Battery Handling and Precautions

Safety	
Don't Dismantle	Do not disassemble or modify the battery pack. The battery pack is equipped with built-in safety/protection features Should these features be disabled, the battery pack can leak, emitting corrosive liquid, or it would overheat, burst or ignite.
Don't Short Circuit	Do not connect the positive (+) and negative (-) terminals with a metal object such as wire. Do not transport or store the battery pack together with metal objects such as necklaces, hair pins, etc. Otherwise, short-circuiting will occur, overcurrent will flow, causing the battery pack to leak electrolyte, overheat, emit smoke, burst and/or ignite, or the metal objects such as wire, necklaces or hair pin can generate heat.
Don't Put Into Fire	Do not discard the battery pack into fire or heat it. Otherwise, its insulation can melt down. Its gas release vent or safety features will be damaged and/or its electrolyte can ignite, possibly leading to acid leakage, overheating, smoke emission, bursting and/or ignition on it.
Don't Put Into Water	Do not immerse the battery pack in water or seawater, and do not allow it to get wet. Otherwise, the protective features in it can be damaged. It can be charged with extremely high current and voltage, abnormal chemical reactions may occur in it, possibly leading to acid leakage, overheating, smoke emission, bursting and/or ignition.
Don't Pierce	Do not pierce the battery pack with a nail or other sharp objects, strike it with a hammer, or step on it. Otherwise, the battery pack will become damaged and deformed, internal short-circuiting can occur, possibly leading to acid leakage, overheating, smoke emission, bursting and/or ignition.
Don't Strike Or Throw	Do not strike or throw the battery pack. Otherwise, the protective feature in it may become damaged, it can be charged with extremely high current and voltage, abnormal chemicalreactions can occur in it, possibly leading to acid leakage, overheating, smoke emission, bursting and/or ignition.
Don't Direct Soldering	Do not solder directly onto batteries. Always solder onto solder tag for connection. Otherwise, heat can melt down itinsulation, damage its gas release vent or safety features possibly leading to acid leakage, overheating, smoke emission, bursting and/or ignition on it.

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GP Batteries

Lithium Ion
Rechargeable
Batteries

Lithium Ion Rechargeable Batteries

Increased demand for portable electronic appliances has expanded the spectrum of battery applications to a wider extent. The new advanced appliances are looking for batteries with longer running-hours, lighter weight and higher energy density. Among all the existing rechargeable battery systems, Lithium Ion technology is, and will continue to be the most logical power force for the portable age. GP Batteries, one of the world's top-ten battery manufacturers, offers a wide range of ultra-high performance cylindrical and prismatic Li-ion batteries to meet market needs.

GP Batteries owes its success to 40 years of battery making experience, continuous efforts in R&D, cutting edge technology and advanced equipment. Today, GP Batteries has its manufacturing, marketing and distribution operations in 15 countries serving both retail and OEM markets. Take full advantage of GP's advanced technology and quality Li-ion batteries for better performance, and for more opportunities.

Major Features

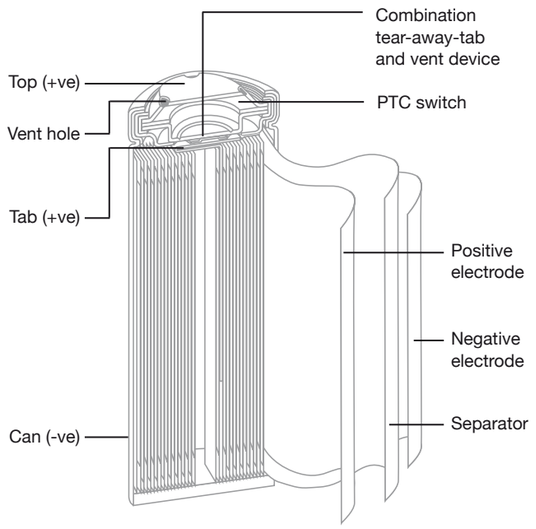
- **High Energy Density**
  Advanced technology provides ultra-high capacity performance for GP Li-ion batteries.
- **Variety of Sizes and Capacities**
  Our expanding list of models encompasses a wide range of battery sizes and capacities, making it convenient in various applications.
- **Wide Operating Temperature Range**
  GP Li-ion batteries can be charged over a temperature range of 0℃ to 45℃, and discharged between -20℃ to 60℃.
- **Designed for Safe Operation**
  All batteries are equipped with multiple safety features, including safe shut-down separator and safety vent.
- **High-Output and High-Load Characteristics**
  Capable of continuously discharge at 2C rate. Effective for large power consumption applications, such as Notebook, PC etc.
- **Stable Operating Voltage**
  Relatively gentle decreases in discharge voltage enhances the operating stability of the applications.
- **Good Charge Retention**
  Charged GP Li-ion batteries can be stored for long period with high residual capacity, because of low self-discharge rate.
- **No Memory Effect**
  The discharge performance is not affected even when the batteries are subjected repeatedly to shallow discharge cycles. There is thus no need to pre-discharge the batteries before charging.
- **Long Cycle Life**
  GP Li-ion batteries offers stable capacity and performance for hundreds of cycles, thus providing a great value over its life time.
- **ISO Accreditation**
  GP's manufacturing plants are accredited with QS9000, ISO 14001 and OHSAS 18001 certificates, International quality standards in terms of design, manufacturing and environmental management are guaranteed.

