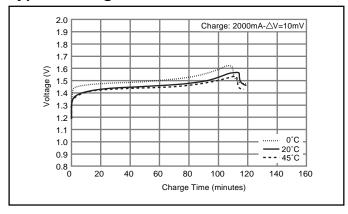
- \* After charging at 0.1lt for 16 hours, discharging at 0.2lt.
- \*\* For reference only.
- \*\*\* For rapid charge: use dT/dt charge termination method. Refer to the Nickel Metal Hydride "Charge Methods" section for further details. Battery performance and cycle life are strongly affected by how they are used. In order to maximize battery safety, please consult Panasonic when determining charge / discharge specs, warning label contents and unit design.

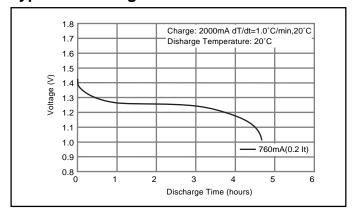
Note: [It] was previously expressed as [C]. [It] is an IEC standard expression for the amount of charge or discharge current and is expressed as: It(A) = Cn (Ah)/1h.

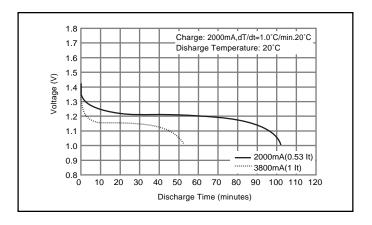
- [It] is the reference test current in ampres
- [Cn] is the rated capacity of the cell or battery in Ampere-hours.

  n = the time base [hours] for which the rated capacity is declared

### **Typical Charge Characteristics**



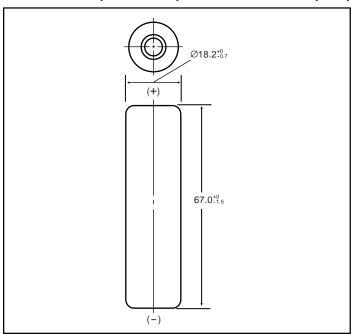




## HHR450A Cylindrical L-fat A size (HR 18/67)

### **Dimensions (with Tube)**

(mm)



### **Specifications**

	mm	inch
Diameter	18.2+0/-0.7	0.72+0/-0.03
Height	67.0+0/-1.5	2.64+0/-0.06
Approximate	Grams	Ounces
Weight	60	2.12

Nominal Voltage		1.2V		
Discharge Average*		Average**	4500	mAh
Сар	acity*	Rated (Min.)	4200	mAh
Approx. Internal impedance at 1000Hz at charged state.		25mΩ		
Charge Standard		420mA (0.1lt) x 16hrs.		
	g-	Rapid***	2000mA dT/dt	
		Standard	°C	°F
ė	Charge	Staridard	0°C to 45°C	32°F to 113°F
별		Rapid	0°C to 40°C	32°F to 104°F
Ambient Temperature	Dis	charge	-10°C to 65°C	14°F to 149°F
Am		< 1 year	-20°C to 35°C	-4°F to 95°F
₽	Storage	< 3 months	-20°C to 45°C	-4°F to 113°F
		< 1 month	-20°C to 55°C	-4°F to 131°F

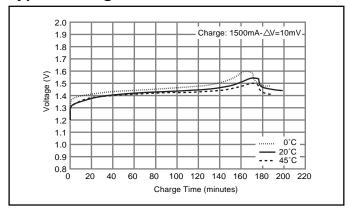
- \* After charging at 0.1lt for 16 hours, discharging at 0.2lt.
- \*\* For reference only.
- \*\*\* For rapid charge: use dT/dt charge termination method. Refer to the Nickel Metal Hydride "Charge Methods" section for further details. Battery performance and cycle life are strongly affected by how they are used. In order to maximize battery safety, please consult Panasonic when determining charge / discharge specs, warning label contents and unit design.

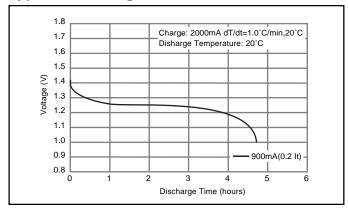
Note: [It] was previously expressed as [C]. [It] is an IEC standard expression for the amount of charge or discharge current and is expressed as: It(A) = Cn (Ah)/1h.

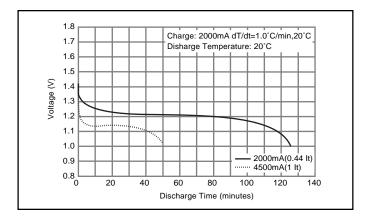
- [It] is the reference test current in ampres
- [Cn] is the rated capacity of the cell or battery in Ampere-hours.

  n = the time base [hours] for which the rated capacity is declared

### **Typical Charge Characteristics**



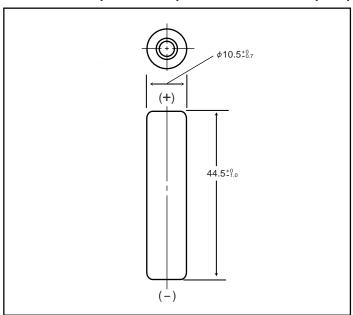




# HHR60AAAH Cylindrical AAA size (HR 11/45)

### **Dimensions (with Tube)**

(mm)



### **Specifications**

	mm	inch
Diameter	10.5 +0/-0.7	0.41 +0/-0.03
Height	44.5 +0/-1.0	1.75 +0/-0.04
Approximate	Grams	Ounces
Weight	13	0.46

Nominal Voltage		1.2V		
Disc	harge	Average <sup>2</sup>	550 mAh	
Cap	acity <sup>1</sup>	Rated (Min.)	500	mAh
Approx. Internal impedance at 1000Hz at charged state.		35mΩ		
		Standard	50mA >	c 16hrs.
CI	narge	Rapid <sup>3</sup>	250mA x	2.4 hrs.4
	3	Low Rate	25mA x 32 hrs.	
		LOW Rate	17mA x 48 hrs.	
		Standard	°C	°F
	Charge	Staridard	-10°C to 60°C	14°F to 140°F
# P		Rapid	-10°C to 45°C	14°F to 113°F
ien	Dis	charge	-10°C to 60°C	14°F to 140°F
Ambient mperatu		< 1 year	-20°C to 35°C	-4°F to 95°F
Ambient Temperature	Storage	< 6 months	-20°C to 45°C	-4°F to 113°F
-	O.O. age	< 1 month	-20°C to 55°C	-4°F to 131°F
		< 1 week	-20°C to 65°C	-4°F to 149°F

- After charging at 0.1lt for 16 hours, discharging at 0.2lt.
- For reference only.
- Need specially designed control system Control System:

dT/dt cut-off; 1 to 2°C/min

-△V cut-off; -△V per cell = 5 to 10 mV

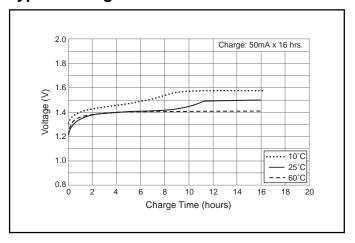
T-control; T=65°C

Rapid charger timer; 2.4h (at 1.25a)

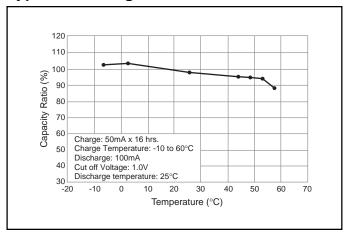
Trickle timer; within 2h

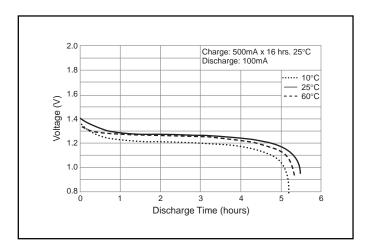
Battery performance and cycle life are strongly affected by how they are used. In order to maximize battery safety, please consult Panasonic when determining charge / discharge specs, warning label contents and unit design

### **Typical Charge Characteristics**



### **Typical Discharge Characteristics**





Note: [It] was previously expressed as [C]. [It] is an IEC standard expression for the amount of charge or discharge current and is expressed as: It(A) = Cn (Ah)/1h

- \* [It] is the reference test current in ampres
- $^{\star}$  [Cn] is the rated capacity of the cell or battery in Ampere-hours. n = the time base [hours] for which the rated capacity is declared

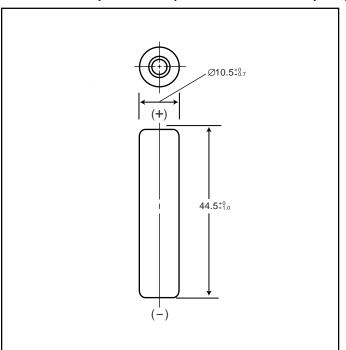


<sup>&</sup>lt;sup>4</sup> With control system

### HHR70AAAJ Cylindrical HR AAA size (HR 11/45)

### **Dimensions (with Tube)**

(mm)



### **Specifications**

	mm	inch
Diameter	10.5+0/-0.7	0.41+0/-0.03
Height	44.5+0/-1.0	1.75+0/-0.04
Approximate	Grams	Ounces
Weight	13	0.46

Nominal Voltage		1.2V		
Discharge Capacity*		Average**	720 mAh	
		Rated (Min.)	700 mAh	
Approx. Internal impedance at 1000Hz at charged state.		30mΩ		
CI	Charge Standard Rapid		70mA (0.1lt) x 16hrs.	
			650mA (1lt) x 1.2 hrs.	
		Standard	°C	°F
ري	Charge	Standard	0°C to 45°C	32°F to 113°F
t ţ		Rapid	0°C to 40°C	32°F to 104°F
Ambient Temperature	Dis	charge	-10°C to 65°C	14°F to 149°F
Am		< 1 year	-20°C to 35°C	-4°F to 95°F
<u>P</u>	Storage	< 3 months	-20°C to 45°C	-4°F to 113°F
		< 1 month	-20°C to 55°C	-4°F to 131°F

- \* After charging at 0.1lt for 16 hours, discharging at 0.2lt.
- \*\* For reference only.

