SCiB™

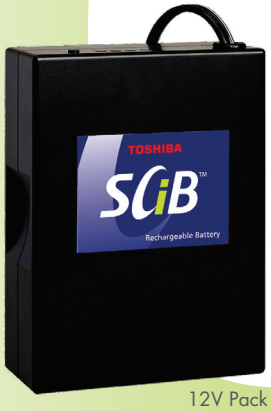
TOSHIBA
Leading Innovation

Super Charge Ion Battery

A Breakthrough Nano-Based Lithium-Titanate Technology Today to Meet the Energy and Environmental Challenges of Tomorrow

Approximately Actual Size

- **Inherently Safe** - Advanced Safety Features Including Toshiba's Proprietary Lithium-Titanate Chemistry Prevent Thermal Runaway.
- **Fast Charge Rates** - Capable of Full Recharge in < 10 Minutes (10C Charge Rate). Increases Customer Up-Time and Productivity.
- **Superior Life** - 80% Capacity Retention, Even After 6,000 Rapid Charge-Discharge Cycles. Eliminates the Need for Battery Replacement in Most Applications.
- **Greater Usable Capacity** - Up to 85% Usable Range of SOC without Compromising Cycle Life. Allows the Customer to Size the Battery Smaller by Utilizing More of the Rated Capacity.
- **High Output Performance** - Power Density Nearly Equivalent to that of Ultra-Capacitors. Ensures Sufficient Power Output for High Power Application Needs.
- **Superb Temperature Performance** - Excels at Temperatures as Low as -30°C and up to 50°C. Provides Excellent Application Performance in Extreme Environmental Conditions.
- **Proven Production** - Produced on State-of-the-Art Automated High Volume Production Line. Ensures the Customer Receives Highest Quality and Stable Supply to Meet the Most Demanding Application Needs.



12V Pack

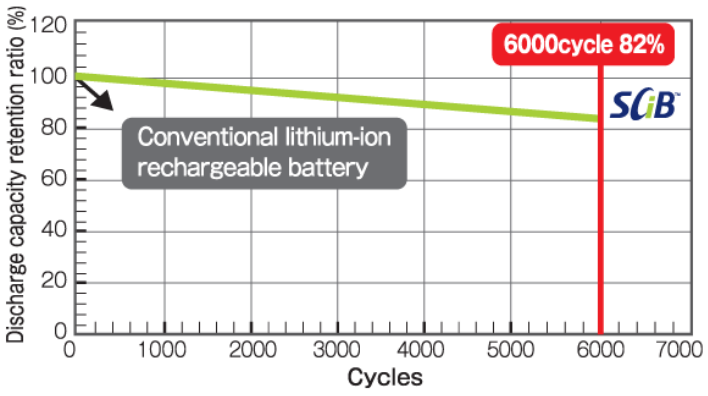
24V Pack

Super Charge Ion Battery

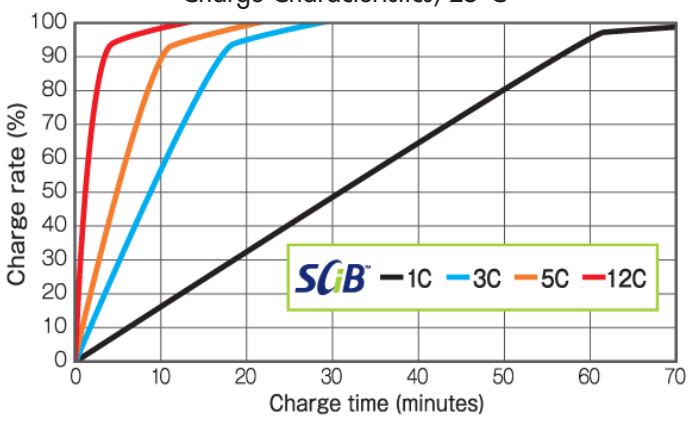
Battery solutions are available as complete battery packs with Toshiba's proprietary Battery Management System (BMS), as modules with preconfigured arrays of cells, or as individual cells.

SCiB™ Specifications	Cell	12V Pack	24V Pack
Nominal Voltage	2.4 V	12 V (5 x 2.4 V)	24 V (10 x 2.4 V)
Nominal Capacity	4.2 Ah	4.0 Ah	4.2 Ah
Maximum Charge Current	50 A	8.4 A	50 A (BMS Controlled)
Maximum Discharge Current	45 A	8 A (Continuous) 25 A (≤ 0.3 Seconds)	15 A (Continuous) 30 A (≤ 5 Seconds)
Approximate Size	62×95×13 mm	145 x 109 x 48 mm	100×300×45 mm
Approximate Weight	155 g	1 Kg	2 kg

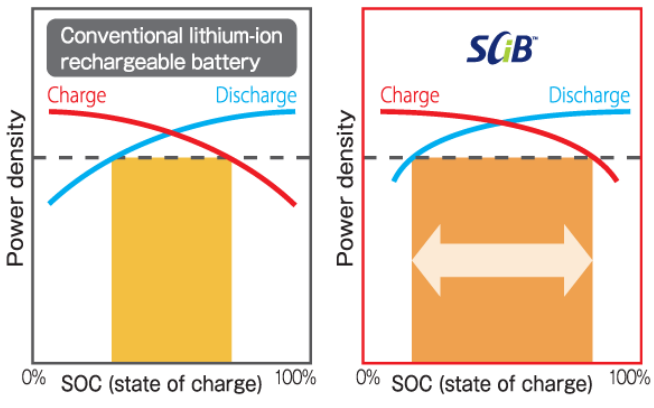
Cycle Life at 10C Charge and 15A Discharge, 25°C



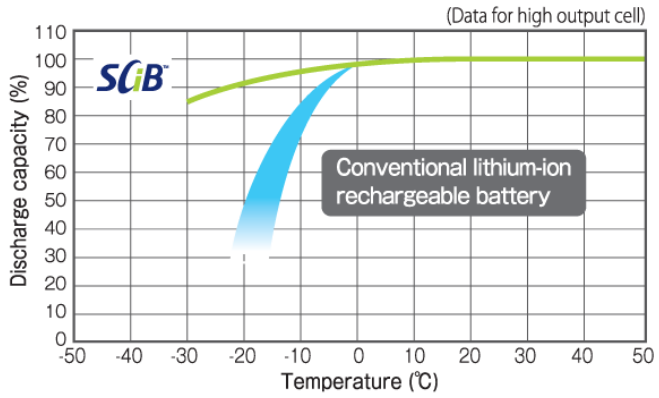
Charge Characteristics, 25°C



Usable Capacity Comparison: Conventional Lithium Ion vs. SCiB



Temperature Performance at 1C Discharge Rate



Common Applications Include:

- HEV, PHEV, & EV
- Solar Power Generation, Wind Power Generation, & Grid Storage
- Forklifts/Automated Guide Vehicles
- Mobile Medical Equipment
- Uninterruptible Power Systems
- Military Power Supplies
- Electric Bicycles, Motorcycles, & Scooters

Now in production are high energy density 4.2 Ah cells. Additionally, Toshiba is aggressively pursuing a product roadmap focused on further increasing SCiB™ capacity, energy density, and power density. 20 Ah cells with the same characteristics will be available in 2011.

13131 West Little York Road, Houston, Texas 77041 USA
Tel +713-466-0277 US 1-800-231-1412
Canada 1-800-872-2192 Mexico 01-800-527-1204
Rev. 100322

www.toshiba.com/scib

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