

1998년도 전지기술 심포지움

Bixel[®] LIB 개발현황

Lithium-Ion Battery

1998 / 12 / 4

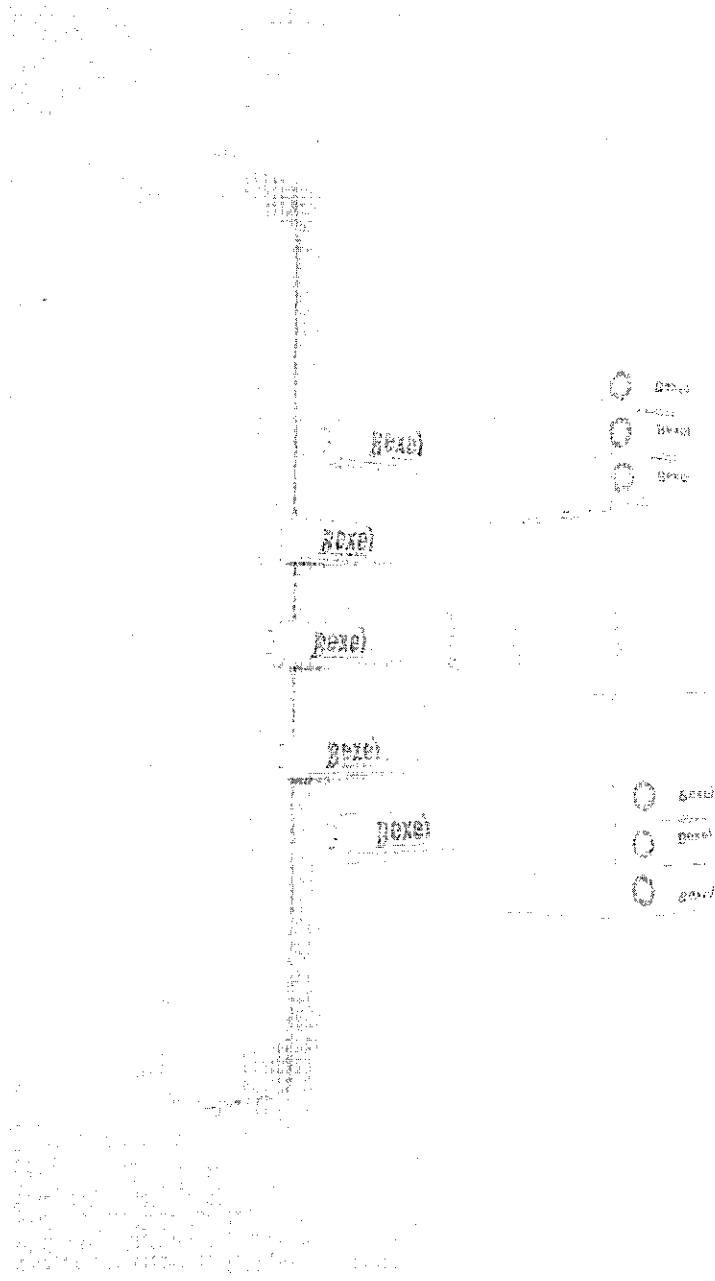
윤성규, 염덕형, 박천준
지정석, 고성태, 유선준

(주) 서통 전지기술연구소

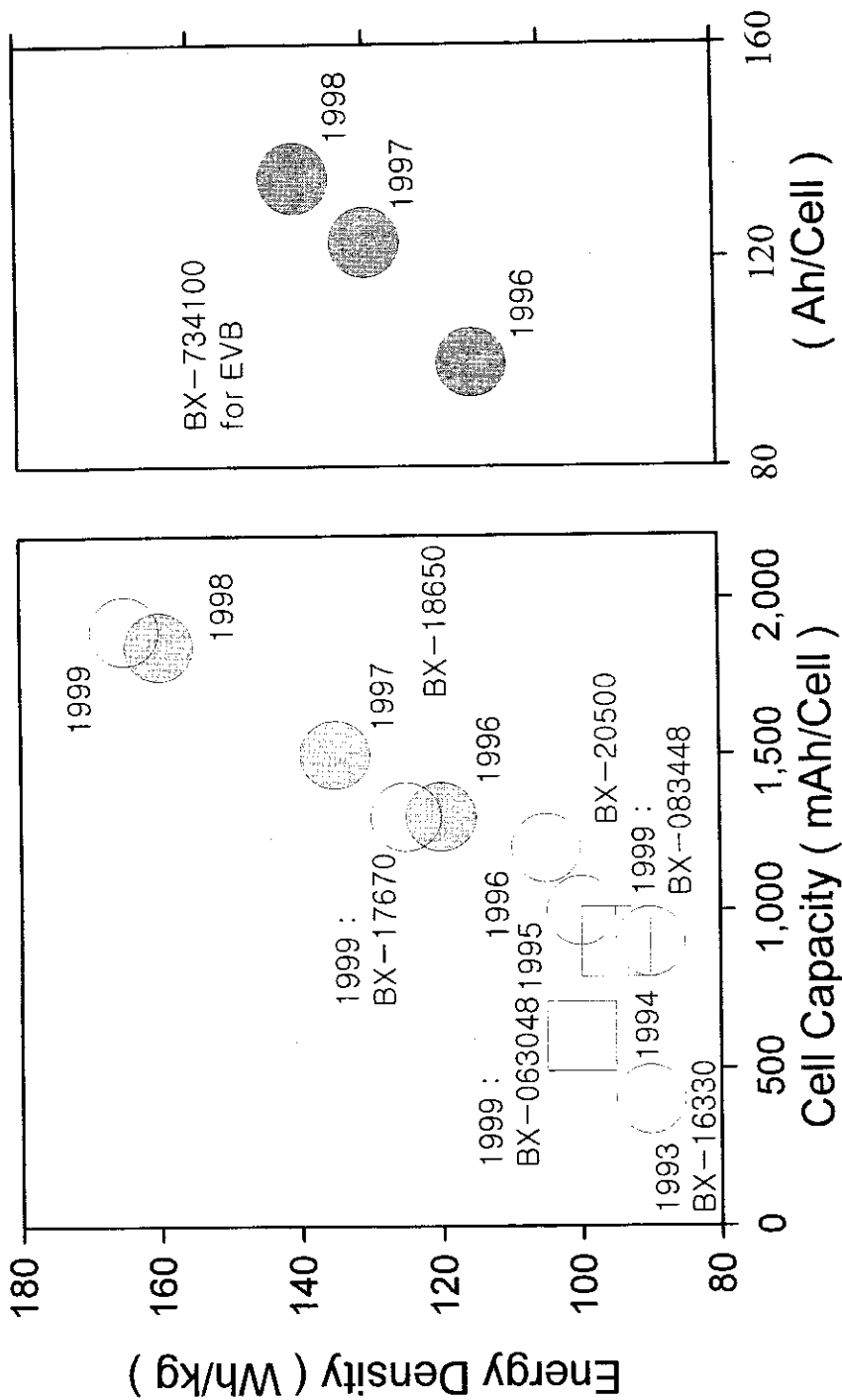
History of STC

- 1954 Establishment of STC
- 1971 Production of Adhesive Tape
- 1978 Production of Manganese Dry Battery (SUNPOWER)
- 1982 Production of OPP Film