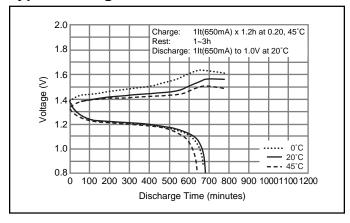
Battery performance and cycle life are strongly affected by how they are used. In order to maximize battery safety, please consult Panasonic when determining charge / discharge specs, warning label contents and unit design.

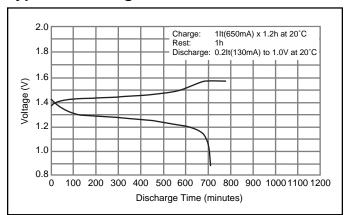
Note: [It] was previously expressed as [C]. [It] is an IEC standard expression for the amount of charge or discharge current and is expressed as: lt(A) = Cn (Ah)/1h.

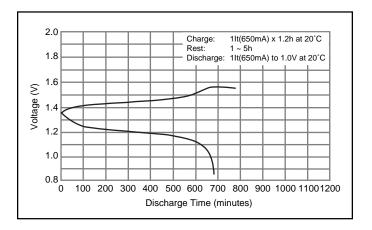
- [It] is the reference test current in ampres
- [Cn] is the rated capacity of the cell or battery in Ampere-hours.

  n = the time base [hours] for which the rated capacity is declared

### **Typical Charge Characteristics**



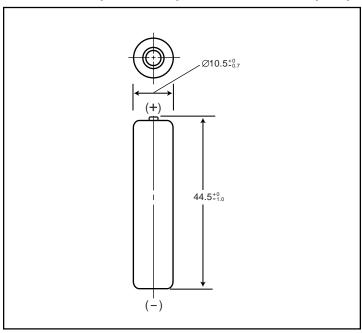




## HHR75AAA/B Cylindrical AAA size (HR 11/45)

### **Dimensions (with Tube)**

(mm)



### **Specifications**

	mm	inch
Diameter	10.5+0/-0.7	0.41+0/-0.03
Height	44.5+0/-1.0	1.75+0/-0.04
Approximate	Grams	Ounces
Weight	12	0.42

Nominal Voltage		1.2V		
Discharge Capacity*		Average**	730 mAh	
		Rated (Min.)	700 mAh	
Approx. Internal impedance at 1000Hz at charged state.		35mΩ		
Charge Standard		70mA x 16hrs.		
	90	Rapid	450mA x 1.7 hrs.	
		Standard	°C	°F
ø	Charge	Standard	0°C to 45°C	32°F to 113°F
별		Rapid	0°C to 40°C	32°F to 104°F
bie	Dis	charge	-10°C to 65°C	14°F to 149°F
Ambient Temperature		< 1 year	-20°C to 35°C	-4°F to 95°F
	Storage	< 3 months	-20°C to 45°C	-4°F to 113°F
		< 1 month	-20°C to 55°C	-4°F to 131°F

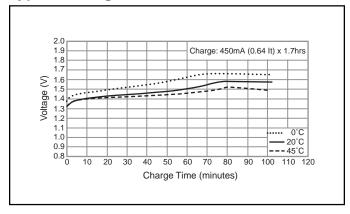
<sup>\*</sup> After charging at 0.1lt for 16 hours, discharging at 0.2lt.

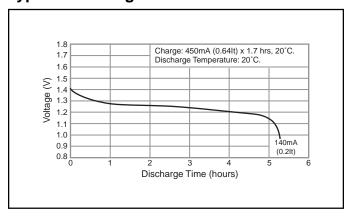
Battery performance and cycle life are strongly affected by how they are used. In order to maximize battery safety, please consult Panasonic when determining charge / discharge specs, warning label contents and unit design.

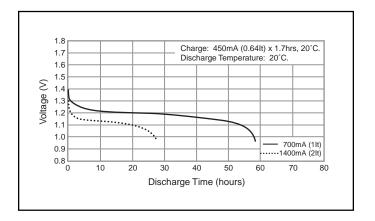
Note: [It] was previously expressed as [C]. [It] is an IEC standard expression for the amount of charge or discharge current and is expressed as: It(A) = Cn (Ah)/1h.

- [It] is the reference test current in ampres
- [Cn] is the rated capacity of the cell or battery in Ampere-hours. n = the time base [hours] for which the rated capacity is declared

### **Typical Charge Characteristics**





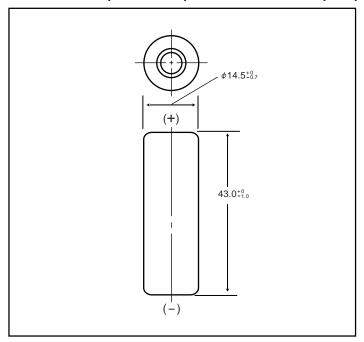


<sup>\*\*</sup> For reference only.

## HHR120AA Cylindrical 4/5AA size (HR 15/43)

### **Dimensions (with Tube)**

(mm)



### **Specifications**

	mm	inch
Diameter	14.5+0/-0.7	0.57+0/-0.03
Height	43.0+0/-1.0	1.69+0/-0.04
Approximate	Grams	Ounces
Weight	23	0.81

Nominal Voltage		1.2V		
Discharge Capacity*		Average**	1220 mAh	
		Rated (Min.)	1150 mAh	
	Approx. Internal impedance at 1000Hz at charged state.		19mΩ	
Charge Standard		120mA (0.1lt) x 16hrs.		
	90	Rapid	1200mA (1lt) x 1.2 hrs.	
		Standard	°C	°F
gu	Charge	Standard	0°C to 45°C	32°F to 113°F
i i j		Rapid	0°C to 40°C	32°F to 104°F
bie	Dis	charge	-10°C to 65°C	14°F to 149°F
Ambient Temperature		< 1 year	-20°C to 35°C	-4°F to 95°F
<u> </u>	Storage	< 3 months	-20°C to 45°C	-4°F to 113°F
		< 1 month	-20°C to 55°C	-4°F to 131°F

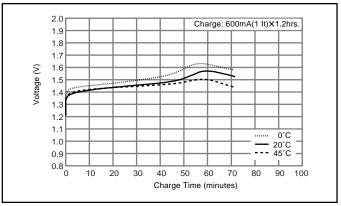
- \* After charging at 0.1lt for 16 hours, discharging at 0.2lt.
- \*\* For reference only.

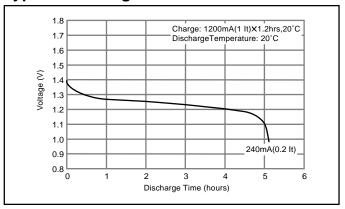
Battery performance and cycle life are strongly affected by how they are used. In order to maximize battery safety, please consult Panasonic when determining charge / discharge specs, warning label contents and unit design.

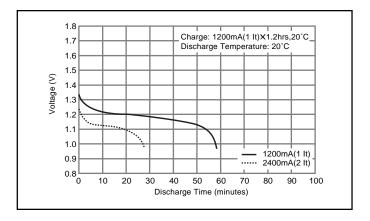
Note: [It] was previously expressed as [C]. [It] is an IEC standard expression for the amount of charge or discharge current and is expressed as: It(A) = Cn (Ah)/1h.

- [It] is the reference test current in ampres
- [Cn] is the rated capacity of the cell or battery in Ampere-hours. n = the time base [hours] for which the rated capacity is declared

### **Typical Charge Characteristics**



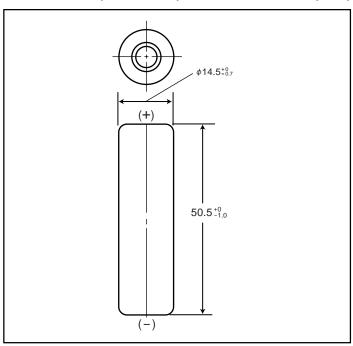




## HHR150AA Cylindrical AA size (HR 15/51)

### **Dimensions (with Tube)**

(mm)



### **Specifications**

	mm	inch
Diameter	14.5+0/-0.7	0.57+0/-0.03
Height	50.0+0/-1.0	1.97+0/-0.06
Approximate	Grams	Ounces
Weight	26	0.92

Nominal Voltage		1.2V		
Discharge Capacity*		Average**	1580 mAh	
		Rated (Min.)	1500 mAh	
Approx. Internal impedance at 1000Hz at charged state.		20mΩ		
Charge Standard		150mA (0.1lt) x 16hrs.		
	90	Rapid	1500mA (1lt) x 1.2 hrs.	
		Standard	°C	°F
gy .	Charge	Standard	0°C to 45°C	32°F to 113°F
其其		Rapid 0°	0°C to 40°C	32°F to 104°F
Ambient Temperature	Dis	charge	-10°C to 65°C	14°F to 149°F
Am		< 1 year	-20°C to 35°C	-4°F to 95°F
<u>P</u>	Storage	< 3 months	-20°C to 45°C	-4°F to 113°F
		< 1 month	-20°C to 55°C	-4°F to 131°F

- \* After charging at 0.1lt for 16 hours, discharging at 0.2lt.
- \*\* For reference only.

