



Nickel-Cadmium & Nickel-Metal Hydride Batteries



FEATURES

Large Array of Sizes & Types: Power-Sonic offers a broad range of cell sizes and types to meet a wide range of configuration requirements and applications. Capacities range from 60 - 8000 mAh.

Exceptional Performance: State of the art design and a meticulously controlled manufacturing process ensure the highest performance levels in terms of energy density and voltage stability.

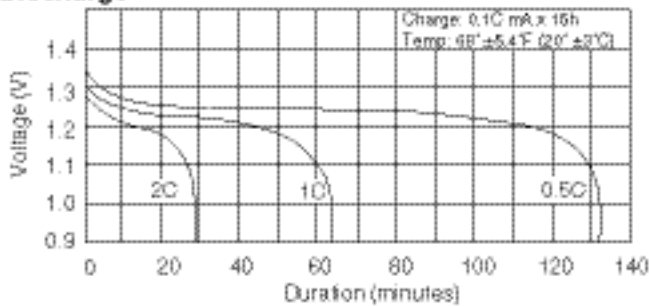
Rugged, Durable and Safe: The cylindrical steel case and special construction methods result in extremely impact and vibration resistant batteries designed to withstand hostile environments. A resealable safety valve automatically controls vent pressure and thus assures safe and reliable operation.

Long Service Life: 500-1000 charge/discharge cycles can be obtained depending on the average depth of discharge, and five years or more of trouble-free operation when used in stand-by (trickle charge) service at room temperature.

Wide Temperature Range: An operating temperature range from -20°C to +60°C for regular cells, and -20°C to +70°C for Hi-Temp cells provides design flexibility for a wide spectrum of environmental extremes. Even for charging, allowable temperatures range from 0°C to +50°C.

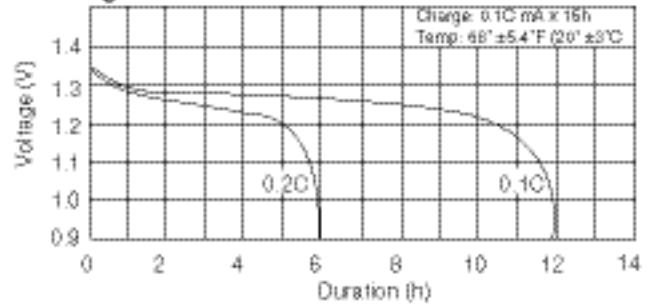
Uniformity of Cells: This is achieved through a quality control process which electronically screens cells as to capacity and impedance – a feature which virtually eliminates the need for cell matching and thus enhances long term performance in cell assemblies.

Discharge



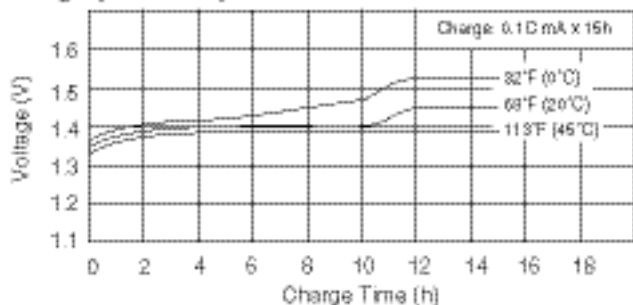
Discharge Characteristics

Discharge



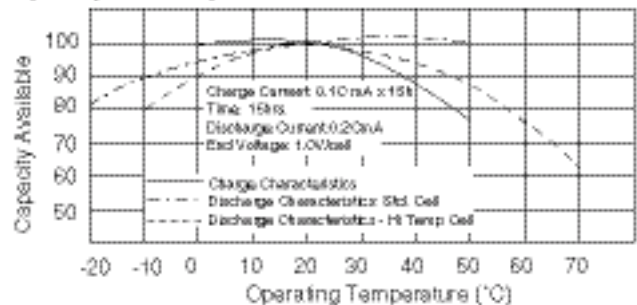
Discharge Characteristics

Charge (Standard)