- 1983 Production of Alkaline Manganese Battery
- 1987 Establishment "Battery R&D Center"
- 1990 LIB R&D Start
- 1992 EVB R&D Start (G-7 Project)
- 1995 LMB R&D Start (BEXEL)
- 1996 Received a "ISO 9002" Certification
LPB R&D Start

► **Bexel**[®] LIB R&D History
Lithium-Ion Battery



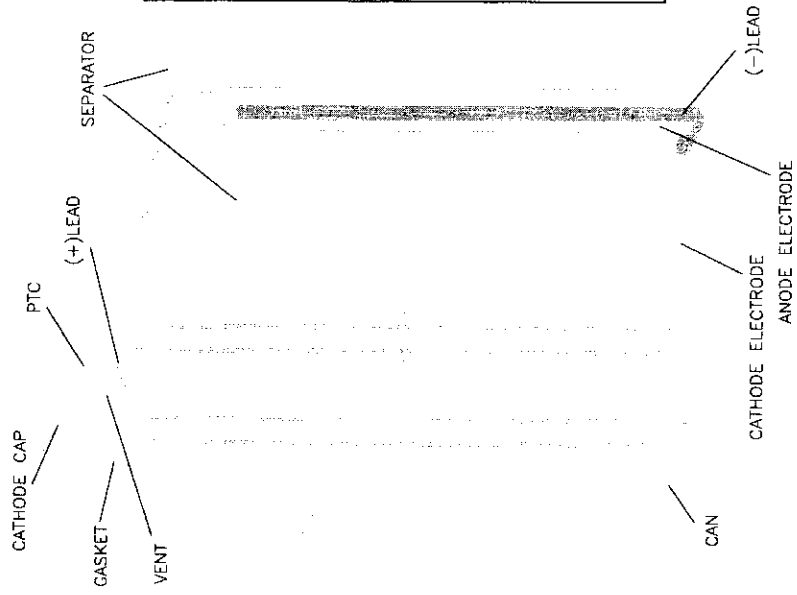
► **Bixel**[®] LIB R&D History
Lithium-Ion Battery