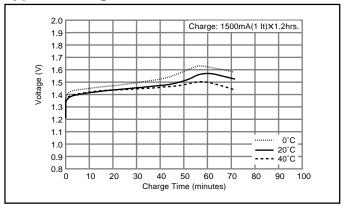
Battery performance and cycle life are strongly affected by how they are used. In order to maximize battery safety, please consult Panasonic when determining charge / discharge specs, warning label contents and unit design.

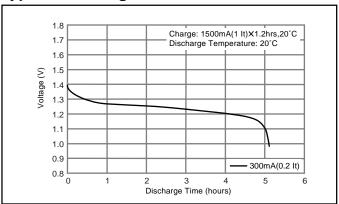
Note: [It] was previously expressed as [C]. [It] is an IEC standard expression for the amount of charge or discharge current and is expressed as:

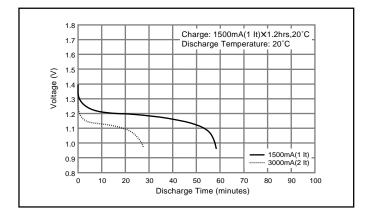
It(A) = Cn (Ah)/1h.

- [It] is the reference test current in ampres
- [Cn] is the rated capacity of the cell or battery in Ampere-hours. n = the time base [hours] for which the rated capacity is declared

### **Typical Charge Characteristics**



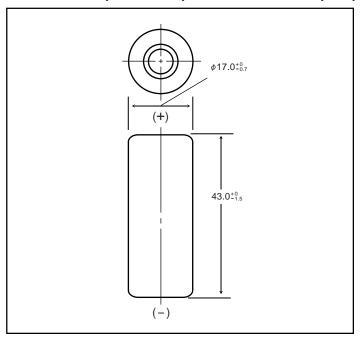




# HHR200A Cylindrical 4/5A size (HR 17/43)

### **Dimensions (with Tube)**

(mm)



### **Specifications**

	mm	inch
Diameter	17.0+0/-0.7	0.67+0/-0.03
Height	43.0+0/-1.5	1.69+0/-0.06
Approximate	Grams	Ounces
Weight	32	1.13

Nominal Voltage		1.2V		
Discharge Capacity*		Average**	2040 mAh	
		Rated (Min.)	2000 mAh	
		impedance rged state.	20m()	
Charge Standard		200mA (0.1lt) x 16hrs.		
	90	Rapid	2000mA (1lt) x 1.2 hrs.	
		Standard	°C	°F
ø	Charge	Standard	0°C to 45°C	32°F to 113°F
별		Rapid	0°C to 40°C	32°F to 104°F
Ambient Temperature	Dis	charge	-10°C to 65°C	14°F to 149°F
Am p		< 1 year	-20°C to 35°C	-4°F to 95°F
_ P	Storage	< 3 months	-20°C to 45°C	-4°F to 113°F
		< 1 month	-20°C to 55°C	-4°F to 131°F

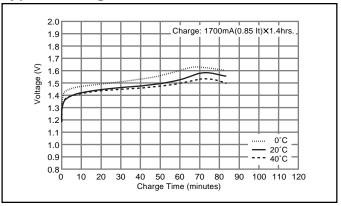
- \* After charging at 0.1lt for 16 hours, discharging at 0.2lt.
- \*\* For reference only.

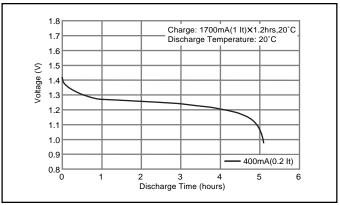
Battery performance and cycle life are strongly affected by how they are used. In order to maximize battery safety, please consult Panasonic when determining charge / discharge specs, warning label contents and unit design.

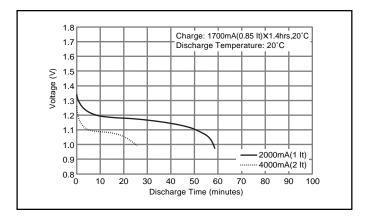
Note: [It] was previously expressed as [C]. [It] is an IEC standard expression for the amount of charge or discharge current and is expressed as: It(A) = Cn (Ah)/1h.

- [It] is the reference test current in ampres
- [Cn] is the rated capacity of the cell or battery in Ampere-hours. n = the time base [hours] for which the rated capacity is declared

### **Typical Charge Characteristics**



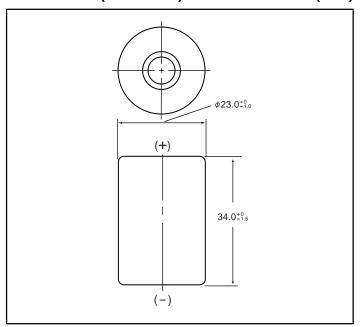




(mm)

## HHR200SCP Cylindrical 4/5SC size (HR 23/34)

### **Dimensions (with Tube)**



### **Specifications**

	mm	inch
Diameter	23.0+0/-0.1	0.91+0/-0.04
Height	34.0+0/-1.5	1.34+0/-0.06
Approximate	Grams	Ounces
Weight	42	1.48

	Nominal V	oltage	1.2V	
Discharge Capacity*		Average**	2100 mAh	
		Rated (Min.)	1900 mAh	
Approx. Internal impedance at 1000Hz at charged state.		5mΩ		
Charge Standard		200mA (0.1lt) x 16hrs.		
	g-	Rapid	2000mA (1It) x 1.2 hrs.	
		Standard	°C	°F
rt ure	Charge	Standard	0°C to 45°C	32°F to 113°F
ien		Rapid	0°C to 40°C	32°F to 104°F
m bedr	Dis	charge	-10°C to 65°C	14°F to 149°F
Ambient Temperature	Storogo	< 2 years	-20°C to 35°C	-4°F to 95°F
	Storage	< 6 months	-20°C to 45°C	-4°F to 113°F

- \* After charging at 0.1lt for 16 hours, discharging at 0.2lt.
- \*\* For reference only.

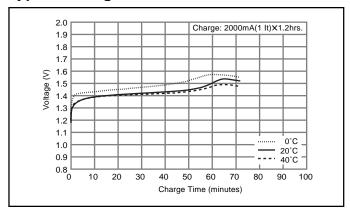
Battery performance and cycle life are strongly affected by how they are used. In order to maximize battery safety, please consult Panasonic when determining charge / discharge specs, warning label contents and unit design.

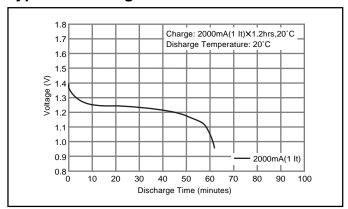
Note: [It] was previously expressed as [C]. [It] is an IEC standard expression for the amount of charge or discharge current and is expressed as: It(A) = Cn (Ah)/1h.

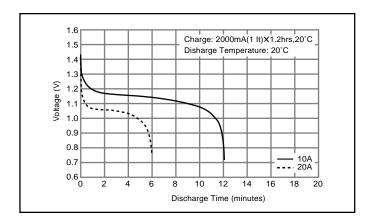
- [It] is the reference test current in ampres
- [Cn] is the rated capacity of the cell or battery in Ampere-hours.

  n = the time base [hours] for which the rated capacity is declared

### **Typical Charge Characteristics**



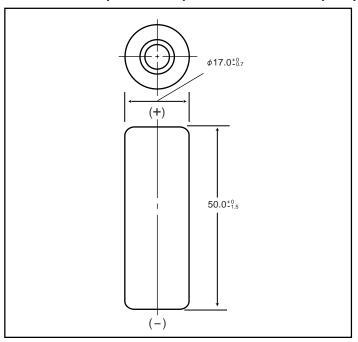




### HHR210A Cylindrical A size (HR 17/50)

### **Dimensions (with Tube)**

(mm)



#### **Specifications**

	mm	inch
Diameter	17.0+0/-0.7	0.67+0/-0.03
Height	50.0+0/-1.5	1.97+0/-0.06
Approximate	Grams	Ounces
Weight	38	1.34

Nominal Voltage		1.2V		
Discharge Capacity*		Average**	2200 mAh	
		Rated (Min.)	2100 mAh	
Approx. Internal impedance at 1000Hz at charged state.		20mΩ		
Charge Standard		210mA (0.1lt) x 16hrs.		
	90	Rapid	2100mA (1lt) x 1.2 hrs.	
		01	°C	°F
gy .	Charge	Standard	0°C to 45°C	32°F to 113°F
별		Rapid	0°C to 40°C	32°F to 104°F
bie	Dis	charge	-10°C to 65°C	14°F to 149°F
Ambient Temperature		< 1 year	-20°C to 35°C	-4°F to 95°F
_ P	Storage	< 3 months	-20°C to 45°C	-4°F to 113°F
		< 1 month	-20°C to 55°C	-4°F to 131°F

- \* After charging at 0.1lt for 16 hours, discharging at 0.2lt.
- \*\* For reference only.

