TOSHIBA

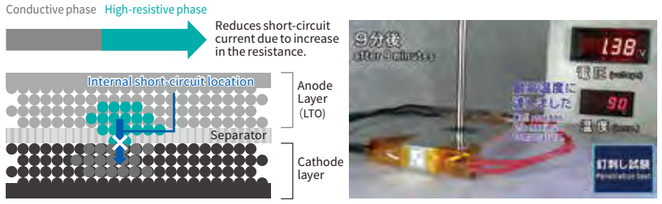
Industrial Lithium-ion Battery

Toshiba Rechargeable Battery SCiB™

SCiB™ uses lithium titanium oxide in its anode to achieve excellent characteristics

Safety

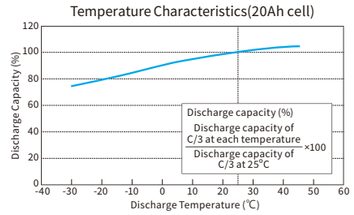
Low risk of fire or explosion



In case of an internal short circuit, the lithium titanium oxide (LTO) in the anode layer of SCiB™ phase transforms to being highly resistive, thus minimizing risk of drastic current flow that may lead to rupture, fire, or other accidents.

Performance at low temperature

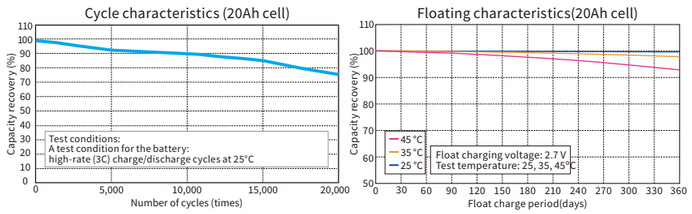
Usable even at -30℃



Since there is almost no lithium metal deposition even at low temperature usage, repeated charging and discharging is possible at -30℃.

Long life

Cycle life of 20,000 times or more

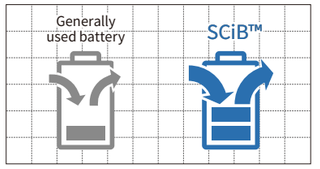


The capacity remains at 70% or more even after 20,000 times of charging/discharging. SCiB™ also has small degree of deterioration even with float charging*, making it usable for applications that keep constant voltage such as backup power supply.

* Float charging: Float charging means continuous constant voltage charging.

High input/output

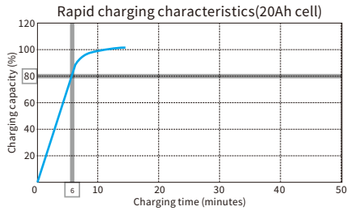
Large current for both input and output



SCiB™ can accept large current input and output. Thus, it can store large regenerative energy generated during deceleration of railways and automobiles, and can supply large current necessary for starting the motor.

Rapid charging

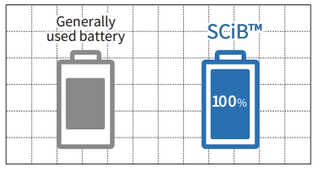
Rapidly charges to about 80% of the capacity in 6 minutes



The favorable anode charging characteristics provide rapid charging to about 80% of the capacity in 6 minutes.

Wide effective SOC* range

Available SOC range of 0 to 100%



SCiB™ exhibits excellent input/output characteristics over a wide SOC* range. This makes it possible to reduce the nominal battery capacity or amount of batteries necessary for a system, as compared to other batteries that have a narrower SOC range.

* SOC: State of Charge

The indicated data were measured under specific conditions. The performance varies according to the customer's condition for use.