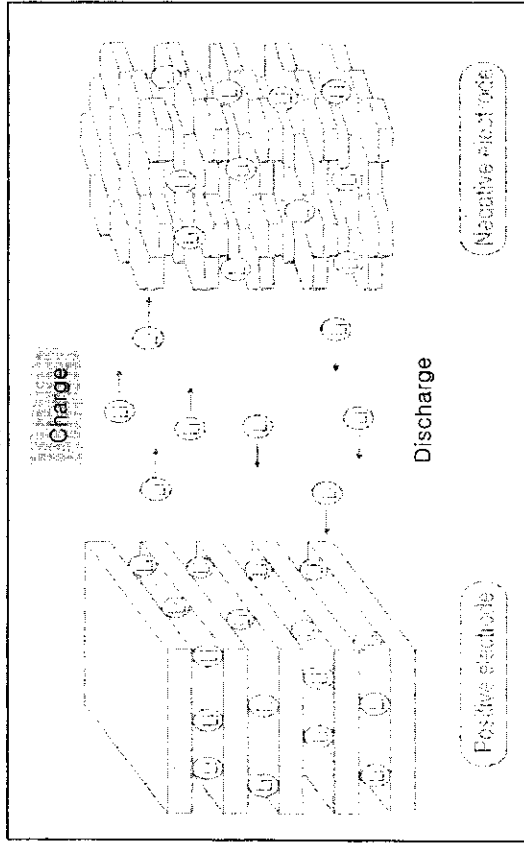
► SYSTEM of **Bexel**[®]
Lithium-Ion Battery

- Cathode Material – Lithiated Transition Metal Oxide
(LiCoO₂)
- Anode material – Graphitic Carbon
- Electrolyte – Lithium Salt & Organic Solvent
(LiPF₆, LiBF₄, LiClO₄ etc... / EC, PC, DEC etc...)
- Separator – Microporous Polyolefin Film