Battery performance and cycle life are strongly affected by how they are used. In order to maximize battery safety, please consult Panasonic when determining charge / discharge specs, warning label contents and unit design.

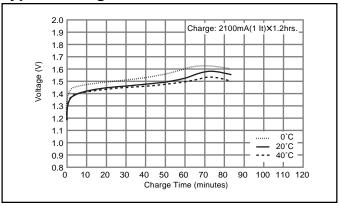
Note: [It] was previously expressed as [C]. [It] is an IEC standard expression for the amount of charge or discharge current and is expressed as:

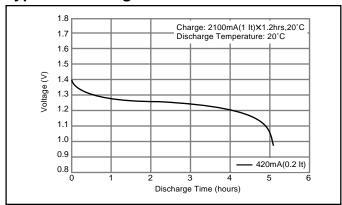
It(A) = Cn (Ah)/1h.

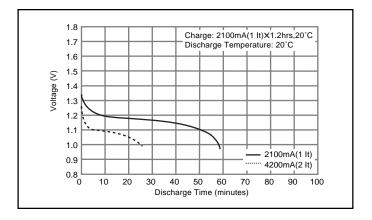
- [It] is the reference test current in ampres
- [Cn] is the rated capacity of the cell or battery in Ampere-hours.

  n = the time base [hours] for which the rated capacity is declared

### **Typical Charge Characteristics**



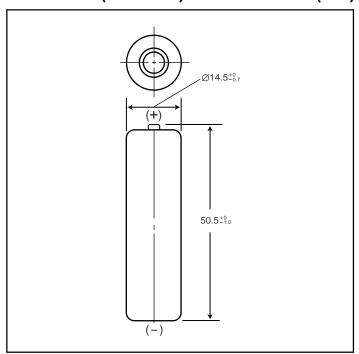




# HHR210AA/B Cylindrical AA size (HR 15/51)

### **Dimensions (with Tube)**

(mm)



### **Specifications**

	mm	inch
Diameter	14.5 +0/-0.7	0.57 +0/-0.3
Height	50.5 +0/-1.0	1.99 +0/-0.5
Approximate	Grams	Ounces
Weight	29	1.02

Nominal Voltage		1.2V		
Discharge Capacity*		Average**	2080mAh	
		Rated (Min.)	2000mAh	
Approx. internal Impedance at 1000Hz at charged state.		25mΩ		
Charge Standard		200mA (0.1lt) x 16 hrs.		
	Charge Rapid		1200mA (1lt) x 2 hrs.	
		Standard	°C	°F
ب ا	Charge		0°C to 45°C	32°F to 113°F
ent		Rapid	0°C to 40°C	32°F to 113°F
Ambient Temperature	Disch	narge	-10°C to 65°C	14°F to 149°F
Ar		< 1 year	-20°C to 35°C	-4°F to 95°F
-	Storage	< 3 months	-20°C to 45°C	-4°F to 113°F
		< 1 month	-20°C to 55°C	-4°F to 131°F

<sup>\*</sup> After charging at 0.1lt for 16 hours, discharging at 0.2lt.

Battery performance and cycle life are strongly affected by how they are used. In order to maximize battery safety, please consult Panasonic when determining charge / discharge specs, warning label contents and unit design.

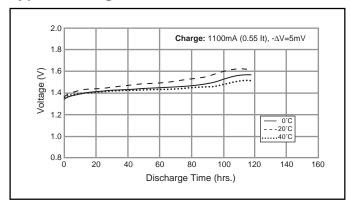
#### Note:

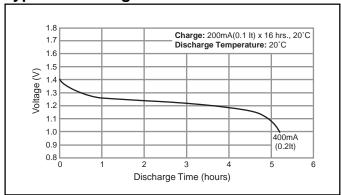
[It] was previously expressed as [C]. [It] is an IEC standard expression for the amount of charge or discharge current and is expressed as:  $It(A) = Cn \ (Ah)/1h$ 

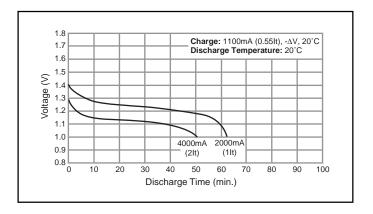
- \* [It] is the reference test current in ampres
- \* [Cn] is the rated capacity of the cell or battery in Ampere-hours.

  n = the time base [hours] for which the rated capacity is declared

### **Typical Charge Characteristics**





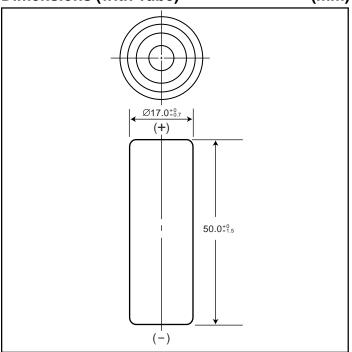


<sup>\*\*</sup> For reference only.

## HHR210AH Cylindrical A size (HR 17/50)

### **Dimensions (with Tube)**





### **Specifications**

	mm	inch
Diameter	17.0+0/-0.7	0.67+0/-0.03
Height	50.0+0/-1.5	1.97+0/-0.06
Approximate	Grams	Ounces
Weight	38	1.34

Nominal Voltage		1.2V		
District L		Average <sup>2</sup>	2050	)mAh
		Rated (Min.)	1900mAh	
Approx. internal Impedance at 1000Hz at charged state.		20mΩ		
Standard		210mA (0.1	It) x 16 hrs.	
j	Charge Rapid		-	
		Standard	°C	°F
	Charge	Standard	-10°C to 60°C	14°F to 140°F
it ure		Rapid	-	-
bier erat	Discl	narge	-10°C to 60°C	14°F to 140°F
Ambient Temperature		< 1 year	-20°C to 35°C	-4°F to 95°F
	Storage	< 3 months	-20°C to 45°C	-4°F to 113°F
	Storage	< 1 month	-20°C to 55°C	-4°F to 131°F
		< 1 week	-20°C to 60°C	-4°F to 140°F

- After charging at 0.1lt for 16 hours, discharging at 0.2lt.
- <sup>2</sup> For reference only.

Battery performance and cycle life are strongly affected by how they are used. In order to maximize battery safety, please consult Panasonic when determining charge / discharge specs, warning label contents and unit design.

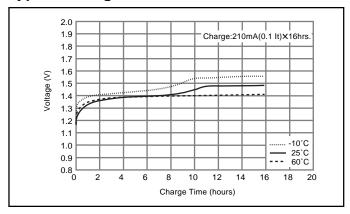
Note: [It] was previously expressed as [C]. [It] is an IEC standard expression for the amount of charge or discharge current and is expressed as:

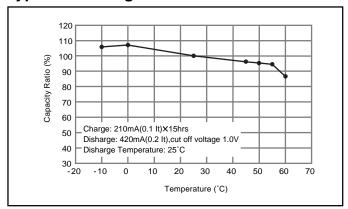
It(A) = Cn (Ah)/1h.

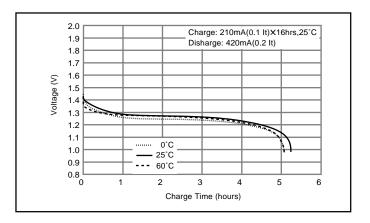
- [It] is the reference test current in ampres
- [Cn] is the rated capacity of the cell or battery in Ampere-hours.

  n = the time base [hours] for which the rated capacity is declared

### **Typical Charge Characteristics**



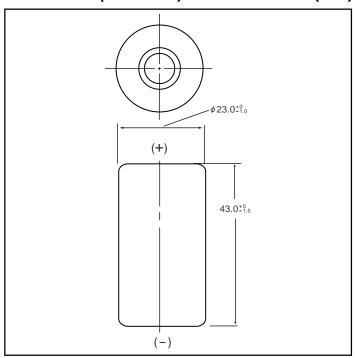




# HHR250SCH Cylindrical SC size (HR 23/43)

### **Dimensions (with Tube)**

(mm)



### **Specifications**

	mm	inch
Diameter	23.0+0/-1.0	0.91+0/-0.04
Height	43.0+0/-1.5	1.69+0/-0.06
Approximate	Grams	Ounces
Weight	55	1.94

Nominal Voltage			1.2V	
Discharge Average <sup>2</sup>		2650 mAh		
Сар	acity <sup>1</sup>	Rated (Min.)	2500	mAh
Approx. Internal impedance at 1000Hz at charged state.		$5 \text{m}\Omega$		
Standard		250mA	x 16hrs.	
Cł	narge	Rapid <sup>3</sup>	1250mA	x 2.4 hrs.4
		Low Rate	125mA x 32 hrs.	
		LOW Rate	83mA x 48 hrs.	
		Standard	°C	°F
	Charge	Staridard	-10°C to 60°C	14°F to 140°F
T Z		Rapid	-10°C to 45°C	14°F to 113°F
ien	Dis	charge	-10°C to 60°C	14°F to 140°F
nb pe		< 1 year	-20°C to 35°C	-4°F to 95°F
Ambient Temperature	Storage	< 6 months	-20°C to 45°C	-4°F to 113°F
-	Otorage	< 1 month	-20°C to 55°C	-4°F to 131°F
	< 1 week	-20°C to 65°C	-4°F to 149°F	

