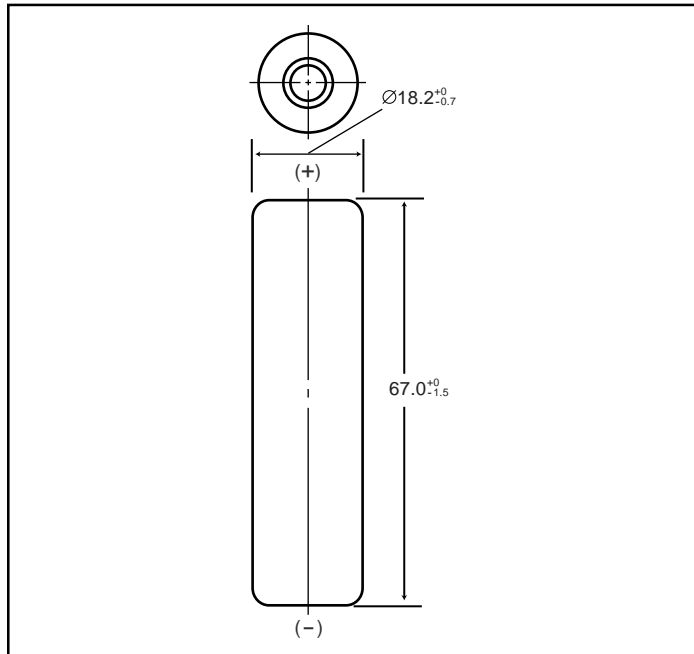


NICKEL METAL HYDRIDE BATTERIES: INDIVIDUAL DATA SHEET

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 Weight | Grams | Ounces |
| | 60 | 2.12 |

| | | | | |
|--|--------------|------------------------|---------------|---------------|
| Nominal Voltage | | 1.2V | | |
| Discharge Capacity* | Average** | 4500 mAh | | |
| | Rated (Min.) | 4200 mAh | | |
| Approx. Internal impedance at 1000Hz at charged state. | | 25mΩ | | |
| Charge | Standard | 420mA (0.1It) x 16hrs. | | |
| | Rapid*** | 2000mA dT/dt | | |
| Ambient Temperature | Charge | Standard | °C | °F |
| | | | 0°C to 45°C | 32°F to 113°F |
| | Rapid | 0°C to 40°C | 32°F to 104°F | |
| | Discharge | -10°C to 65°C | 14°F to 149°F | |
| Storage | < 1 year | -20°C to 35°C | -4°F to 95°F | |
| | < 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 0.1It for 16 hours, discharging at 0.2It.

** For reference only.

*** For rapid charge: use dT/dt charge termination method. Refer to the

Nickel Metal Hydride "Charge Methods" section for further details.

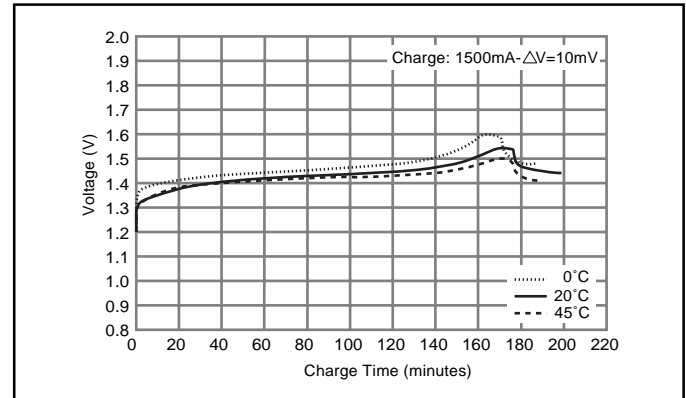
Battery performance and cycle life are strongly affected by how they are used. In order to maximize battery safety, please consult Panasonic when determining charge / discharge specs, warning label contents and unit design.

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:

$$It(A) = C_n (Ah)/1h.$$

- [It] is the reference test current in amperes
- [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



Typical Discharge Characteristics