► Structure of BX-18650

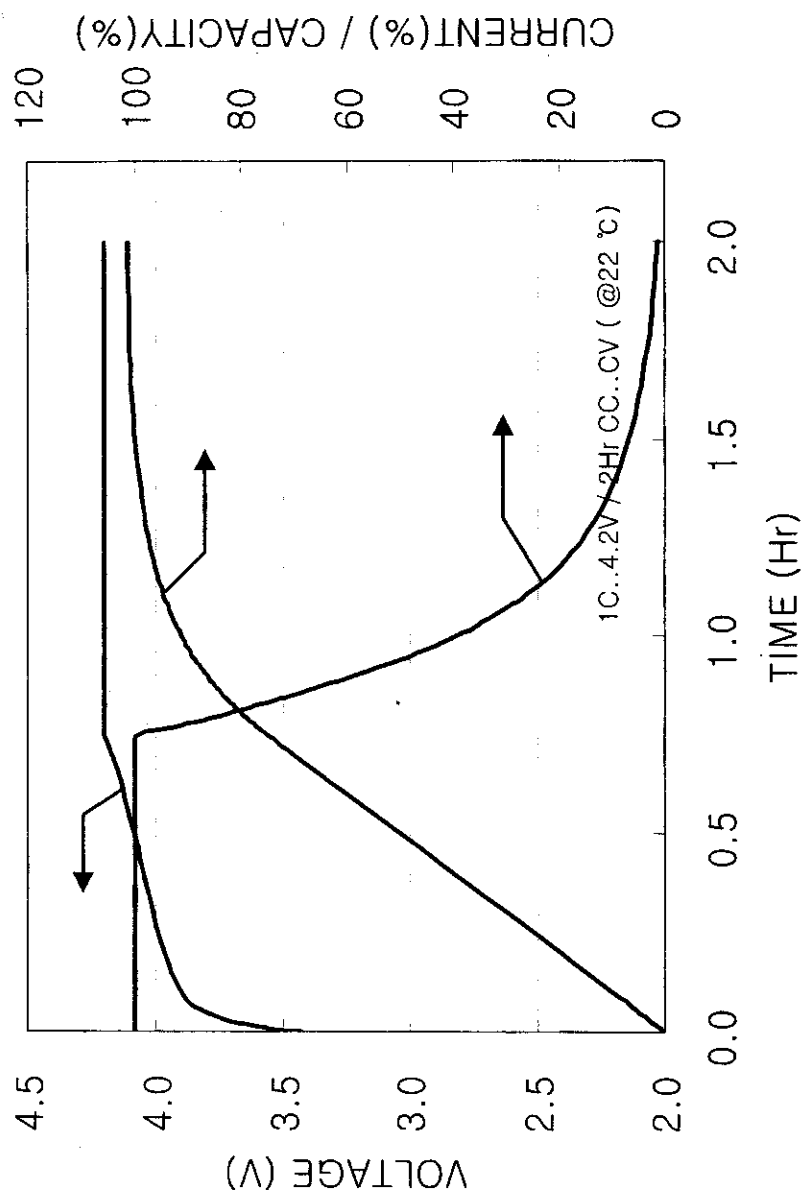


『 Principles of LIB 』



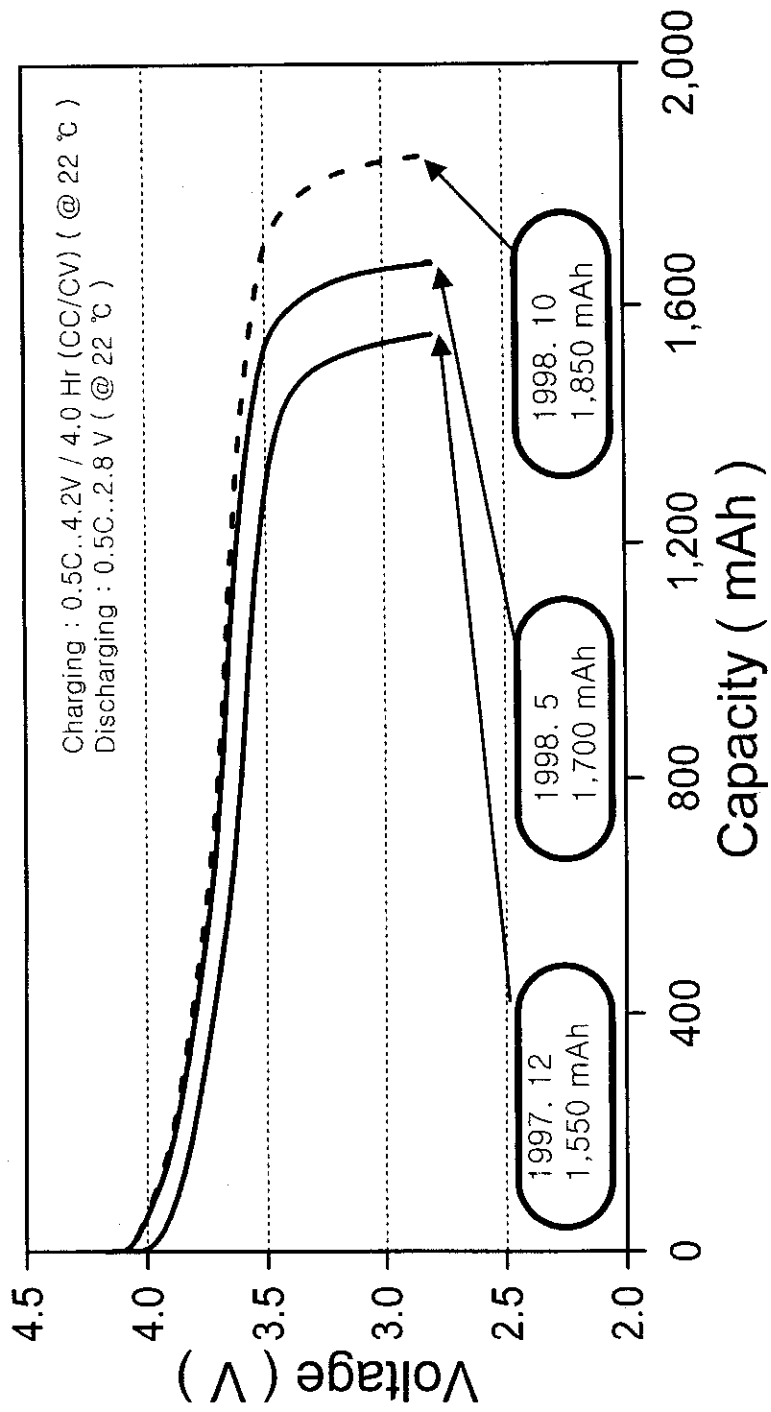
► Charging Characteristics (BX-18650)