- $\stackrel{1}{\circ}$  After charging at 0.1lt for 16 hours, discharging at 0.2lt.
- <sup>2</sup> For reference only.
- Need specially designed control system Control System:

dT/dt cut-off; 1 to 2°C/min

 $-\triangle V$  cut-off;  $-\triangle V$  per cell = 5 to 10 mV

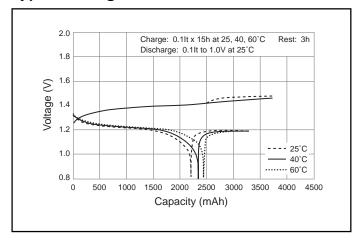
T-control; T=65°C

Rapid charger timer; 2.4h (at 1.25a)

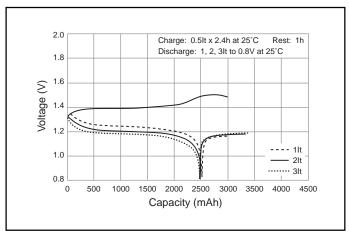
Trickle timer; within 2h 4 With control system

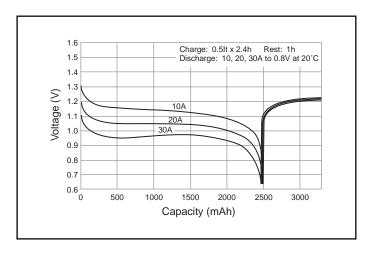
Battery performance and cycle life are strongly affected by how they are used. In order to maximize battery safety, please consult Panasonic when determining charge / discharge specs, warning label contents and unit design.

### **Typical Charge Characteristics**



### **Typical Discharge Characteristics**





e: [It] was previously expressed as [C]. [It] is an IEC standard expression for the amount of charge or discharge current and is expressed as: It(A) = Cn (Ah)/1h

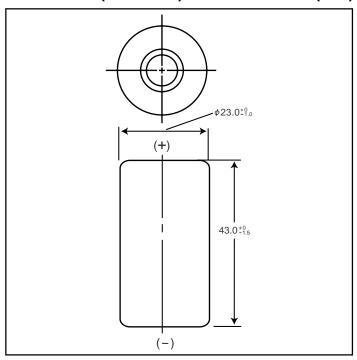
- \* [It] is the reference test current in ampres
- \* [Cn] is the rated capacity of the cell or battery in Ampere-hours. n = the time base [hours] for which the rated capacity is declared



# HHR260SCP Cylindrical SC size (HR 23/43)

### **Dimensions (with Tube)**

(mm)



### **Specifications**

	mm	inch
Diameter	23.0+0/-1.0	0.91+0/-0.04
Height	43.0+0/-1.5	1.69+0/-0.06
Approximate	Grams	Ounces
Weight	55	1.94

Nominal Voltage		1.2V		
Discharge Average <sup>2</sup>		2600 mAh		
Cap	acity <sup>1</sup>	Rated (Min.)	2450	mAh
		impedance	5n	nΩ
at 100	00Hz at cha	rged state.	311	122
Charge Standard		260mA x 16hrs.		
Ci	large	Rapid	2600mA x 1.2 hrs.	
		Standard	°C	°F
อ	Charge	Stariuaru	0°C to 45°C	32°F to 113°F
atn		Rapid	10°C to 40°C	50°F to 104°F
bio	Dis	charge	-10°C to 65°C	14°F to 149°F
Ambient Temperature		< 1 year	-20°C to 35°C	-4°F to 95°F
e	Storage	< 3 months	-20°C to 45°C	-4°F to 113°F
		< 1 month	-20°C to 55°C	-4°F to 131°F

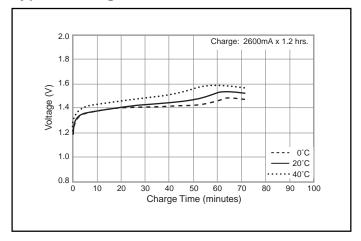
<sup>&</sup>lt;sup>1</sup> After charging at 0.1lt for 16 hours, discharging at 0.2lt.

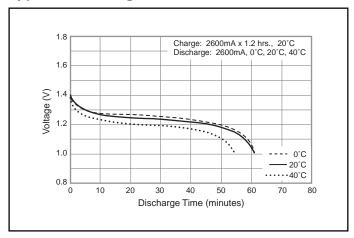
Battery performance and cycle life are strongly affected by how they are used. In order to maximize battery safety, please consult Panasonic when determining charge / discharge specs, warning label contents and unit design.

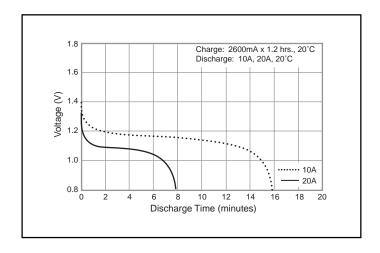
Note: [It] was previously expressed as [C]. [It] is an IEC standard expression for the amount of charge or discharge current and is expressed as: It(A) = Cn (Ah)/1h

- \* [It] is the reference test current in ampres
- \* [Cn] is the rated capacity of the cell or battery in Ampere-hours.
- n = the time base [hours] for which the rated capacity is declared

### **Typical Charge Characteristics**





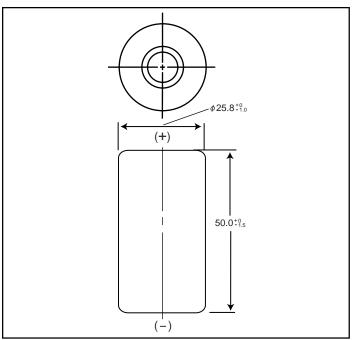


<sup>&</sup>lt;sup>2</sup> For reference only.

# HHR300CH Cylindrical C size (HR 26/50) for backup use

### **Dimensions (with Tube)**

(mm)



### **Specifications**

	mm	inch
Diameter	25.8+0/-1.0	1.02+0/-0.04
Height	50.0+0/-1.5	1.97+0/-0.06
Approximate	Grams	Ounces
Weight	80	2.82

Nominal Voltage		1.2V		
Discharge Average <sup>2</sup> Capacity <sup>1</sup> Rated (Min.)		3300 mAh		
		Rated (Min.)	3100	mAh
Approx. Internal impedance at 1000Hz at charged state.		5mΩ		
Charge Standard Rapid³ Low Rate		300mA (0.1	1lt) x 16hrs.	
		1500mA (1lt) x 2.4 hrs.4		
		155mA x 32 hrs. 100mA x 48 hrs.		
		Standard	°C	°F
	Chargo	Standard	0°C to 45°C	32°F to 113°F
t ure	Charge	Rapid	10°C to 40°C	32°F to 104°F
ien ratı		Low Rate	-10°C to 45°C	14°F to 149°F
mb odr	Discharge		-10°C to 65°C	14°F to 113°F
A Ten	Storage < 3 mo	< 1 year	-20°C to 35°C	-4°F to 95°F
•		< 3 months	-20°C to 35°C	-4°F to 95°F
		< 1 month	-20°C to 55°C	-4°F to 131°F

- <sup>1</sup> After charging at 0.1lt for 16 hours, discharging at 0.2lt.
- 2 For reference only.
- <sup>3</sup> Need specially designed control system

#### Control System:

dT/dt cut-off; 1 to 2°C/min

- $\triangle$ V cut-off; - $\triangle$ V per cell = 5 to 10 mV

T-control; T=65°C

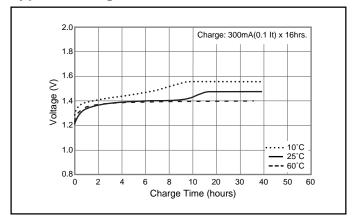
Rapid charger timer; 2.4h (at 1.25a)

Trickle timer; within 2h

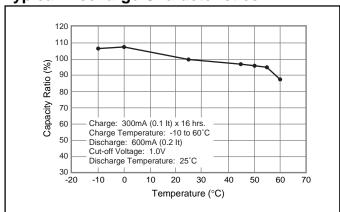
<sup>4</sup> With control system

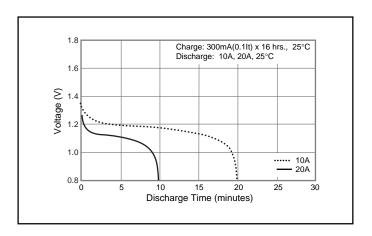
Battery performance and cycle life are strongly affected by how they are used. In order to maximize battery safety, please consult Panasonic when determining charge / discharge specs, warning label contents and unit design.

### **Typical Charge Characteristics**



### **Typical Discharge Characteristics**





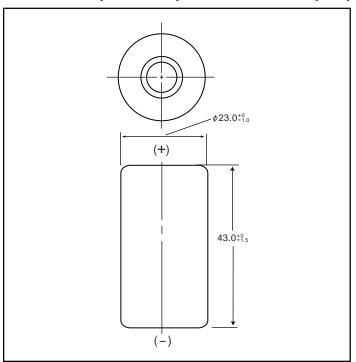
Note: [It] was previously expressed as [C]. [It] is an IEC standard expression for the amount of charge or discharge current and is expressed as: It(A) = Cn (Ah)/1h.