Widespread Revolution in Energy Usage

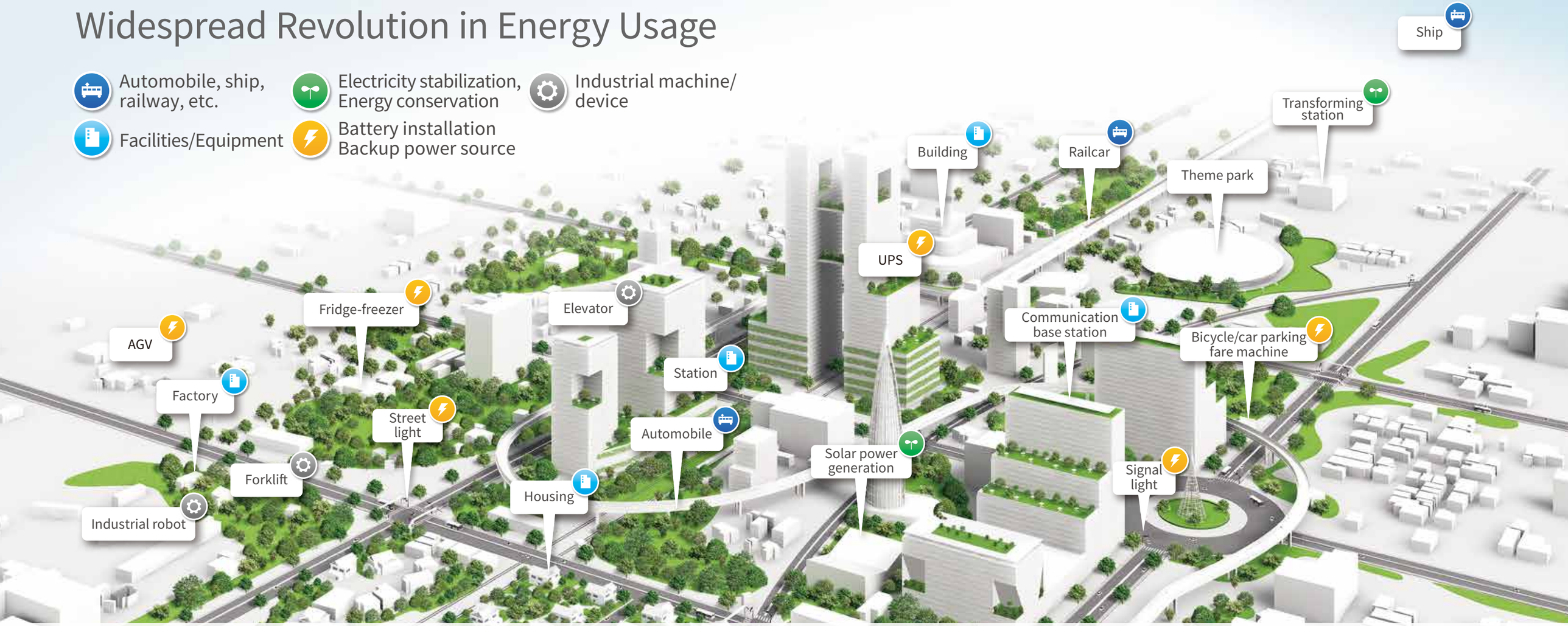
Automobile, ship, railway, etc.

Facilities/Equipment

Electricity stabilization, Energy conservation

Battery installation Backup power source

Industrial machine/ device



Suzuki Motor Corporation
Mild hybrid

This battery has been adopted for low-fuel-consumption technologies that effectively use regenerative energy at deceleration.

Proterra, Inc.
Rapid-charge-type electric bus

This battery has been adopted for rapid-charge-type electric buses in operation in California and other 11 states in the United States.

Van Hool
Hybrid-type tram bus

This battery has been adopted for hybrid-type tram buses in operation in cities in Europe.

Tohoku Electric Power Co., Inc.
Battery system for the Minami-soma Substation

This battery has been adopted for measures to balance the demand and supply due to diffusion of recyclable energy.

Willey Battery Utility, LLC
Battery system for adjustment of electricity demand and supply

This battery has been adopted for large battery systems for adjustment of electricity demand and supply in the United States.

L-Kougen Co. Ltd.
Solar power light

This battery has been adopted for street light systems that store the electricity generated by solar power panels and activates night lights.