Charge Characteristics

Capacity vs Temperature



Temperature Characteristics

SPECIFICATIONS

NICKEL-CADMIUM BATTERIES

STANDARD CELLS

Model Number	Cell Size	Volt V	Capacity mA	Std. Charge		Quick Charge		Diameter		Height		Weight g	Terminal Profile
				mA	hrs.	mA	hrs.	in.	mm	in.	mm		
PS-AAA	AAA	1.2	250	25	15	66	4.5	0.41	10.5	1.75	44.5	10	2
PS-2/3AA	2/3AA	1.2	300	30	15	85	4.5	0.57	14.5	1.18	30.0	13	1
PS-AA	AA	1.2	600	60	15	180	4.5	0.57	14.5	1.89	48.0	21	1
PS-AAL	AA high top	1.2	600	60	15	180	4.5	0.57	14.5	1.97	50.0	21	2
PS-AAX	AA	1.2	700	70	15	230	4.5	0.57	14.5	1.89	48.0	22	1
PS-850AA	AA	1.2	850	85	15	255	4.5	0.57	14.5	1.89	48.0	23	1
PS-850AAL	AA high top	1.2	850	85	15	255	4.5	0.57	14.5	1.97	50.0	23	2
PS-2/3A	2/3A	1.2	600	60	15	180	4.5	0.67	17.0	1.11	28.1	19	1
PS-4/5A	4/5A	1.2	1000	100	15	300	4.5	0.67	17.0	1.67	42.4	30	1
PS-A	A	1.2	1400	140	15	420	4.5	0.67	17.0	1.97	50.0	33	1
PS-SC	Sub C	1.2	1500	150	15	450	4.5	0.91	23.0	1.69	43.0	45	1
PS-C	C	1.2	2000	200	15	600	4.5	1.02	26.0	1.95	49.5	68	1
PS-CX	C	1.2	2500	250	15	750	4.5	1.02	26.0	1.95	49.5	75	1
PS-1/2D	1/2D	1.2	2400	240	15	with -Δ		1.28	32.4	1.45	36.8	80	1
PS-D	D	1.2	4000	400	15	with -Δ		1.30	33.0	2.30	58.5	125	1
PS-DL	D high top	1.2	4000	400	15	with -Δ		1.30	33.0	2.40	61.0	125	2
PS-DF	D	1.2	4500	450	15	with -Δ		1.30	33.0	2.30	58.5	130	1
PS-DX	D	1.2	5000	500	15	with -Δ		1.30	33.0	2.30	58.5	155	1
PS-F	F	1.2	7000	700	15	with -Δ		1.30	33.0	3.59	91.2	231	1

HIGH TEMPERATURE CELLS (H-TYPE)

* Quick or rapid charge only with negative delta voltage cut-off

PS-1/3AAH	1/3AA	1.2	110	11	15	n/a		0.57	14.5	0.67	17.0	7	1
PS-AAH	AA	1.2	700	70	15	n/a		0.57	14.5	1.89	48.0	21	1
PS-SCH	Sub C	1.2	1500	150	15	n/a		0.91	23.0	1.69	43.0	45	1
PS-CH	C	1.2	2000	200	15	n/a		1.02	26.0	1.95	49.5	66	1
PS-DH	D	1.2	4000	400	15	n/a		1.30	33.0	2.26	57.5	125	1

HIGH CAPACITY - RAPID CHARGE CELLS

PS-AAXF	AA	1.2	700	70	15	700	1.5*	0.57	14.5	1.89	48.0	22	1
PS-SCXF	Sub C	1.2	1800	180	15	1800	1.5*	0.91	23.0	1.69	43.0	60	1
PS-CXF	C	1.2	2500	250	15	2500	1.5*	1.02	26.0	1.95	49.5	72	1
PS-DXF	D	1.2	5000	500	15	5000	1.5*	1.30	33.0	2.30	58.5	128	1

