Technical Specification for Li-ion Digital Camera Battery Pack

Product Description	**:**	**3.5V Li-ion, 350mAh Digital Camera Battery Pack**
Art- No.	**:**	**6194196**
Replace Model	**:**	**123, 123A，CR123A，CR123R，CR17335，CR17345，DL123A，EL123AP，K123LA，L123A**

1. SCOPE

This technical specification is applied to a sealed Li-Ion Cylindrical rechargeable battery as a power supply for Digital Camera. The battery pack is bonded by 1 pieces of 350mAh single cell in series (1P1S). The battery converts chemical energy into electrical energy by chemical reaction.

The total voltage of battery pack is an individual single cell voltage.

2. CELL TYPE

Cell	:	Sealed Lithium-ion Cylindrical Rechargeable Battery
Model	:	ICR15270A35
Size	:	15270

3. PACK RATING

Nominal Voltage		: 3.5V
Rated Capacity		: 350mAh
Minimum Capacity		: 320mAh
Standard Charging (constant current, constant voltage)		: 175mA x 5hrs to 4.2V
Quick Charging (constant current, constant voltage)		: 350mA x 2.5hrs to 4.2V
Maximum Charging Current		: 350mA
Standard discharging		: 350mA
Maximum Discharging Current		: 1000mA(for continuous discharging mode)
Discharge End Voltage		: 3.0V
Internal Resistance (for reference only)		: ≤180mΩ
Operating Temperature	(in charging)	: 0℃ to 45℃
	(in discharging)	: -20℃ to 60℃
Storage Temperature	(within 1 month)	: -20℃ to 45℃
	(within 3 month)	: -20℃ to 45℃
	(within 1 year)	: -20℃ to 20℃

4. PHYSICAL CHARACTERISTICS

Weight of battery (for reference only)	:	Approx. 16.5g
Nominal size per pack (for reference only)	:	φ16.50 x32.50mm

4.1 MATERIAL OF CASING

A non-inflammable material from GE injects the plastic casing, model CYCOLOY C2950. It is listed UL94 V-0VA and 5VE.

5. ELECTRICAL TEST

Unless otherwise stated in this specification, all testing procedure should be carried out at 20±5℃ temperature and a relative humidity of 65±20%.

5.1 Charging Characteristics

The charging method is constant current/constant voltage (CC/CV) method.

The charging current should be less than 350mA.

The charging time is approximately 2.5hrs and 5hrs for charging current of 350mA and 175mA respectively.

5.2 Capacity Characteristics

Vary Discharge Rate Capability

The battery is standard charging at a constant current of 175mA 5 hours to 4.2V at 20℃.

The battery is discharging at a constant current of 70mA to 6.2V. The capacity shall not be less than 91%

Discharge Capability at Vary Temperature

The battery is stand charged at a constant current of 175mA 5hours to 4.2V at 20℃. The battery is discharged of 175mA to 3.0V. The battery shall deliver the following capacities.

Temperature (℃)	Minimum % of Rated Capacity
45	80
0	70
25	95

5.3 Charge Retention

The battery is charged under standard charging at a constant current of 175mA 5 hours to 4.2V. The battery will be stored on open circuit for 30 days at 20℃. Then discharge the battery at a constant current of 70mA to 3.0V. The nominal capacity shall be more than 85%.

6. MECHANICAL TEST

6.1 Vibration Test

The battery is vibrated in triaxial direction with 4 mm amplitude of frequency 30 Hz (1 Hz per minute) for 1 minute in triaxial direction. The battery is observed to be normal.

6.2 Dropping Test

The battery is dropped from a vertical height of 1m onto a flat, firm, non -yielding surface. The same battery is dropped in the same manner seven times. The battery is then observed and appears to be normal.

7. SAFETY DEVICE AND ABUSE REQUIREMENT

Circuitry protection as described below has been presented inside the battery pack to insure safety in case of misuse.

Overcharge Voltage Protection

At a charge voltage greater than 4.325±0.025V, the overcharge protection should engage interrupting the charge current.

Over Discharge Protection

When a voltage less than 2.3±0.05V is reached upon discharging, the over discharge protection device should engage. The resulting discharge current should be below 1μA.

Over Discharge/Short Circuit Protection

When discharge current exceeds 2.5A, the over discharge current protection should engage interrupting the discharge current.

8. SUPPLY

The battery should be storage or transportation at open circuit and discharged state.

9. SAFETY PRECAUTIONS AND HANDLING

If inappropriate handling of the battery, it may cause the equipment malfunction from affecting the battery. Be sure that the battery pack is handled properly.
The battery shall be charged before the first time application by a specified charger.

Always keep the battery in a cool and dry place.

Be sure to use a charger specified by manufacturer.

The battery pack includes flammable organic solvents. If inappropriate handling occurs, it is possible that the battery may rupture, leakage, ignite, or overheat, cause irreparable damage.

Do not disassemble or modify the battery pack. The battery pack is equipped with built in safety protection features.

Do not externally short circuit the battery packs.

Do not use or leave battery nearby fire, stove or heated place (more than 80℃). It could melt the resin separator causing it to overheat.

If submerged in water, the safety circuitry may be damage the point where the safety devices will not operate properly. Possible overheating, ignition and burst may occur.

Do not directly solder on the battery pack. Heat can melt down its insulation and damage safety circuitry.

Do not use extreme pressure or another medium for potential deformation of the battery pack.

An external opposite connection of the battery pack terminals will short circuit the battery, resulting in the pack overheating, ignition and damage.
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Do not use the battery pack for using other than those specified by manufacturer. Otherwise, the battery performance may be diminished, its service life may be shortened and it will void the performance guarantee.

Do not charge, overcharge, or inverse charge at a higher current than specified. Charging the battery pack using chargers not specified or modified may cause the battery pack to overheat, ignite or explode.

If any abnormality or problem of the battery exists, discontinue to use.

10. Recommended Disposal Method

The battery contains hazardous waste materials therefore should be disposed by recognized recycle organization. Contact your local agencies to ensure appropriate disposal performed by permitted contractor.