— Quick Charge



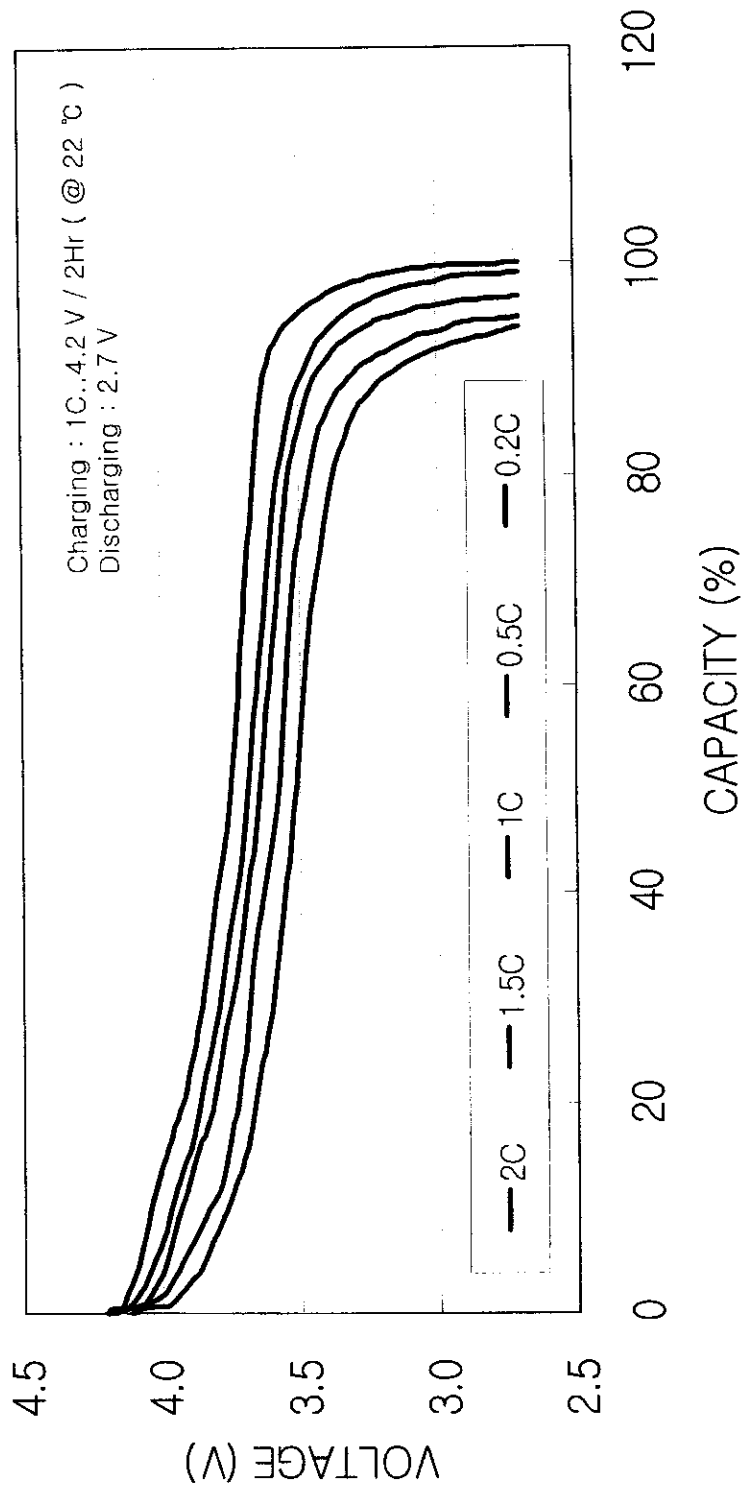
► Discharging Characteristics (BX-18650)

– High Capacity



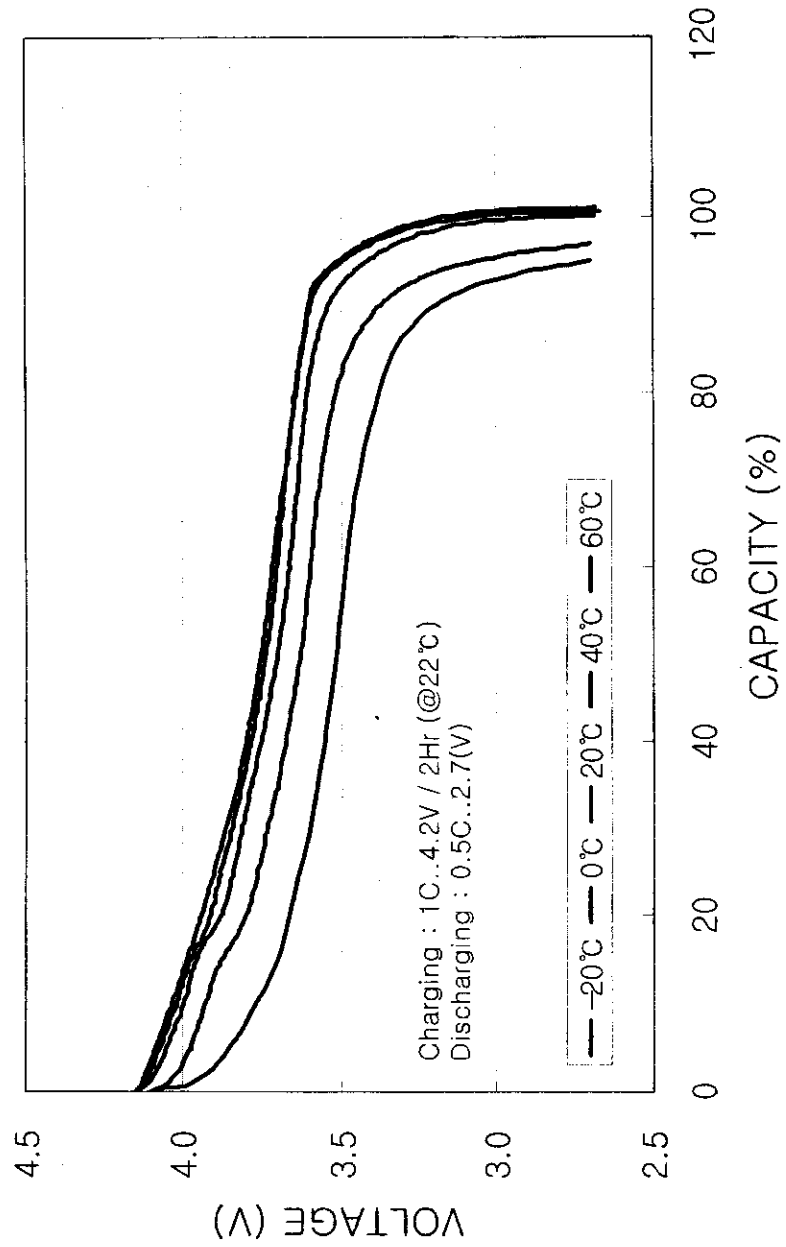
► Rate Capability (BX-18650)

