



Battery Handling and Precautions

Soldering

- Do not solder directly onto batteries. Always solder onto solder tag for connection.

Charging and Discharging

- Always charge batteries before first time application.
- Parallel charging or connection is not recommended. Parallel charging will produce irregular charging currents. Please consult GP Batteries for more details.
- Never short-circuit or reverse polarity in application.
- Do not use different types of batteries in the same battery assembly.
- If the battery has been deep-discharged, a prolonged charging time is required to bring the battery back to full capacity.

Storage

- Always store batteries in a cool, dry place.
- After long storage, e.g. over a year, it is desirable to cycle (charge/discharge) the battery 3 times to restore full capacity.
- Do not mix batteries with metal objects during storage or transportation to avoid accidental short-circuit.
- Do not store large quantities of batteries in a densely packed condition when they are in a charged or partially charged state.

Battery Handling

- Do not incinerate or dismantle batteries. Cell components are corrosive and may be harmful to skin and eyes.
- Do not pull on battery lead wires or connector. Excessive force on the leads or connectors can damage the welding joints or other connections.

Easy Battery Removal

- Some countries have legislation requiring easy removal of batteries from the devices. When designing a product, consideration should be given to the use of a socket connector and an easy-to-open battery compartment.

Distributed by:

GP Batteries

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GP Batteries

NiCd Rechargeable Batteries





NiCd Rechargeable Batteries

Committed to continued efforts in R&D and product innovation, supplemented by employment of the latest technology, GP Batteries is one of the most progressive manufacturers to produce various types of batteries to meet different needs.

Nickel Cadmium (NiCd) is the ideal rechargeable battery system to suit applications where battery performance and cost effectiveness are the major concerns. GP Batteries offers a wide range of NiCd batteries which are very durable, reliable, easy-to-use and economical, yet offering good performance. The main categories in active demand are: Standard, High Temperature, High Drain, Economy Series and VC-Series.

Major Features

- Long service life**
 Depending on usage conditions, GP NiCd batteries can deliver 300 - 1000 charge / discharge cycles.
- Superior high rate discharge characteristics**
 Up to 2C high rate discharge is possible.
- Quick charging capability**
 Rapid charge in about one hour with GP specified charging conditions.
- Excellent overcharge performance**
 GP NiCd batteries can be continuously overcharged at 0.1C rate for 28 days without leakage or deformation.
- Built-in safety features against misuse**
 Built-in chemical protection against polarity reversal or overdischarge. A resealable safety vent is incorporated to relieve internal pressure in case of misuse.
- No memory effect**
 Unlike sintered type rechargeable cells, GP NiCd batteries produced with modern foam electrode technology do not exhibit memory effect.
- High reliability**
 GP NiCd batteries are manufactured with the best available material using state of the art technology, allowing them to perform with outstanding reliability.

Major Applications

Communications

Cellular phones, cordless phones, pager and transceivers.

Information devices

Notebook computers, personal digital assistants (PDAs), portable facsimile machines.

Audio and video devices

Digital video cameras, LCD TVs, portable DVD, VCD, MD and CD players.

Emergency lighting

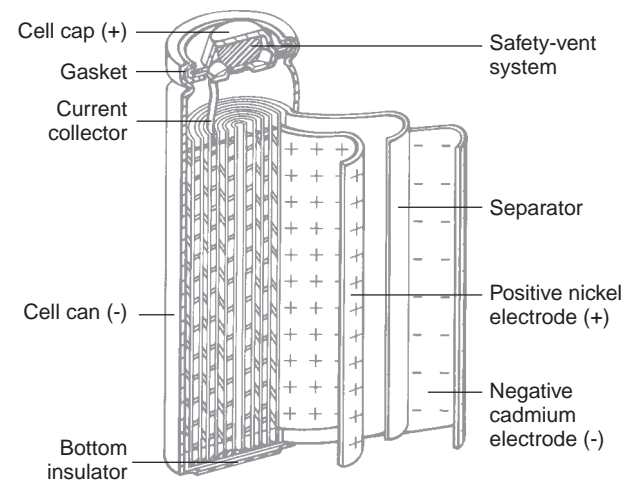
Remote controls & security systems

Other applications

Remote control toys, shavers, massagers, electric tooth brushes, handheld vacuum cleaners, power tools, handheld terminals, electric bicycles, memory back-up etc.