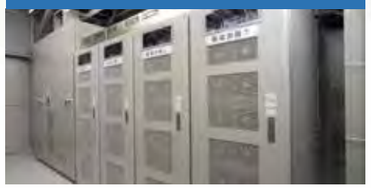
Tokyo University of Marine Science and Technology
Hybrid-type battery-powered boat

This battery has been adopted for the rapid-charge hybrid-type boat "RAICHO-N".

Tokyo Metro Co., Ltd.
Power supply device for running in emergency

This battery has been adopted for power supply devices for running in emergency in Tokyo Metro Ginza Line 1000-series cars.

TOBU Railway CO., LTD.
Regenerative battery device



This battery has been adopted for regenerative battery devices to effectively use the regenerative electricity generated by deceleration of a railcar.

TOSHIBA INFRASTRUCTURE SYSTEMS & SOLUTIONS CORPORATION
Uninterruptible power supply (UPS)

This battery has been adopted for uninterruptible power supplies (UPS) that serve as backup power supplies for critical loads including small servers to large data centers.

TOSHIBA ELEVATOR AND BUILDING SYSTEMS CORPORATION
Power-outage continuous operation function

This battery has been adopted for "TOSMOVE NEO" that moves an elevator continuously in the case of power outage.

Toshiba Corporation
Automated guided vehicle (AGV)

This battery has been adopted for automated guided vehicles (AGVs) in the production line in Kashiwazaki Factory of Toshiba Corporation.

Lineup of Toshiba Rechargeable Battery SCiB™, selectable according to your application

SCiB™ cell

SCiB™ rechargeable cells can be categorized into two types:high energy and high power. The high energy type is used when a large capacity is required for electric automobiles, stationary batteries, and others, while the high power type is used when charge/discharge of a large current is required in a short time such as use of regenerative energy.

	High energy type		High power type	High power type
Photo				
Product name	23Ah cell	20Ah cell	10Ah cell	2.9Ah cell
Nominal capacity	23Ah	20Ah	10Ah	2.9Ah
Nominal voltage	2.3V	2.3V	2.4V	2.4V
Volume energy density	202Wh/L	176Wh/L	1800W*(SOC50%, 10sec, 25°C)	420W*(SOC50%, 10sec, 25°C)
Input performance			1500W*(SOC50%, 10sec, 25°C)	480W*(SOC50%, 10sec, 25°C)
Dimensions	W116×D22×H106 mm		W116×D22×H106mm	W63×D14×H97 mm
Weight	Approx. 550g	Approx. 515g	Approx. 510g	Approx. 150g

* This value is calculated from the internal resistance. ※ 23Ah and 10Ah cell use part of technology achievement made by Japan's New Energy and Industrial Technology Development Organization(NEDO) subsidized projects. ※ Specifications shown herein are not guaranteed values. These values are subject to change without notice. Performance depends on usage conditions.

SCiB™ module

This consists of more than one cell combined to obtain the required capacity and voltage. A cell monitoring unit (CMU) is mounted, and controller area network (CAN) communication provides transmission of the voltage data and temperature data. Additionally, the SIP series and five-series battery pack are equipped with a battery management unit (BMU) and do not require an external protection circuit for use.

	For industrial devices and stationary systems		BMU installation type	BMU installation type	
Photo			 *This product is only available for Japan.		
Product name	Type3-23	Type3-20	Five-series battery pack(SIP12-23)	SIP24-23 [*1]	SIP48-23 [*2]
Model	FM01202CCB01A	FM01202CCA04A	PM051CD	FP01101MCB01A	FP01101MCB02A
Nominal capacity	45Ah	40Ah	230Wh	22Ah, 556Wh/44Ah, 1112Wh	1112Wh [*1]
Nominal voltage	DC27.6V		DC11.5V	DC25.3V	DC50.6V
Voltage range	18.0 to 32.4V		DC 9.9 to 13.0V	DC16.5 to 29.7V	DC33.0 to 59.4V
Ambient temperature	-30 to 45°C		-10 to 40°C	-30 to 45°C	
Ambient humidity	85%RH or less (no condensation)		85%RH or less (no condensation)		
Max. charge/discharge current	160 A (continuous), 350 A (rush current)		10A	125A(200 sec)	
Dimensions	W190×D361×H125mm (Protrusions excluded)		W140×D421×H62mm	W247× D188 × H165mm	Using the two units described on the left hand: Using two units (W247×D188×H165mm)
Weight	Approx. 15 kg	Approx. 14kg	Approx. 4.3kg	Approx. 8kg	Approx. 16kg: Approx. 16kg
Major built-in functions	Cell voltage measurement, module temperature measurement, cell balancing*, communication (CAN) * Function to even differences in voltage among cells connected in series		**Remarks**	Charging by solar power generation (PV) is enabled.	Using one module: Using two units of [*1] in parallel: Using two units of [*2] in series