– High Rate Discharging



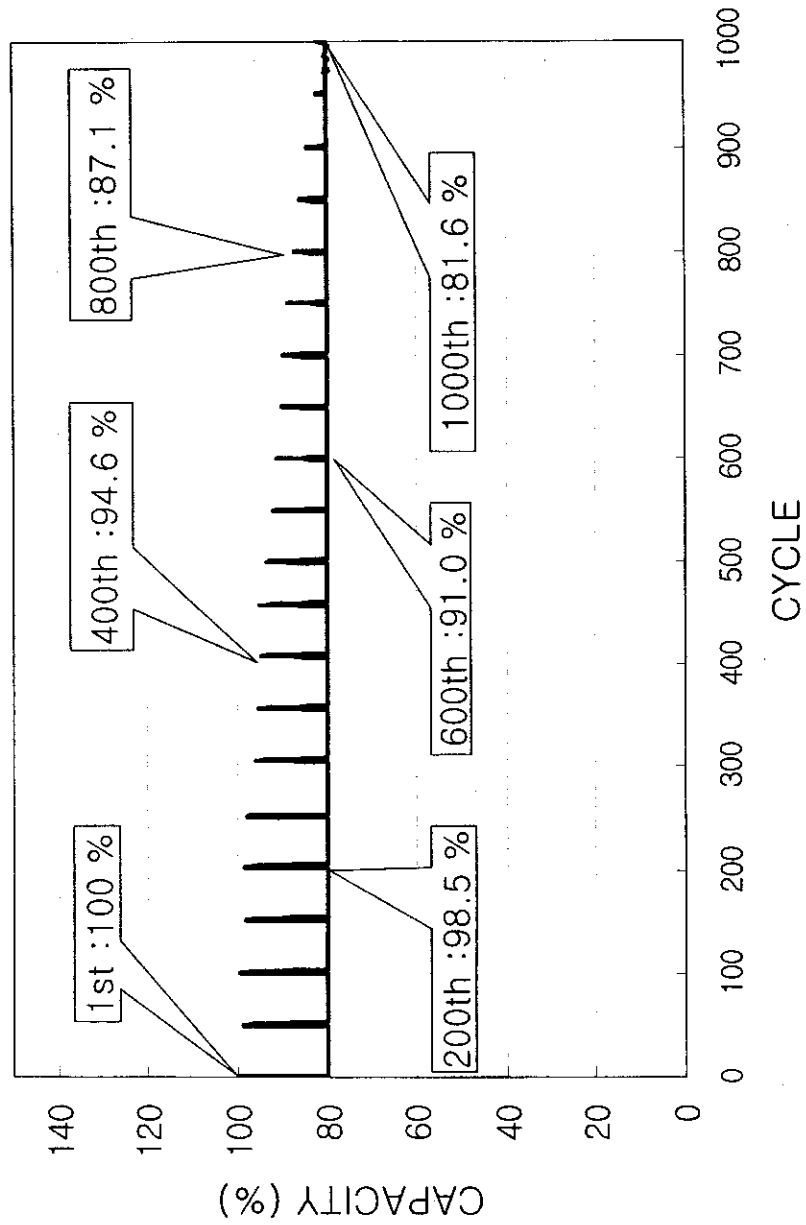
► Temperature Characteristics (BX-18650)

— Wide Operating Temp.