Cell Construction

Cylindrical



Specifications

High Temperature Series

Cell Size	Model No.	Nominal Voltage (V)	Capacity (0.2C discharge)*(mAh)		Nominal Dimension (mm)		Weight (g)	Standard Charge		1 Hr Charge Current (mA)#
			Minimum	Typical	Diameter	Height		Current (mA)	Time (hour)	
AA	AA GP70AAS	1.2	700	770	14.4	48.2	21	70	16	Not Applicable
AF	2/3 AF GP50AFKT	1.2	500	550	17	28.5	15	50	16	Not Applicable
Sub-C	Sub-C GP160SCKT**	1.2	1600	1760	23	43	44	160	16	Not Applicable
	Sub-C GP180SCKT	1.2	1800	1980	23	43	46	180	16	Not Applicable
C	C GP250CKT**	1.2	2500	2750	25.8	50	70	250	16	Not Applicable
D	1/2 D GP250DKT	1.2	2500	2750	33	37	82	250	16	Not Applicable
	D GP450DKT**	1.2	4500	4950	33	60.5	120	450	16	Not Applicable
	D GP450DKTSH	1.2	4500	4950	33	58	120	450	16	Not Applicable

Typical Ambient Temperature : Charge: 0°C to 70°C, Discharge: -20°C to 70°C, Storage: -20°C to 35°C

High Drain Series

Sub-C	Sub-C	GP200SCK**	1.2	2000	2200	23	43	53	200	16	2000
D	D	GP450DK	1.2	4500	4950	33	60	130	450	16	4500
	D	GP500DK	1.2	5000	5250	33	60	127	500	16	5000

Typical Ambient Temperature : Standard Charge : 0°C to 40°C, Fast Charge : 10°C to 40°C, Discharge : -20°C to 50°C, Storage : -20°C to 35°C

Standard Series

AAA	AAA	GP30AAAK	1.2	300	320	10.5	43.7	10.5	30	16	300
	AAA	GP35AAAK	1.2	350	370	10.5	43.7	12	35	16	350
AA	1/3 AA	GP18AAK	1.2	180	200	14.5	16.6	8	18	16	180
	2/3 AA	GP30AAK	1.2	300	320	14.5	28.7	11	30	16	300
	2/3 AA	GP40AAK	1.2	400	450	14.5	28.7	12	40	16	400
	2/3 AA	GP50AAK	1.2	500	520	14.5	28.7	13	50	16	500
	4/5 AA	GP72AAS	1.2	720	760	14.4	42.5	19	72	16	720
	AA	GP60AAS**	1.2	600	660	14.4	48.2	18	60	16	600
	AA	GP70AAS**	1.2	700	770	14.4	48.2	18.5	70	16	700
	AA	GP80AAS**	1.2	800	850	14.4	48.2	21	80	16	800
	AA	GP100AAS**	1.2	1000	1030	14.4	48.2	26.5	100	16	1000
	AA	GP120AAK	1.2	1200	1300	14.5	65	31	120	16	1200
AF	1/3 AF	GP25AFK	1.2	250	275	17	16.3	10	25	16	250
	2/3 AF	GP55AFK	1.2	550	605	17	28.5	13.9	55	16	550
	2/3 AF	GP70AFK	1.2	700	770	17	28.5	16	70	16	700
	4/5 AF	GP120AFK	1.2	1200	1320	17	43	26.5	120	16	1200
	AF	GP140AFK**	1.2	1400	1400	17	50	32.5	140	16	1400
Sub-C	Sub-C	GP200AFK	1.2	2000	2200	17.5	67.5	46.3	200	16	2000
	Sub-C	GP130SCK	1.2	1300	1430	23	43	44.5	130	16	1300
Sub-C	Sub-C	GP160SCK**	1.2	1600	1760	23	43	47	160	16	1600