Applications & Recommended Models

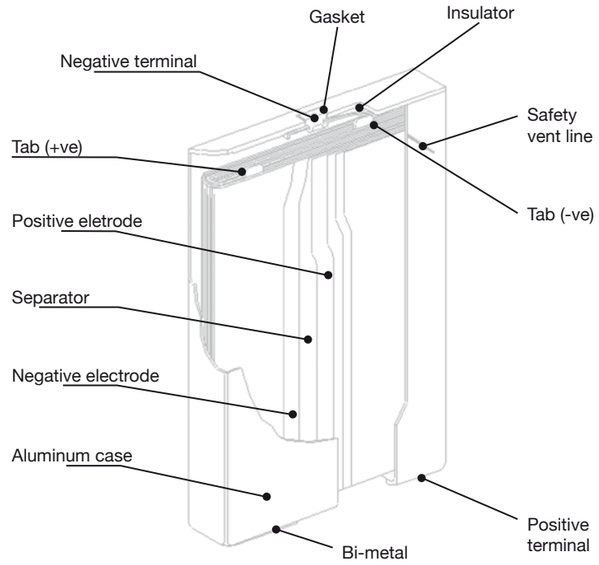
Cell Model	Bluetooth Headset	Digital Pen	Portable Speaker	LED Lighting	Payment Terminal	HDDV	Communication Devices	Remote Controll	Wireless Mouse & Keyboard
GP603450L114R					√	√	√	√	√
GP623048L104								√	√
GP103450L180R(P)					√		√		
GP103450L180R(X)					√		√		
GP103450L180R(C)					√	√			
GP0836L17	√								
GP1029L20	√								
GP1229L30		√							
GP1865T220			√	√	√		√		

Cell Construction

Cylindrical



Prismatic



Lithium Ion Rechargeable Batteries

Cylindrical Models

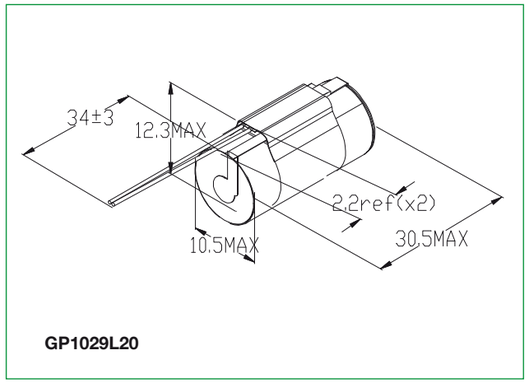
Specifications

Cell Model	Voltage (V)	Cell				Weight (g)	Max.Continuous Discharge Current (mAh)
		Capacity (mAh)		Dimension (mm)#			
		Min	Typ	Diameter ø	Height		
GP0820L07*	3.7	60	75	8.2	19.5	4.0	150
GP0836L17*	3.7	155	170	8.2	35.5	4.8	340
GP1015L08*	3.7	70	85	10.2	14.8	3.1	170
GP1022L15*	3.7	140	155	10.2	21.6	4.2	310
GP1029L20*	3.7	195	210	10.2	28.5	6.0	420
GP1229L30*	3.7	310	325	11.5	28.2	8.5	650
GP1443L68*	3.7	630	680	14.2	43.0	16.0	1360
GP1850L140*	3.7	1350	1400	18.5	50.0	31.0	2800
GP1865T220*	3.6	2100	2150	18.5	65.5	44.0	2150