- [It] is the reference test current in ampres
- [Cn] is the rated capacity of the cell or battery in Ampere-hours. n = the time base [hours] for which the rated capacity is declared

# HHR300SCP Cylindrical SC size (HR 23/43)

### **Dimensions (with Tube)**

(mm)



### **Specifications**

	mm	inch
Diameter	23.0+0/-0.1	0.91+0/-0.04
Height	43.0+0/-1.5	1.69+0/-0.06
Approximate	Grams	Ounces
Weight	57	2.01

Nominal Voltage		1.2V		
Discharge Capacity*		Average**	3050 mAh	
		Rated (Min.)	2800 mAh	
Approx. Internal impedance at 1000Hz at charged state.		4mΩ		
Charge Standard		300mA (0.1lt) x 16hrs.		
	g-	Rapid	3000mA (1lt) x 1.2 hrs.	
_		Standard	°C	°F
ıt ure	Charge	Standard	0°C to 45°C	32°F to 113°F
ien		Rapid	0°C to 40°C	32°F to 104°F
m adu	Discharge		-10°C to 65°C	14°F to 149°F
Ambient Temperature	Ctorogo	< 2 years	-20°C to 35°C	-4°F to 95°F
⊢ Storage	< 6 months	-20°C to 45°C	-4°F to 113°F	

- \* After charging at 0.1lt for 16 hours, discharging at 0.2lt.
- \*\* For reference only.

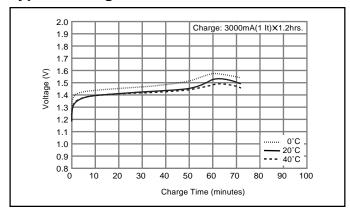
Battery performance and cycle life are strongly affected by how they are used. In order to maximize battery safety, please consult Panasonic when determining charge / discharge specs, warning label contents and unit design.

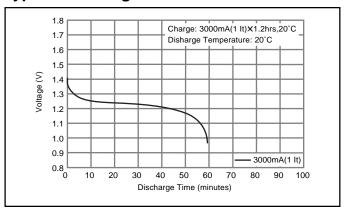
Note: [It] was previously expressed as [C]. [It] is an IEC standard expression for the amount of charge or discharge current and is expressed as: It(A) = Cn (Ah)/1h.

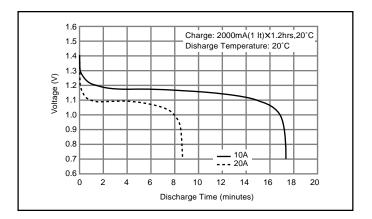
- [It] is the reference test current in ampres
- [Cn] is the rated capacity of the cell or battery in Ampere-hours.

  n = the time base [hours] for which the rated capacity is declared

### **Typical Charge Characteristics**



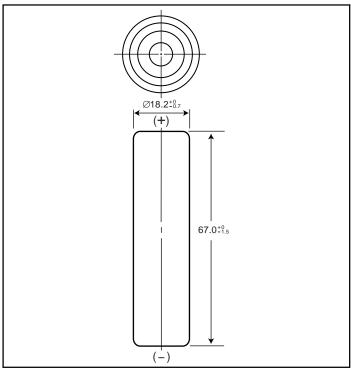




# HHR330APH Cylindrical L-Fat A size (HR 18/67)

### **Dimensions (with Tube)**

(mm)



#### **Specifications**

	mm	inch
Diameter	18.2+0/-0.7	0.72+0/-0.03
Height	67.0+0/-1.5	2.64+0/-0.06
Approximate	Grams	Ounces
Weight	60	2.12

	Nominal Voltage		1.2V	
Discharge Average <sup>2</sup>		3300 mAh		
Cap	Capacity <sup>1</sup> Rated (Min.)		3200	mAh
Appro	x. Internal	impedance	5.5	mΩ
at 100	00Hz at cha	rged state.	5.5	11122
	Standard		330mA	x 16hrs.
CI	harge	Rapid <sup>3</sup>	1650mA	x 2.4 hrs.4
Low Rate		165mA x 32 hrs.		
		LOW Rate	110mA x 48 hrs.	
		Standard	°C	°F
•	Charge	Standard	-10°C to 60°C	14°F to 140°F
ıt ure		Rapid	-10°C to 45°C	14°F to 113°F
ien rat	Dis	charge	-10°C to 60°C	14°F to 140°F
Ambient Temperature		< 1 year	-20°C to 35°C	-4°F to 95°F
A E Storogo	Storage	< 6 months	-20°C to 45°C	-4°F to 113°F
<u> </u>	Otorage	< 1 month	-20°C to 55°C	-4°F to 131°F
		< 1 week	-20°C to 65°C	-4°F to 149°F

- After charging at 0.1lt for 16 hours, discharging at 0.2lt.
- <sup>2</sup> For reference only.
- Need specially designed control system

#### Control System:

dT/dt cut-off; 1 to 2°C/min

 $-\triangle V$  cut-off;  $-\triangle V$  per cell = 5 to 10 mV

T-control; T=65°C

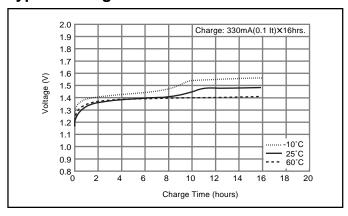
Rapid charger timer; 2.4h (at 1.25a)

Trickle timer; within 2h

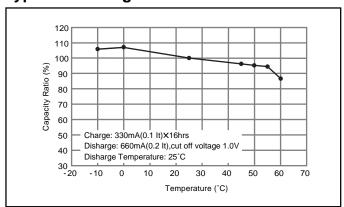
<sup>4</sup> With control system

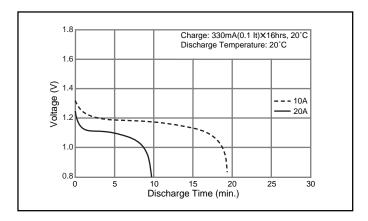
Battery performance and cycle life are strongly affected by how they are used. In order to maximize battery safety, please consult Panasonic when determining charge / discharge specs, warning label contents and unit design.

#### **Typical Charge Characteristics**



### **Typical Discharge Characteristics**





Note: [It] was previously expressed as [C]. [It] is an IEC standard expression for the amount of charge or discharge current and is expressed as: It(A) = Cn (Ah)/1h.

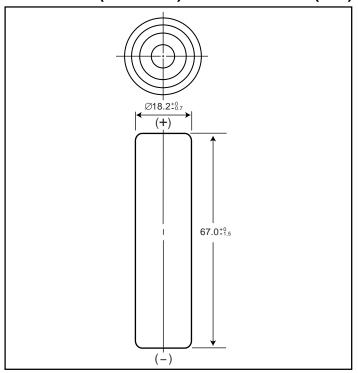
- [It] is the reference test current in ampres
- [Cn] is the rated capacity of the cell or battery in Ampere-hours. n = the time base [hours] for which the rated capacity is declared



### HHR370AH Cylindrical L-Fat A size (HR 18/67)

### **Dimensions (with Tube)**

(mm)



### **Specifications**

	mm	inch
Diameter	18.2+0/-0.7	0.72+0/-0.03
Height	67.0+0/-1.5	2.64+0/-0.06
Approximate	Grams	Ounces
Weight	60	2.12

Nominal Voltage			1.2V			
Discharge		Average <sup>2</sup>	3700 mAh			
Cap	acity <sup>1</sup>	Rated (Min.)	3500 mAh			
Approx. Internal impedance at 1000Hz at charged state.		20mΩ				
Standard		370mA	x 16hrs.			
CI	narge	Rapid <sup>3</sup>	1750mA	x 2.4 hrs.4		
Low Rate		185mA x 32 hrs. 123mA x 48 hrs.				
		Standard	°C	°F		
4	Charge	Stariuaru	-10°C to 60°C	14°F to 140°F		
# E		Rapid	-10°C to 45°C	14°F to 113°F		
ien	Dis	charge	-10°C to 60°C	14°F to 140°F		
nb pe		< 1 year	-20°C to 35°C	-4°F to 95°F		
Ambient Temperature	Storage	< 6 months	-20°C to 45°C	-4°F to 113°F		
	Otorage	< 1 month	-20°C to 55°C	-4°F to 131°F		
		< 1 week	-20°C to 65°C	-4°F to 149°F		

- After charging at 0.1lt for 16 hours, discharging at 0.2lt.
- <sup>2</sup> For reference only.
- Need specially designed control system

#### Control System:

dT/dt cut-off; 1 to 2°C/min

 $-\triangle V$  cut-off;  $-\triangle V$  per cell = 5 to 10 mV

T-control; T=65°C

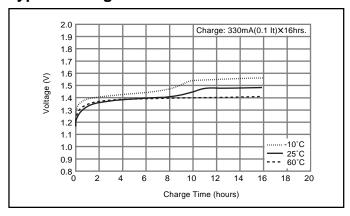
Rapid charger timer; 2.4h (at 1.25a)

Trickle timer; within 2h

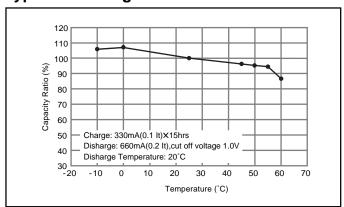
<sup>4</sup> With control system

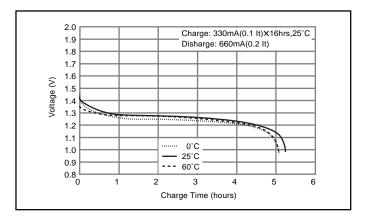
Battery performance and cycle life are strongly affected by how they are used. In order to maximize battery safety, please consult Panasonic when determining charge / discharge specs, warning label contents and unit design.