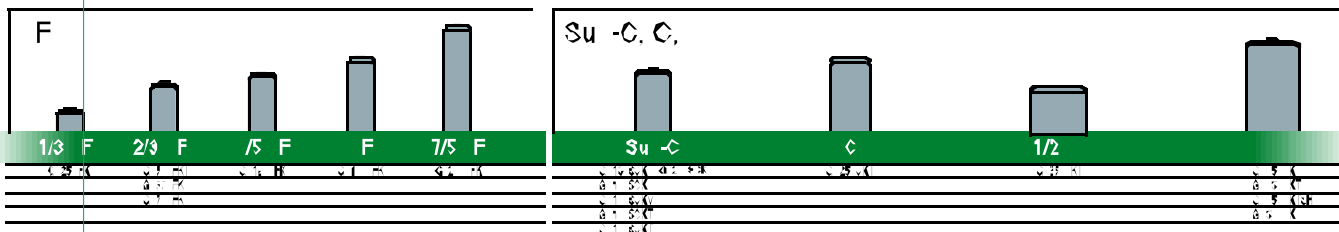
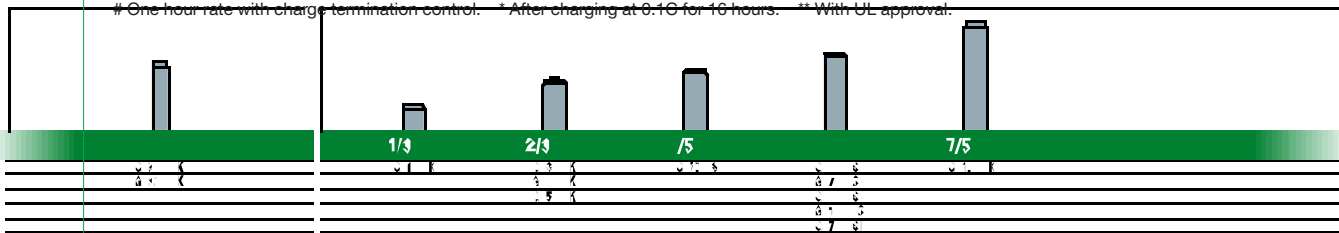
Typical Ambient Temperature : Standard Charge : 0°C to 40/45°C, Fast Charge : 10°C to 40/45°C, Discharge : -20°C to 50°C, Storage : -20°C to 35°C

VC Series

Sub-C	Sub-C	GP160SCKV	1.2	1600	1760	23	43	46	160	16	1600
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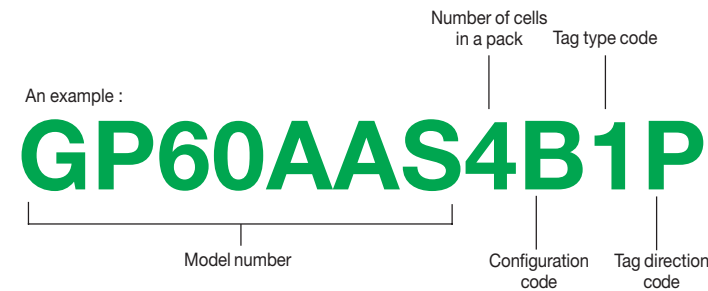
Typical Ambient Temperature : Standard Charge : 0°C to 40°C, Fast Charge : 10°C to 40°C, Discharge : -20°C to 50°C, Storage : -20°C to 35°C

One hour rate with charge termination control. * After charging at 0.1C for 16 hours. ** With UL approval.