* With -ΔVO (negative delta voltage) cut-off

PCBM (Printed Circuit Board Mount) MEMORY SAVE CELLS

PCBM-2.4		2.4	110	4	48		0.57	14.5	1.35	34.5	15	P.C. PINS
PCBM-3.6		3.6	110	4	48		0.57	14.5	2.02	52.0	23	P.C. PINS

SPECIFICATIONS

NICKEL-METAL HYDRIDE BATTERIES

CYLINDRICAL CELLS

NH-600AAA	AAA	1.2	600	60	15	185	4	0.41	10.5	1.75	44.5	10	1
NH-1250AA	AA	1.2	1250	125	15	370	4	0.57	14.5	1.89	48.0	25	1
NH-1250AAL	AA high top	1.2	1250	125	15	370	4	0.57	14.5	1.97	50.0	25	2
NH-1500AA	AA	1.2	1500	150	15	530	4	0.57	14.5	1.89	48.0	26	1
NH-1500AAL	AA high top	1.2	1500	150	15	450	4	0.57	14.5	1.97	50.0	26	2
NH-1600 4/5A	4/5A	1.2	1600	160	15	530	4	0.67	17.0	1.67	42.4	33	1
NH-2100A	A	1.2	2100	210	15	630	4	0.67	17.0	1.97	50.0	37	1
NH-3000SC	Sub C	1.2	3000	300	15	ΔTCC		0.91	23.0	1.69	43.0	59	1
NH-3700A	4/3A	1.2	3700	370	15	ΔTCC		0.67	17.0	2.64	67.0	53	1
NH-7000D	D	1.2	7000	700	15	ΔTCC		1.30	33.0	2.30	58.5	160	1
NH-7000DL	D high top	1.2	7000	700	15	ΔTCC		1.30	33.0	2.40	61.0	160	2
NH-8000D	D	1.2	8000	800	15	ΔTCC		1.30	33.0	2.30	58.5	160	1

** Quick or rapid charge only with delta temperature cut-off

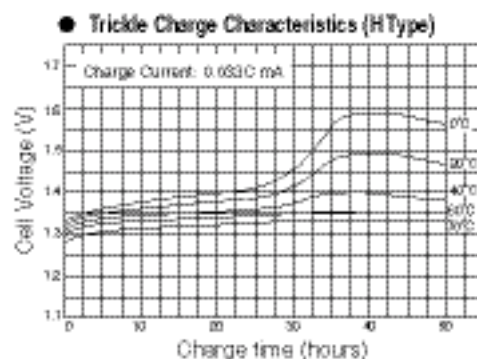
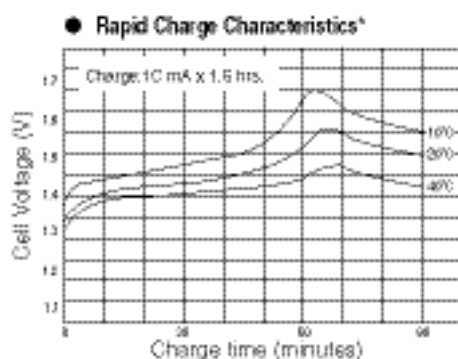
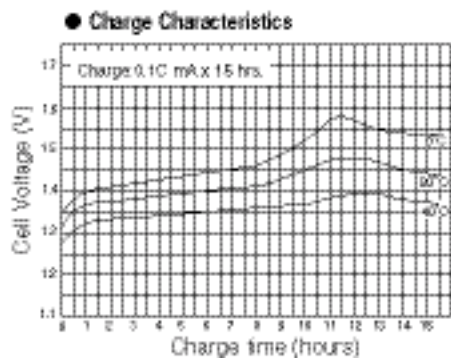
BUTTON CELLS

NH-B80		1.2	80	8	15	n/a		0.67	15.4	0.25	6.30	3.5	
NH-B320		1.2	320	32	15	n/a		0.98	25.0	0.30	7.60	14.5	
NH-TR7	9V Size	8.4	150	15	15	n/a						42	snap-on