#### **Typical Charge Characteristics**



### **Typical Discharge Characteristics**





Note: [It] was previously expressed as [C]. [It] is an IEC standard expression for the amount of charge or discharge current and is expressed as: It(A) = Cn (Ah)/1h.

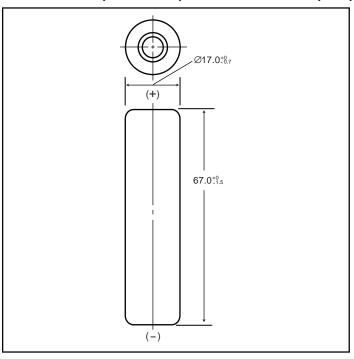
- [It] is the reference test current in ampres
- [Cn] is the rated capacity of the cell or battery in Ampere-hours. n = the time base [hours] for which the rated capacity is declared



## HHR380A Cylindrical L-A size (HR 17/67)

### **Dimensions (with Tube)**

(mm)



### **Specifications**

	mm	inch
Diameter	17.0+0/-0.7	0.67+0/-0.03
Height	67.0+0/-1.5	2.64+0/-0.06
Approximate	Grams	Ounces
Weight	53	1.87

Nominal Voltage		1.2V		
Discharge		Average**	3800 mAh	
Сар	acity*	Rated (Min.)	3700 mAh	
		impedance rged state.	25mΩ	
Charge Standard		370mA (0.1	IIt) x 16hrs.	
	Rapid***		2000mA dT/dt	
		Standard	°C	°F
စ	Charge		0°C to 45°C	32°F to 113°F
t I		Rapid	0°C to 40°C	32°F to 104°F
Ambient Temperature	Dis	charge	-10°C to 65°C	14°F to 149°F
Am		< 1 year	-20°C to 35°C	-4°F to 95°F
₽	Storage	< 3 months	-20°C to 45°C	-4°F to 113°F
		< 1 month	-20°C to 55°C	-4°F to 131°F

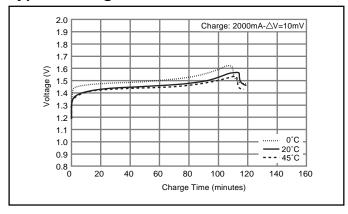
- \* After charging at 0.1lt for 16 hours, discharging at 0.2lt.
- \*\* For reference only.
- \*\*\* For rapid charge: use dT/dt charge termination method. Refer to the Nickel Metal Hydride "Charge Methods" section for further details. Battery performance and cycle life are strongly affected by how they are used. In order to maximize battery safety, please consult Panasonic when determining charge / discharge specs, warning label contents and unit design.

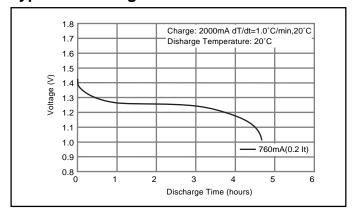
Note: [It] was previously expressed as [C]. [It] is an IEC standard expression for the amount of charge or discharge current and is expressed as: It(A) = Cn (Ah)/1h.

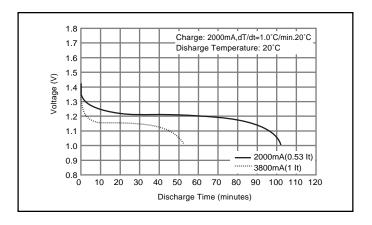
- [It] is the reference test current in ampres
- [Cn] is the rated capacity of the cell or battery in Ampere-hours.

  n = the time base [hours] for which the rated capacity is declared

### **Typical Charge Characteristics**



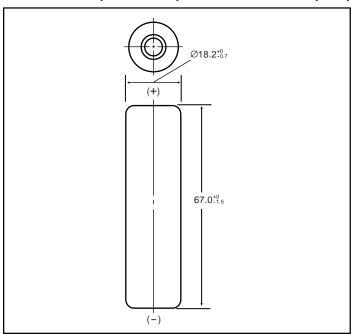




## HHR450A Cylindrical L-fat A size (HR 18/67)

### **Dimensions (with Tube)**

(mm)



### **Specifications**

	mm	inch
Diameter	18.2+0/-0.7	0.72+0/-0.03
Height	67.0+0/-1.5	2.64+0/-0.06
Approximate	Grams	Ounces
Weight	60	2.12

Nominal Voltage		1.2V		
Discharge Average*		Average**	4500	mAh
Сар	acity*	Rated (Min.)	4200	mAh
Approx. Internal impedance at 1000Hz at charged state.		25mΩ		
Charge Standard		420mA (0.1lt) x 16hrs.		
	g-	Rapid***	2000mA dT/dt	
		Standard	°C	°F
ė	Charge	Staridard	0°C to 45°C	32°F to 113°F
별		Rapid	0°C to 40°C	32°F to 104°F
Ambient Temperature	Dis	charge	-10°C to 65°C	14°F to 149°F
Am		< 1 year	-20°C to 35°C	-4°F to 95°F
₽	Storage	< 3 months	-20°C to 45°C	-4°F to 113°F
		< 1 month	-20°C to 55°C	-4°F to 131°F

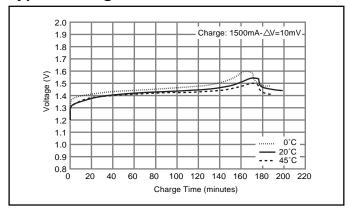
- \* After charging at 0.1lt for 16 hours, discharging at 0.2lt.
- \*\* For reference only.
- \*\*\* For rapid charge: use dT/dt charge termination method. Refer to the Nickel Metal Hydride "Charge Methods" section for further details. Battery performance and cycle life are strongly affected by how they are used. In order to maximize battery safety, please consult Panasonic when determining charge / discharge specs, warning label contents and unit design.

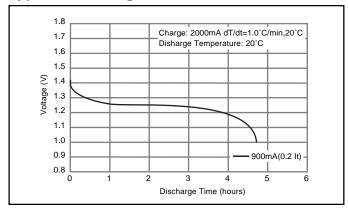
Note: [It] was previously expressed as [C]. [It] is an IEC standard expression for the amount of charge or discharge current and is expressed as: It(A) = Cn (Ah)/1h.

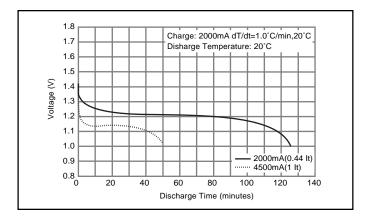
- [It] is the reference test current in ampres
- [Cn] is the rated capacity of the cell or battery in Ampere-hours.

  n = the time base [hours] for which the rated capacity is declared

### **Typical Charge Characteristics**



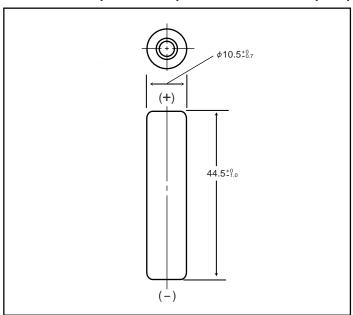




# HHR60AAAH Cylindrical AAA size (HR 11/45)

### **Dimensions (with Tube)**

(mm)



### **Specifications**

	mm	inch
Diameter	10.5 +0/-0.7	0.41 +0/-0.03
Height	44.5 +0/-1.0	1.75 +0/-0.04
Approximate	Grams	Ounces
Weight	13	0.46

Nominal Voltage		1.2V		
Disc	harge	Average <sup>2</sup>	550 mAh	
Cap	acity <sup>1</sup>	Rated (Min.)	500	mAh
Approx. Internal impedance at 1000Hz at charged state.		35mΩ		
		Standard	50mA >	c 16hrs.
CI	narge	Rapid <sup>3</sup>	250mA x	2.4 hrs.4
	3	Low Rate	25mA x 32 hrs.	
		LOW Rate	17mA x 48 hrs.	
		Standard	°C	°F
	Charge	Staridard	-10°C to 60°C	14°F to 140°F
# P		Rapid	-10°C to 45°C	14°F to 113°F
ien	Dis	charge	-10°C to 60°C	14°F to 140°F
Ambient mperatu		< 1 year	-20°C to 35°C	-4°F to 95°F
Ambient Temperature	Storage	< 6 months	-20°C to 45°C	-4°F to 113°F
-	O.O. age	< 1 month	-20°C to 55°C	-4°F to 131°F
		< 1 week	-20°C to 65°C	-4°F to 149°F

- After charging at 0.1lt for 16 hours, discharging at 0.2lt.
- For reference only.
- Need specially designed control system Control System:

dT/dt cut-off; 1 to 2°C/min

-△V cut-off; -△V per cell = 5 to 10 mV

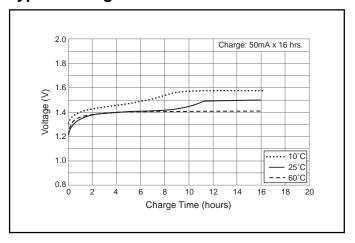
T-control; T=65°C

Rapid charger timer; 2.4h (at 1.25a)

