



NI-CD BATTERY CYLINDRICAL CELLS

TYPICAL CHARGE AND DISCHARGE OF THE NI-CD CYLINDRICAL CELLS

1.1 TECHNICAL FEATURES

- High rate charging With the proper current, Extracell batteries can be charged sufficiently in 1-1.5 hrs.
- Excellent discharge performance
Compared with general Nickel-Cadmium batteries, Extracell batteries have higher capacity and the voltages are much higher and more stable when discharged at high rate.
- Long cycle life. Over 500 cycles can be expected from Extracell batteries.
- A wide operating temperature range. At low ambient temperature, Extracell batteries still remain the good discharge characteristics and at high temperature Extracell batteries also exhibit high charging efficiency.
- Reliable self-sealing vent.
A self-sealing vent in a Extracell battery keeps it reliable for long continuous operating or when the charge unit does not work properly.
- Firmly sealed and no leakage construction.
The safe and no leakage construction guarantees that Extracell batteries can be put in any way as charged, discharged, and stored.

1.2 APPLICATIONS

- Communications Equipment
- Household electric appliance
- Electricity-powered tools
- Toys Electronic equipment
- Photographic equipment
- Office equipment
- Emergency light

1.3.1 CHARGE

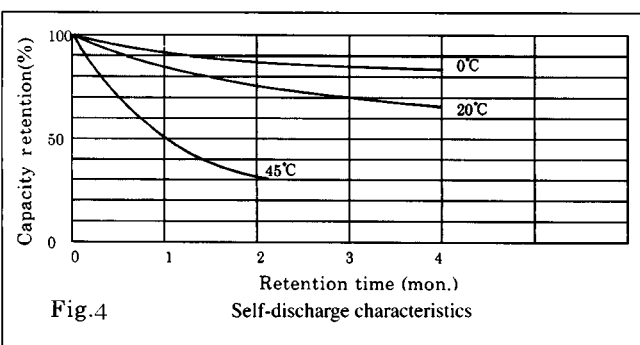
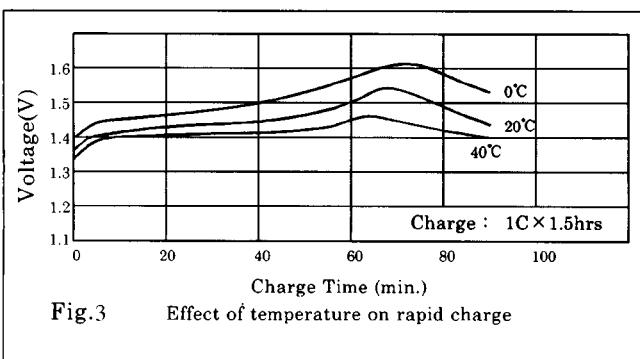
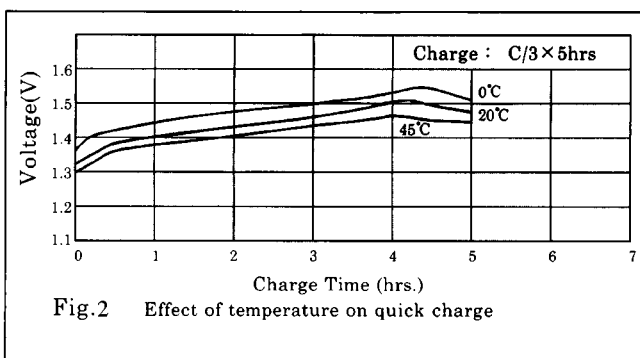
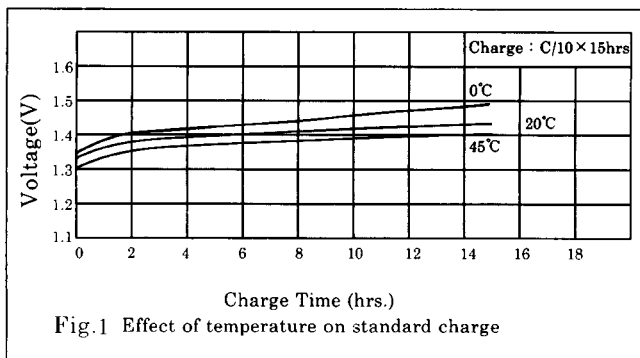
- (1) The charging voltage varies with the charging rate and the ambient temperature, from 1.3 to 1.7V generally. (Fig.1, Fig. 2, Fig. 3)
- (2) For more excellent capacity and cycle life, the following charging regulations are advised.