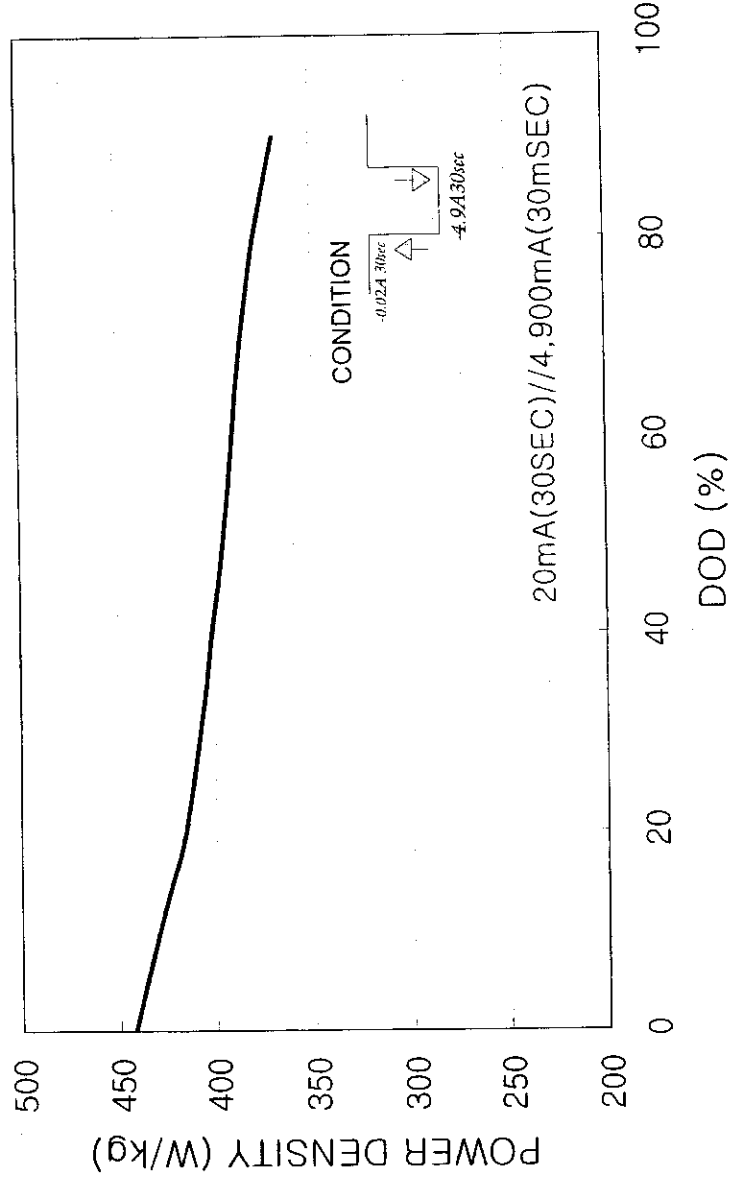
► Cycle Characteristics (BX-18650) @80% DOD

- Longer Cycle Life



► Power Characteristics (BX-18650)

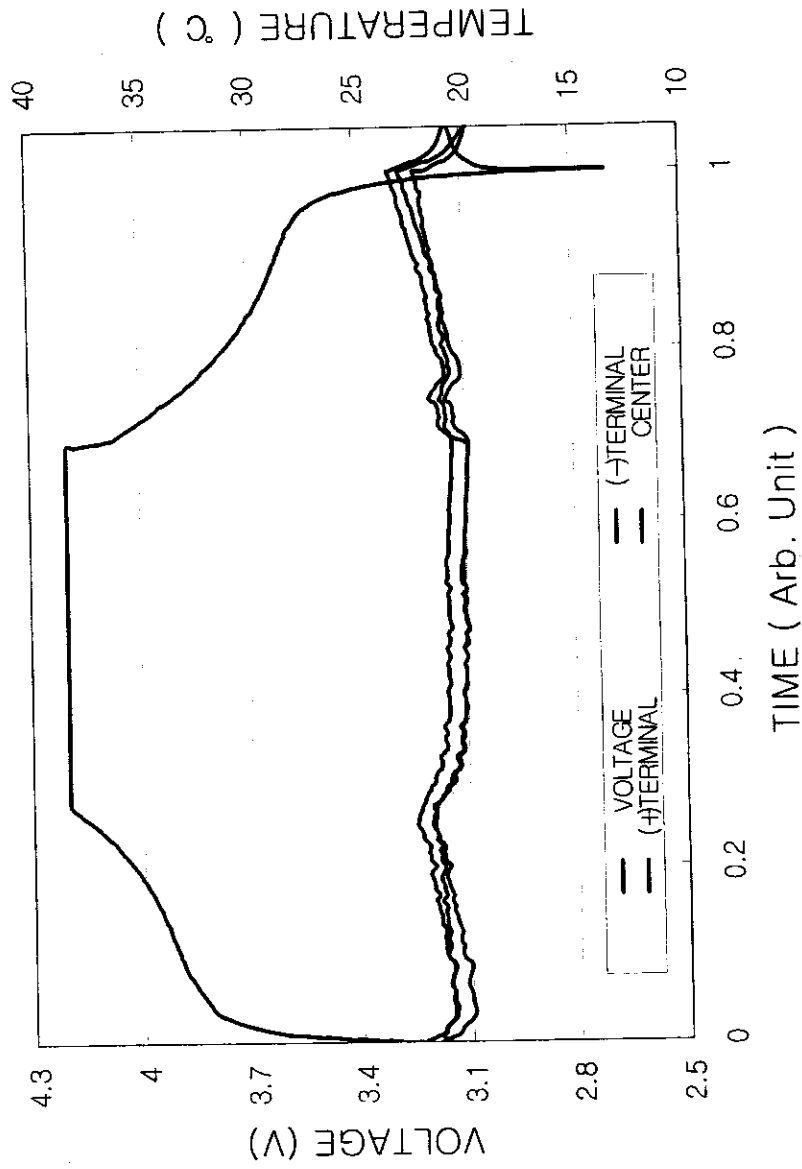
- Excellent Power



STC BATTERY R & D CENTER

► Thermal Characteristics (BX-18650)