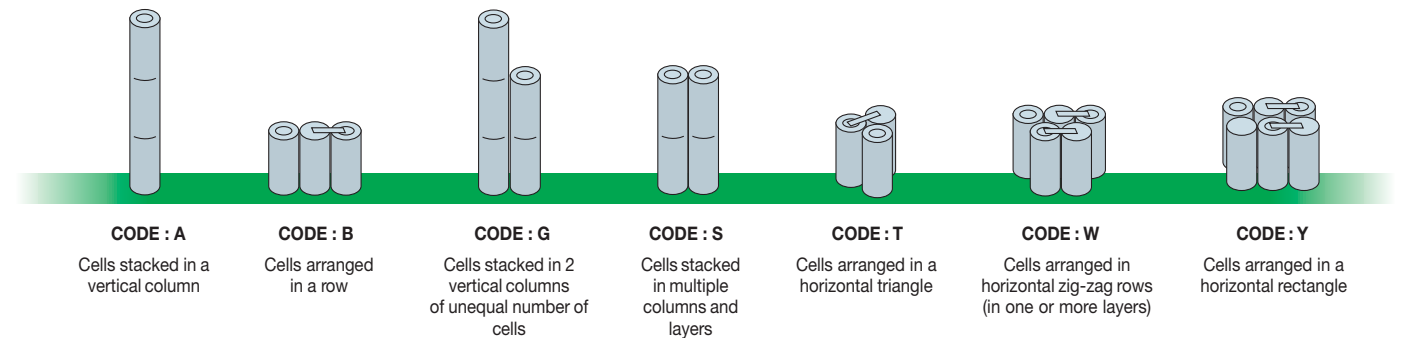
Configurations

Designation System for Battery Packs

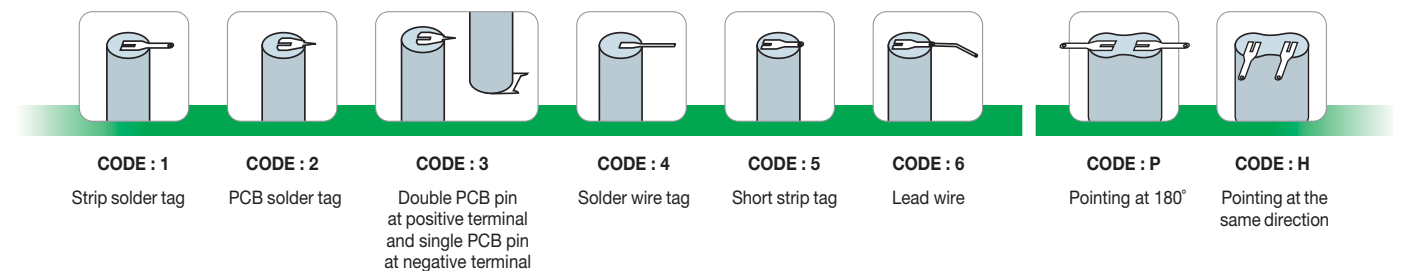


For battery packs with connectors, the last two characters will be used to specify connector type eg. GP60AAS4BMU.

Standard Configurations for Battery Packs



Tag Type Specifications



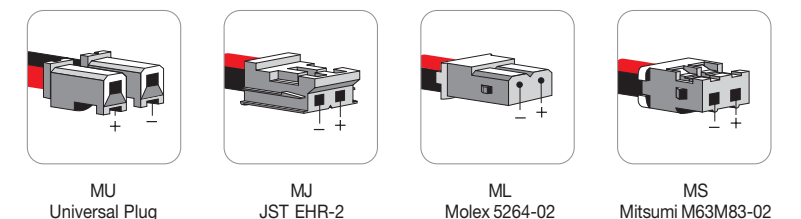
Tag Direction Codes

Connector Type Specifications

GP Universal Plug - exclusively from GP, offers distinctive features unparalleled in the market. - U.S. patent no. 5,161,990.

Major Benefits

- Compatible with most cordless phone models (interchangeable with Mitsumi, JST, Molex plugs etc.)
- Minimise inventory items
- User friendly



NiCd Rechargeable Batteries

Performance Characteristics

Cylindrical Cells