	Charge current	Charge Time
standard charge	C/10	15-16 hrs.
quick charge	C/3	5 hrs.
rapid charge	1C	1.2-1.5 hrs.
Trickle charge (float)	C/30-C/25	Continuous

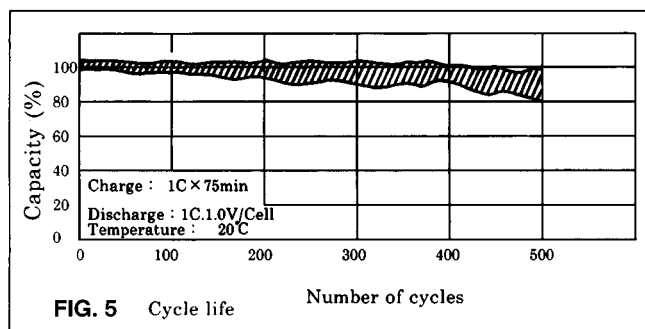
1.3.2 SELF-DISCHARGE

The ambient temperature has a great effect on the self-discharge* increases as the temperature increases (Fig.4)

*Percent. Self-Discharge



At normal conditions, the number of cycles can be over 500. But if often operated at high ambient temperature or discharge at high rate, the cycle life decreases (Fig. 5).

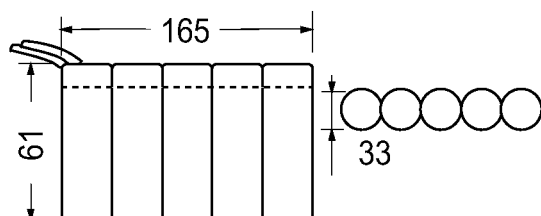


OPERATION AND CAUTIONS

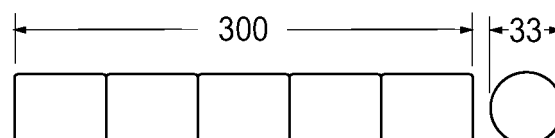
All the Extracell batteries have been drained up as the final products. Please read the cautions before using or testing Extracell batteries.

- (1) Avoid short circuit.
Short circuit will cause great heat and damage the battery as well as the equipment.
 - (2) Avoid welding on the battery directly.
Welding heat may damage the construction and the self-sealing vent.
 - (3) Do not cut up the batteries .
 - (4) Do not put the batteries in fire.
 - (5) Old and new batteries or batteries of different kind, can't be used in series.
 - (6) A ventilating hole is required for the sealed case in which the batteries are contained.
 - (7) The charge current should not be beyond that required by the charge regulations of Extracell batteries.
 - (8) The batteries should be stored in dry and cool conditions.
 - (9) The number of batteries connected in series together should better not be more than 12.
- All the data above are the general characteristics of Extracell Nickel-Cadmium batteries when this catalogue is printed.
- Elcart distributor of Extracell keep the right to change the characteristics required without further informing.

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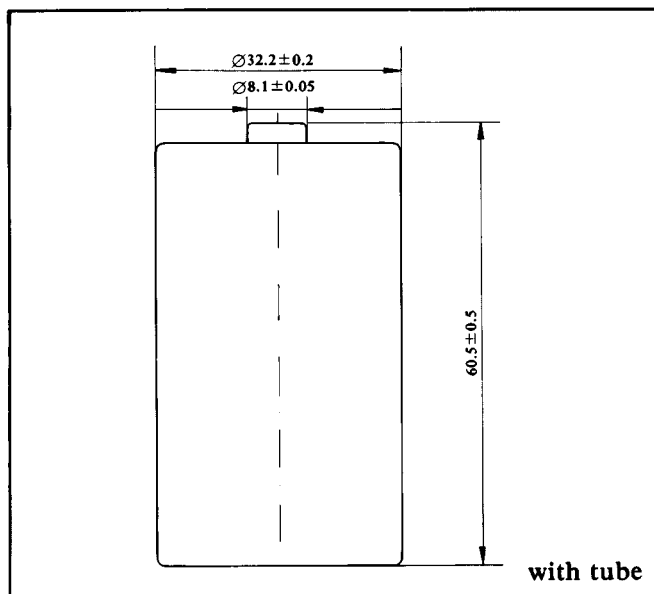


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E-4000D NI-CD

(Size): D



Specifications

Nominal voltage		1.2V		
Nominal Capacity (mAh)		C/10	C/5	C
		4200	4000	3800
Diameter		32.2±0.2mm		
Height		60.5±0.5mm		
Weight		120 g		
Internal resistance		8 mΩ		
Charge	Standard	400mA × 15hrs		
	Quick	1200mA × 5hrs		
	Rapid	4000mA × 1.5hrs		
Ambient temperature	Charge	Standard	0°—45°C	
		Quick	0°—40°C	
	Discharge		-20°—65°C	
	Storage		-20°—45°C	

Typical characteristics