For cells with solder tabs add *T* to the part number

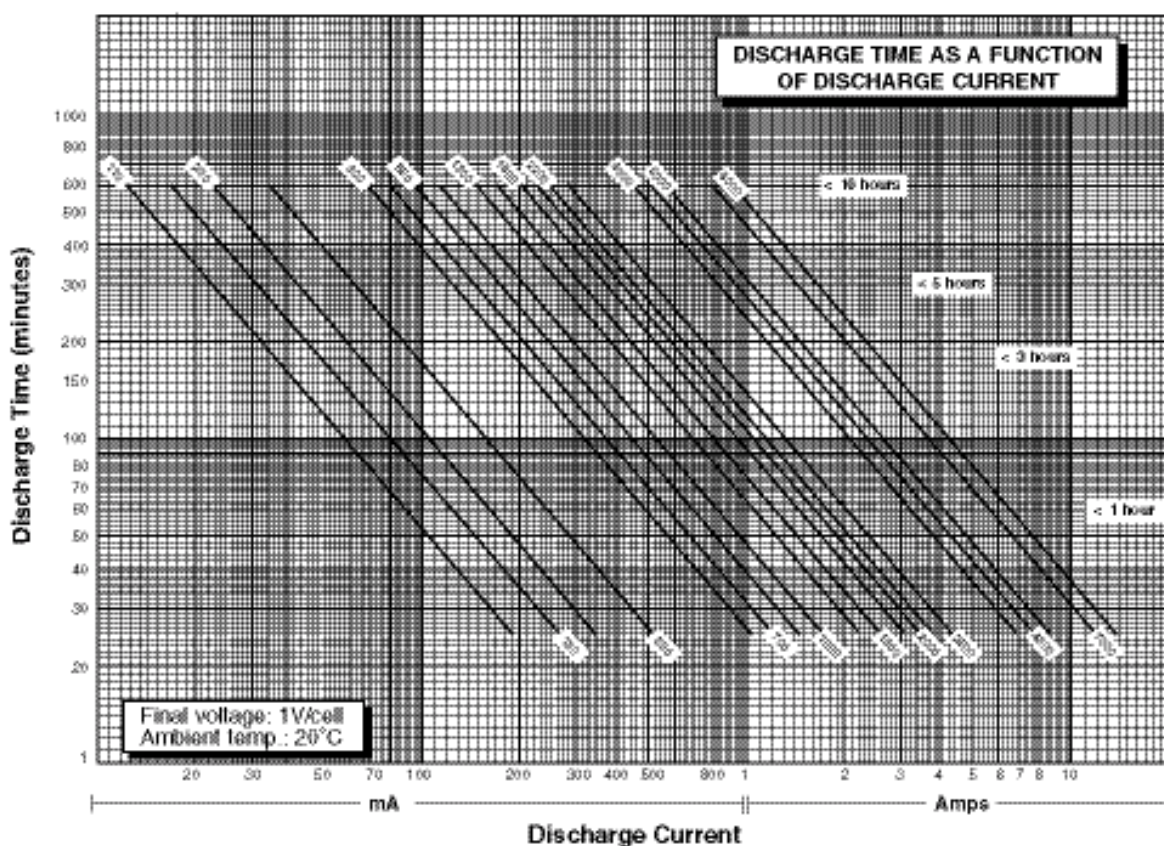
POSITIVE TERMINAL PROFILES: 1 = Flat Top; 2 = Button Top

CHARGE CHARACTERISTICS

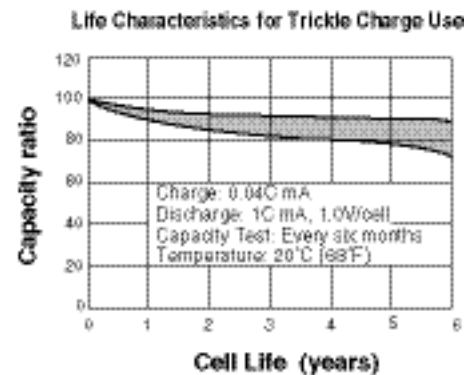
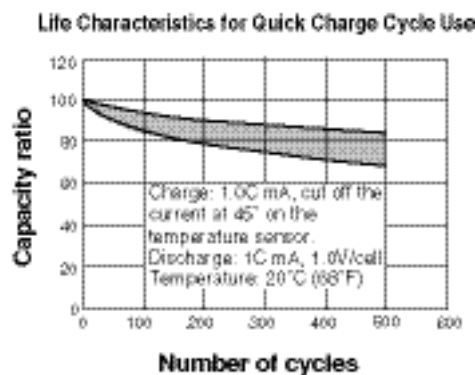
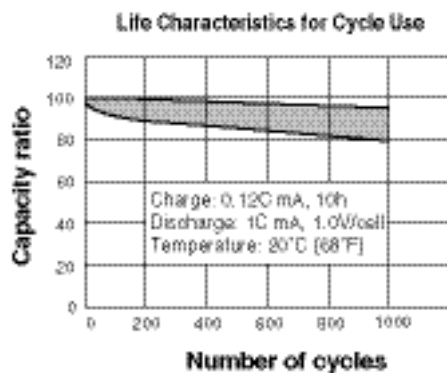


*CAUTION: NiMH batteries require rapid charge termination circuitry different from that of NiCd's: Delta temperature cut-off (ΔTCO) is recommended.