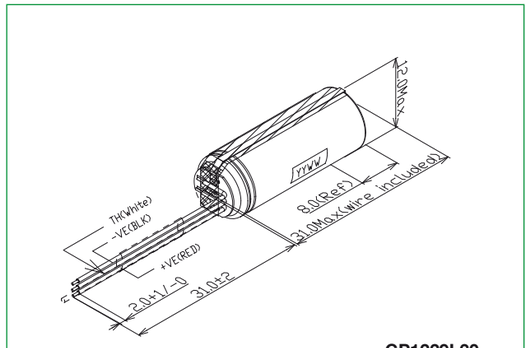
Typical Ambient Temperature : Charge : 0ºC to 45ºC / Discharge : -20ºC to 60ºC / Storage : -20ºC to 45ºC

* UL recognized model # Dimension of bare cell before cycling.

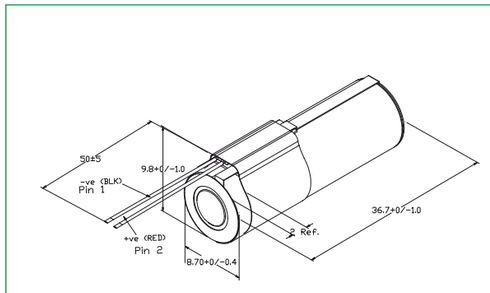
Pack Mechanical Drawing



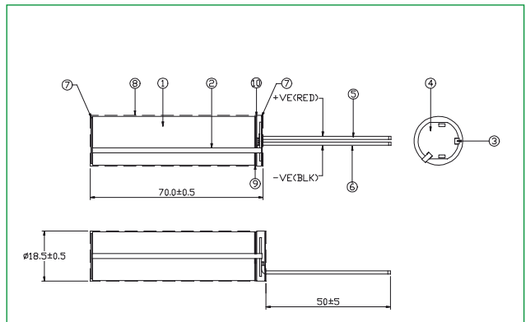
GP1029L20



GP1229L30

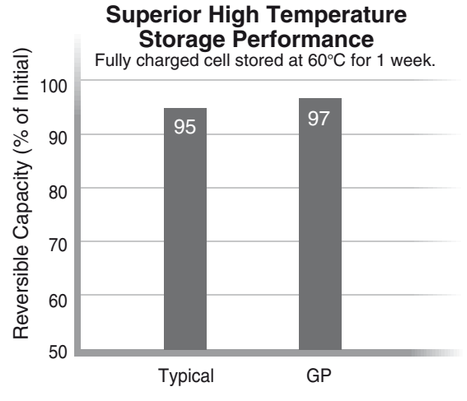


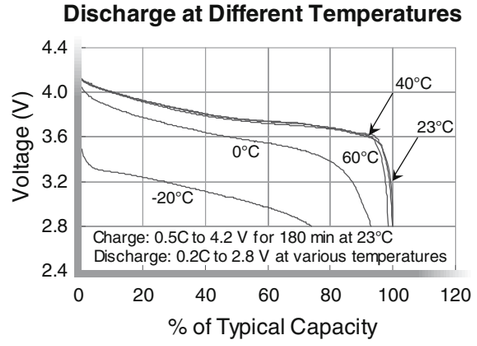
GP0836L17

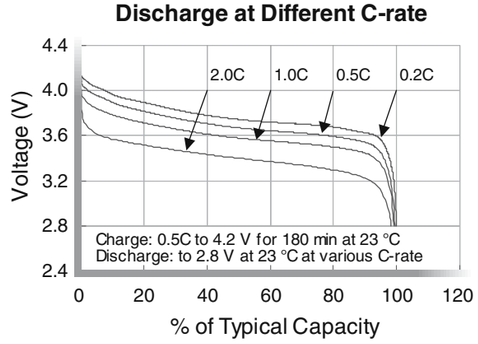


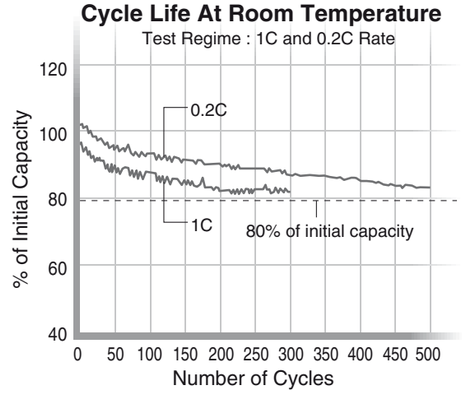
GP1865T220

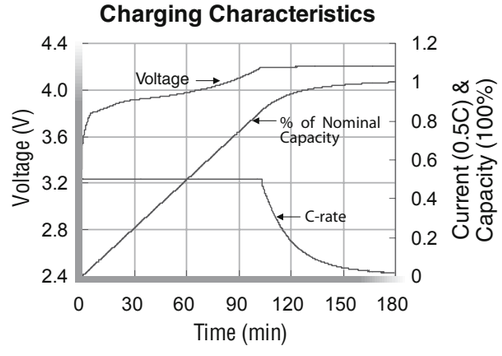
Performance Characteristics











Lithium Ion Rechargeable Batteries

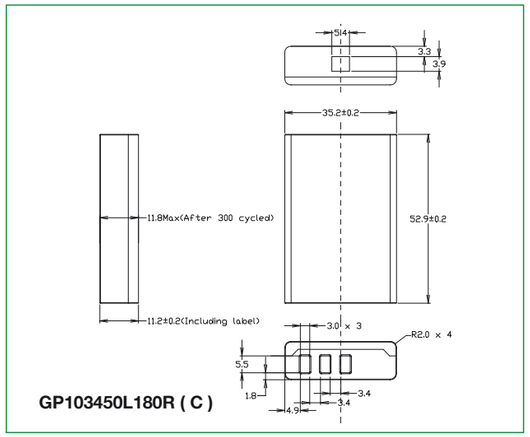
Prismatic Models

Specifications

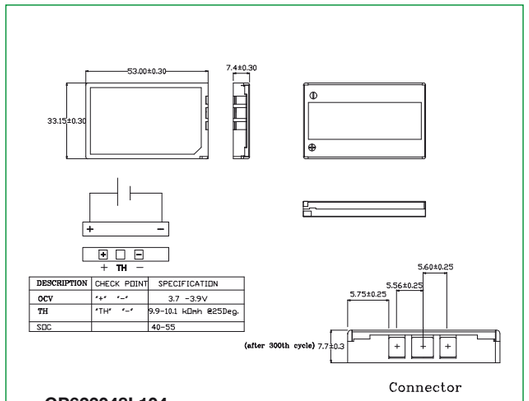
Cell Model	Voltage (V)	Cell					Weight (g)	Max. Continuous Discharge Current (mAh)
		Capacity(mAh)		Dimension (mm)#				
		Min	Typ	Thickness	Width	Height		
GP503436L60R*	3.7	570	600	5.3	34.0	36.1	14	1200
GP503449L98R*	3.7	950	980	5.4	34.0	49.4	19	1960
GP603450L114R*	3.7	1110	1140	6.4	34.1	50.0	24	2280
GP623048L104*	3.7	1000	1040	6.6	30.0	48.0	21	2080
GP103450L180R (P)*	3.7	1800	1850	10.6	34.0	50.0	38	2775
GP103450L180R (X)*+	3.7	1800	1850	10.6	34.0	50.0	38	2775
GP103450L180R (C)*	3.7	1750	1800	10.5	34.0	50.0	38	2700

Typical Ambient Temperature : Charge : 0ºC to 45ºC / Discharge : -20ºC to 60ºC / Storage : -20ºC to 45ºC * UL recognized model # Dimension of bare cell before cycling.
+ Designed for very low temperature application.