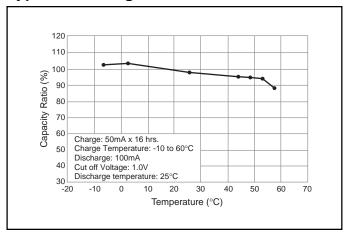
Trickle timer; within 2h

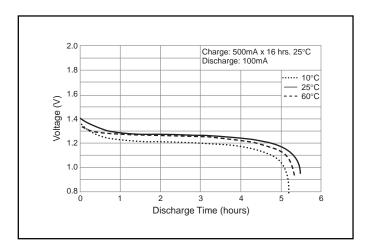
Battery performance and cycle life are strongly affected by how they are used. In order to maximize battery safety, please consult Panasonic when determining charge / discharge specs, warning label contents and unit design

### **Typical Charge Characteristics**



### **Typical Discharge Characteristics**





Note: [It] was previously expressed as [C]. [It] is an IEC standard expression for the amount of charge or discharge current and is expressed as: It(A) = Cn (Ah)/1h

- \* [It] is the reference test current in ampres
- $^{\star}$  [Cn] is the rated capacity of the cell or battery in Ampere-hours. n = the time base [hours] for which the rated capacity is declared

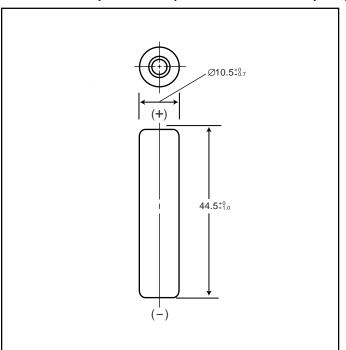


<sup>&</sup>lt;sup>4</sup> With control system

### HHR70AAAJ Cylindrical HR AAA size (HR 11/45)

### **Dimensions (with Tube)**

(mm)



### **Specifications**

	mm	inch
Diameter	10.5+0/-0.7	0.41+0/-0.03
Height	44.5+0/-1.0	1.75+0/-0.04
Approximate	Grams	Ounces
Weight	13	0.46

Nominal Voltage		1.2V		
Discharge Capacity*		Average**	720 mAh	
		Rated (Min.)	700 mAh	
Approx. Internal impedance at 1000Hz at charged state.		30mΩ		
CI	Charge Standard Rapid		70mA (0.1lt) x 16hrs.	
			650mA (1lt) x 1.2 hrs.	
		Standard	°C	°F
ري	Charge	Standard	0°C to 45°C	32°F to 113°F
t ţ		Rapid	0°C to 40°C	32°F to 104°F
Ambient Temperature	Dis	charge	-10°C to 65°C	14°F to 149°F
Am		< 1 year	-20°C to 35°C	-4°F to 95°F
<u>P</u>	Storage	< 3 months	-20°C to 45°C	-4°F to 113°F
		< 1 month	-20°C to 55°C	-4°F to 131°F

- \* After charging at 0.1lt for 16 hours, discharging at 0.2lt.
- \*\* For reference only.

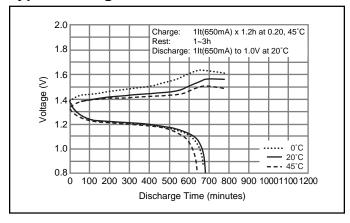
Battery performance and cycle life are strongly affected by how they are used. In order to maximize battery safety, please consult Panasonic when determining charge / discharge specs, warning label contents and unit design.

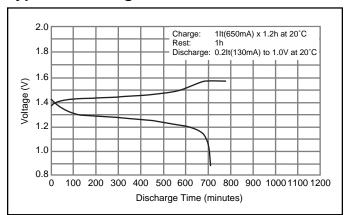
Note: [It] was previously expressed as [C]. [It] is an IEC standard expression for the amount of charge or discharge current and is expressed as: lt(A) = Cn (Ah)/1h.

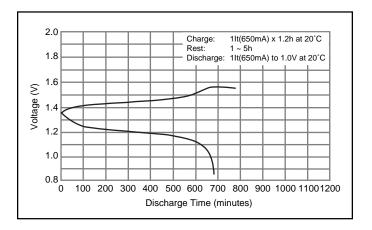
- [It] is the reference test current in ampres
- [Cn] is the rated capacity of the cell or battery in Ampere-hours.

  n = the time base [hours] for which the rated capacity is declared

### **Typical Charge Characteristics**



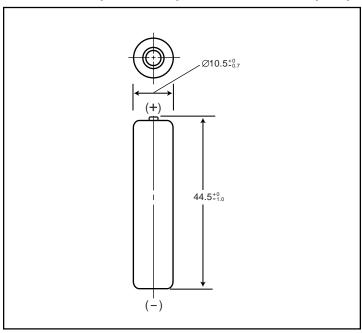




## HHR75AAA/B Cylindrical AAA size (HR 11/45)

### **Dimensions (with Tube)**

(mm)



### **Specifications**

	mm	inch
Diameter	10.5+0/-0.7	0.41+0/-0.03
Height	44.5+0/-1.0	1.75+0/-0.04
Approximate	Grams	Ounces
Weight	12	0.42

Nominal Voltage		1.2V		
Discharge Capacity*		Average**	730 mAh	
		Rated (Min.)	700 mAh	
Approx. Internal impedance at 1000Hz at charged state.		35mΩ		
Charge Standard		70mA x 16hrs.		
	90	Rapid	450mA x 1.7 hrs.	
		Standard	°C	°F
ø	Charge	Standard	0°C to 45°C	32°F to 113°F
별		Rapid	0°C to 40°C	32°F to 104°F
bie	Dis	charge	-10°C to 65°C	14°F to 149°F
Ambient Temperature		< 1 year	-20°C to 35°C	-4°F to 95°F
	Storage	< 3 months	-20°C to 45°C	-4°F to 113°F
		< 1 month	-20°C to 55°C	-4°F to 131°F

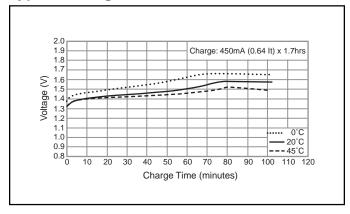
<sup>\*</sup> After charging at 0.1lt for 16 hours, discharging at 0.2lt.

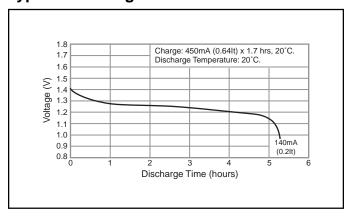
Battery performance and cycle life are strongly affected by how they are used. In order to maximize battery safety, please consult Panasonic when determining charge / discharge specs, warning label contents and unit design.

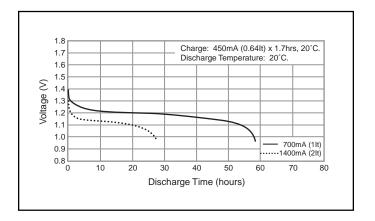
Note: [It] was previously expressed as [C]. [It] is an IEC standard expression for the amount of charge or discharge current and is expressed as: It(A) = Cn (Ah)/1h.

- [It] is the reference test current in ampres
- [Cn] is the rated capacity of the cell or battery in Ampere-hours. n = the time base [hours] for which the rated capacity is declared

### **Typical Charge Characteristics**







<sup>\*\*</sup> For reference only.



OOO «ЛайфЭлектроникс" "LifeElectronics" LLC

ИНН 7805602321 КПП 780501001 P/C 40702810122510004610 ФАКБ "АБСОЛЮТ БАНК" (ЗАО) в г.Санкт-Петербурге К/С 3010181090000000703 БИК 044030703

Компания «Life Electronics» занимается поставками электронных компонентов импортного и отечественного производства от производителей и со складов крупных дистрибьюторов Европы, Америки и Азии.

С конца 2013 года компания активно расширяет линейку поставок компонентов по направлению коаксиальный кабель, кварцевые генераторы и конденсаторы (керамические, пленочные, электролитические), за счёт заключения дистрибьюторских договоров

#### Мы предлагаем:

- Конкурентоспособные цены и скидки постоянным клиентам.
- Специальные условия для постоянных клиентов.
- Подбор аналогов.
- Поставку компонентов в любых объемах, удовлетворяющих вашим потребностям.
- Приемлемые сроки поставки, возможна ускоренная поставка.
- Доставку товара в любую точку России и стран СНГ.
- Комплексную поставку.
- Работу по проектам и поставку образцов.
- Формирование склада под заказчика.
- Сертификаты соответствия на поставляемую продукцию (по желанию клиента).
- Тестирование поставляемой продукции.
- Поставку компонентов, требующих военную и космическую приемку.
- Входной контроль качества.
- Наличие сертификата ISO.

В составе нашей компании организован Конструкторский отдел, призванный помогать разработчикам, и инженерам.

Конструкторский отдел помогает осуществить:

- Регистрацию проекта у производителя компонентов.
- Техническую поддержку проекта.
- Защиту от снятия компонента с производства.
- Оценку стоимости проекта по компонентам.
- Изготовление тестовой платы монтаж и пусконаладочные работы.



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