SCiB™ system

This is the stationary battery system widely used for the purpose of stable supply of electricity, backup, energy saving, and others.

* These products are only available for Japan.

Product name	UPS (uninterruptible power supply) TOSNIC™ series				**Product name**	Lithium-ion battery systems					
Photo	 *TOSNIC™-9400*	 *TOSNIC™-8200*	 *TOSNIC™-7200*	Hot-swap UP  *TOSNIC™-4211*	**Photo**						
Nominal voltage	Three-phase three-wire, 200/400V				**System/Series**	SPCS-LIB010A	BEM003-10KT1	IPCS-LIB-X100	IPCS-LIB-S250	IPCS-LIB-Z500	VPCS-LIB-R200
Nominal capacity	10 to 500kVA				**Model**	10kW	10kW	10kW	25kW	50kW	20kW
Nominal load power factor	0.8 to 1.0				**Output**	11~176kWh	9.9kWh	15.4~46.2kWh	22~176kWh	66.9~356.8kWh	14.9kWh
Power interruption backup period	5 minutes, 10 minutes (can be optionally tailored to arbitrary periods)				**Battery capacity**	Single-phase system series		Three-phase system series			
Dealers	Toshiba Infrastructure Systems & Solutions Corporation, Social Systems Division				**Dealers**	Toshiba IT & Control Systems Corporation					

From Inquiry to Delivery

Inquiry → Meeting → Quotation and proposal → Order → Delivery

SCiB™ can be used in a wide range of applications, such as automotive, railway, industrial equipment, power equipment and power supply solutions for buildings and facilities. To customers who are considering using the SCiB™ for mass production, please feel free to contact us.

Manufacturing and R&D center: Toshiba Kashiwazaki Factory

Kashiwazaki Factory consistently undertakes the development, manufacturing, and quality control of SCiB™. It has a flexible production system that allows it to respond to demand changes. This environment-friendly factory also flexibly controls the clean and dry areas, and minimizes energy consumption required for sustainability. Moreover, the factory is equipped with a production quality system that meets TS16949, enabling it to supply high-quality, stable products.

⚠ Safety precautions

- Do not use this product for facilities in which there is a risk to human life or a disruption to public functionality if the product fails or malfunctions (nuclear power generator controls, aerospace applications, traffic equipment, life support equipment, safety equipment, and others).
- This product is produced under strict quality controls, however it may malfunction depending on the operating environment and conditions. Please consider countermeasure design (redundancies, failsafe measures, etc.) if using this product in facilities in which failure of the product would be expected to cause a great loss or accident.
- The operating environment must be within the range of specifications noted in the catalog and instruction manuals. Using the product outside the specified range may cause injury, a re, or some other accident.
- Be sure to carefully read the instruction manuals before using this product so that you can use it correctly.
- Toshiba is not responsible for any losses related to malfunctions or abnormalities in equipment or devices connected to the product when the product fails or malfunctions, including losses from other secondary repercussions.
- The technical information in this document is for the purpose of explaining the typical operations and applications of the product, but not for granting any license or guarantee in regard to intellectual property rights, or any other rights, belonging to third parties or Toshiba.
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<Agent>

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- The design, specifications, components, and others may change without prior notice.
- The package design presented is for catalog purpose, so the design of the actual battery will be different.

SBT(E)-006e 19-08

For detailed information of this product, please visit our Website. SCiB Search http://www.scib.jp/en/index.htm

The description in this catalog is as of August 2019.