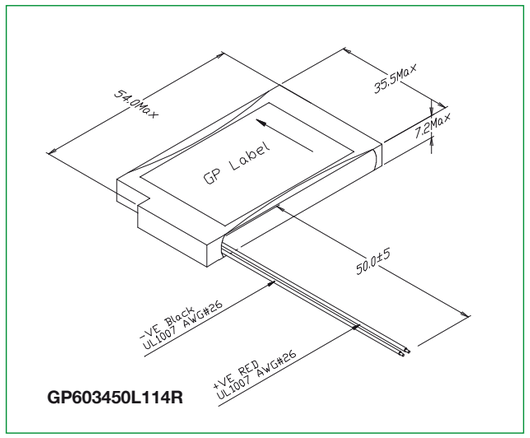
Pack Mechanical Drawing



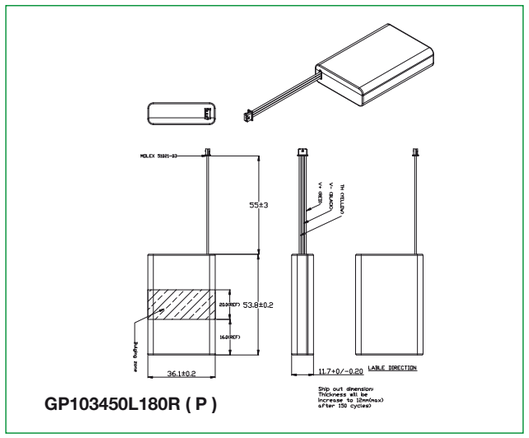
GP103450L180R (C)



GP623048L104

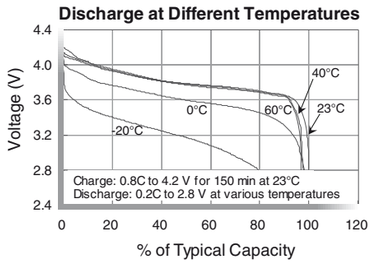


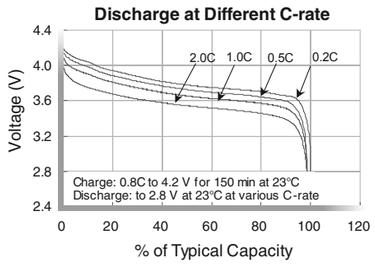
GP603450L114R

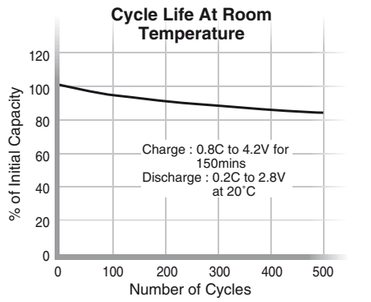


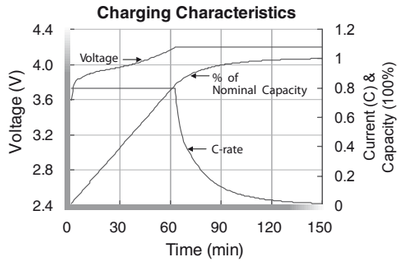
GP103450L180R (P)

Performance Characteristics









Battery Handling and Precautions

Charge	
Charge Voltage	Charge to 4.20 +0/-0.05V per cell, each being supervised.
Charge Current	Do not exceed 1C charging rate.
Charge Temperature	Charge in the range of 0 to 45˚C.

Discharge	
Discharge Current	Size the discharge over-current protection elements to be able to take the maximum current.
Discharge Temperature	Discharge in the range of -20 to 60˚C.
Overdischarge	Do not discharge below 2.8V/cell under significant loads. Small leakage current may discharge the cell further in some devices even after shut down.

Storage	
Storage Temperature	Store at -20 to 45˚C. Significant permanent loss can occur when storing at 60˚C for prolonged period. Keep the battery away from fire.
Long Term Storage	Deterioration of cell capacity is slower at lower state of charge. Store at below 50% state of charge or about 3.7V. For extended storage period over one year, recharge the battery to 3.7V to prevent overdischarge of the battery.

Equipment Design	
Reverse Polarity Prevention	Provide mechanical stop so that the battery pack cannot be inserted in a reverse manner. The electrical contacts should be designed so that they are difficult to short.
Battery Location	Elements like solid state safety circuit should be mounted so that they are not subjected to high temperature or electromagnetic field emanating from the device it is powering or being charged by.
Damage Prevention Due to Drop	The wiring and cells should be protected inside the battery pack by designing so that they are difficult to short.