CELL SELECTOR GUIDE



LIFE CHARACTERISTICS





CELL ASSEMBLIES

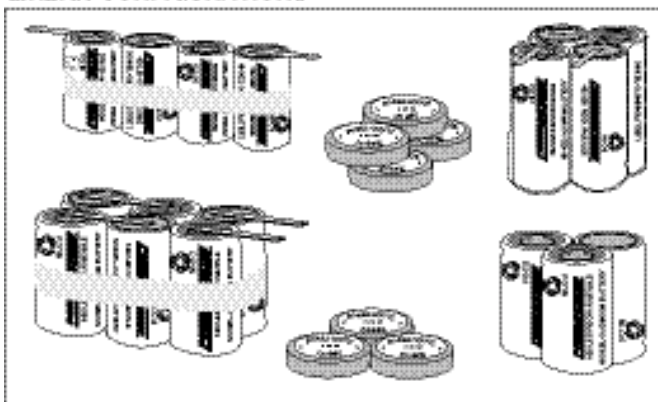
Power-Sonic NiCd & NiMH batteries are also available as cell assemblies and packs. Both cylindrical and button cells may be packaged in any configuration to meet electrical and dimensional requirements.

When specifying battery assemblies, the following information should be given:

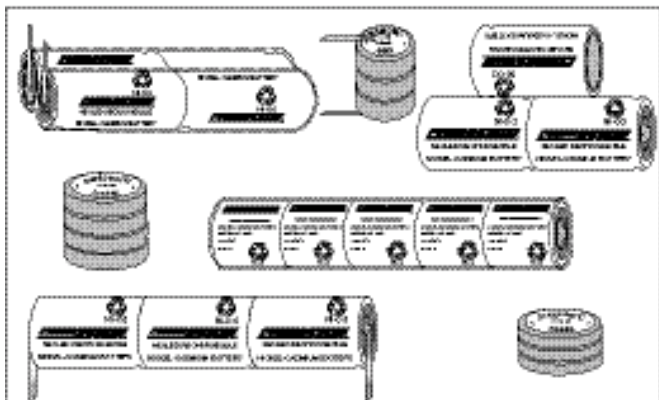
- 1) Size and type of cell
- 2) Voltage or number of cells
- 3) Configuration of cells: e.g., 1 x 4, 2 x 5, stick, etc.
- 4) Packaging method: taped or glued with hot melt; with or without shrink wrap
- 5) Termination: button top, solder tabs (incl. direction), or wire leads with or without connectors.

When ordering a replacement battery pack, specify voltage or number of cells, ampere-hour capacity or cell size, and dimensions of the pack.

LINEAR CONFIGURATIONS

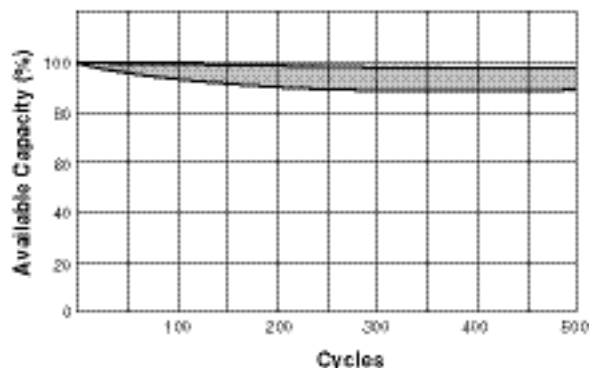


TUBULAR CONFIGURATIONS

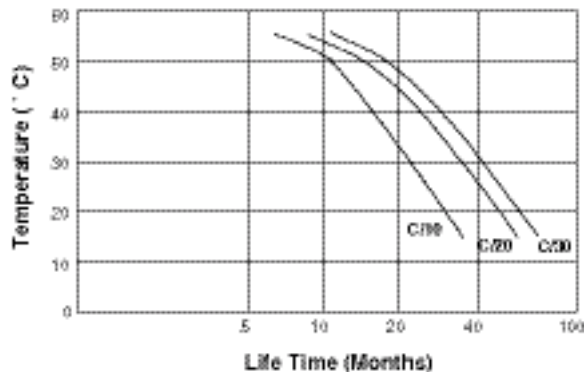


LIFE CHARACTERISTICS

LIFE EXPECTANCY – CYCLIC USE



LIFE EXPECTANCY – STANDBY USE



CHARGING

Cyclic Use: Semi-constant or constant current charging at the 0.1C (C/10) rate for 15 hours is recommended. Overcharging at C/10 for up to 48 hours can be done at room temperature without causing damage.

Cell sizes ranging from 1/3AA to SC can also be quick-charged for 4.5-6 hours at the 0.25C (C/3-C/4) rate. Quick-charging larger cells (C-cells and up) requires a controlled charge circuit because of the heat and gas generated during overcharge.

Standby Use: A trickle charge of between 0.02C and 0.05C (C/50-C/20) is sufficient to keep a battery fully charged. At 32°-113°F (0C°-45°C) this charge rate will minimize heating effects during overcharge and prolong battery life.