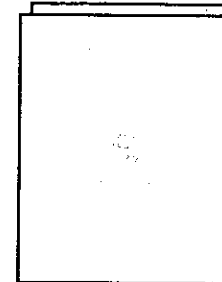
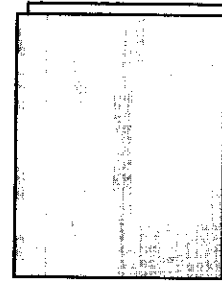
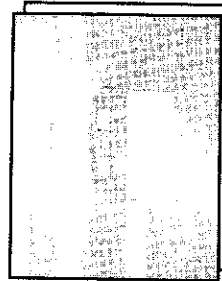
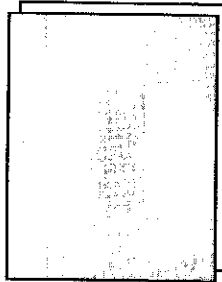
- High Reliability



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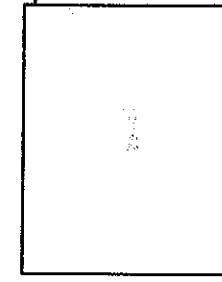
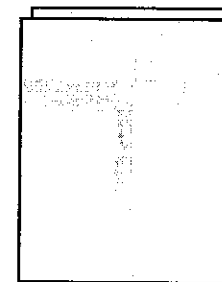
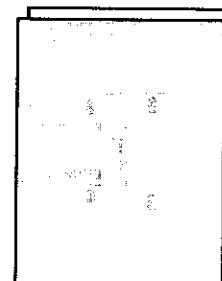
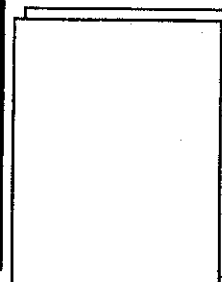
► Reliability Characteristics

CRUSH TEST



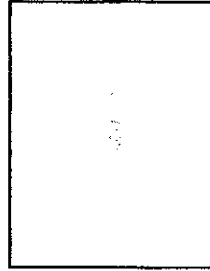
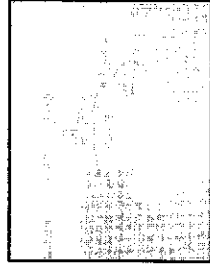
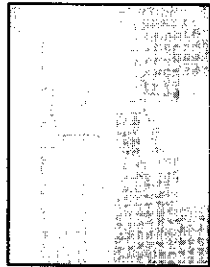
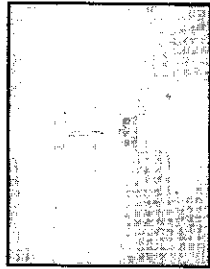
No
Explosion

IMPACT TEST



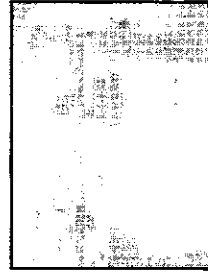
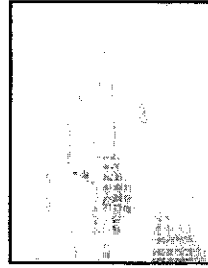
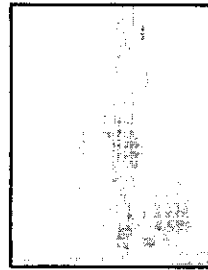
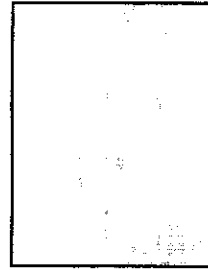
No
Explosion

SHORT TEST



No
Explosion

NAIL PENETRATION TEST



No
Explosion
No
Leakage

SUMMARY

1. STC'S CORE TECHNOLOGY
 - CREATIVE TECHNOLOGY
MIXTURE FORMULATION / ELECTROLYTE / SAFETY
 - INNOVATIVE TECHNOLOGY
ELECTRODE / ASS'Y / FORMATION & GRADING
2. PRODCUTS TARGETS
 - COMMERCIAL
 - MILITARY
3. FUTURE R&D FOCUS
 - HIGH ENERGY DENSITY
 - SLIM / PRICMATIC
 - COST REDUCTION