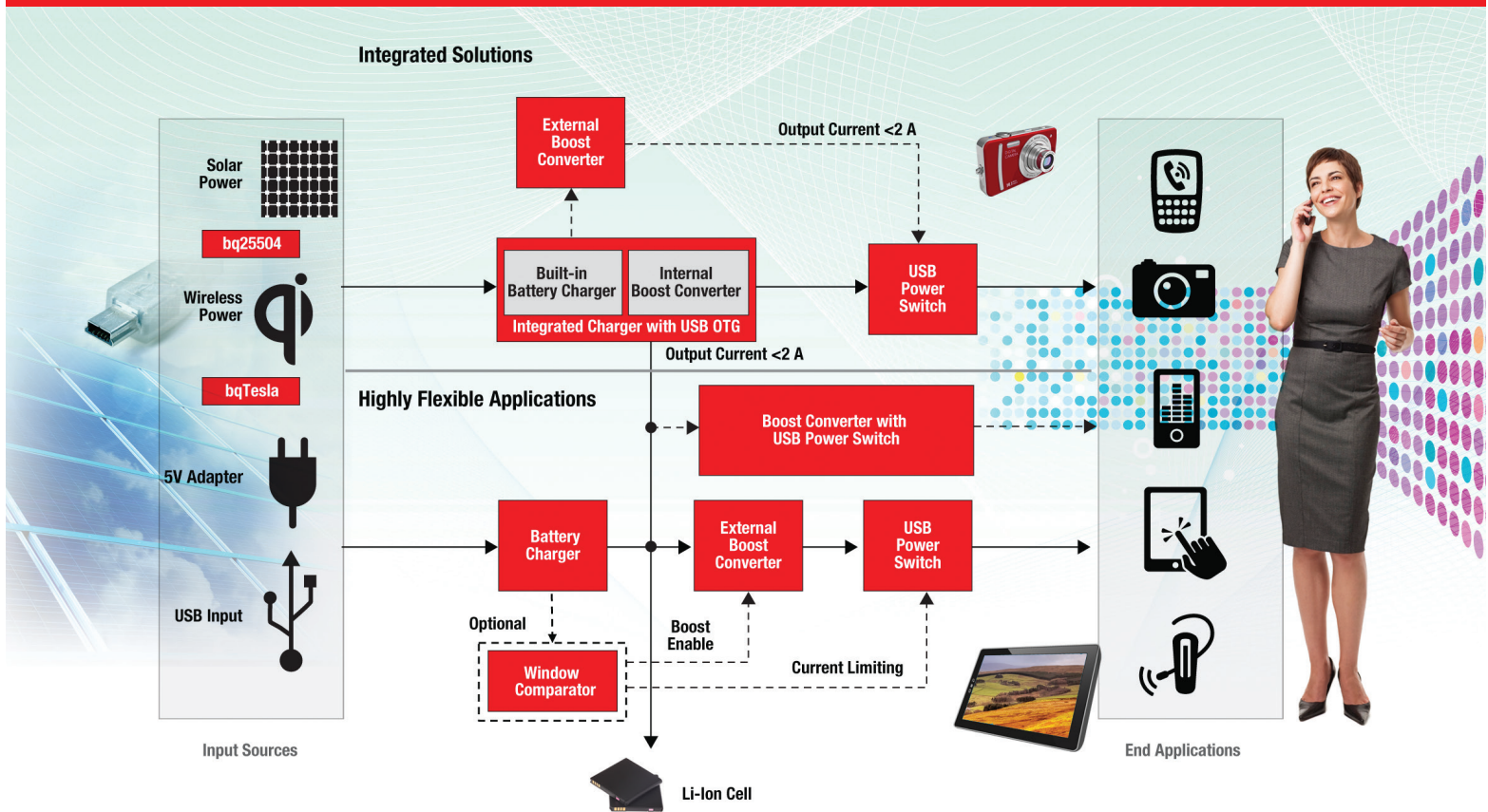


Power Bank Charger ICs

Solutions for Every Power Level



Overview

As mobile devices become more and more indispensable to daily life, the need for reliable charging options grows. Dedicated power bank charging systems are filling this need. Traditional power banks have a battery capacity of roughly 2000 mAh, but the demand is growing for 20,000 mAh support to provide more energy for mobile applications. Faster, more efficient charging is now a major trend in power bank designs.

With a complete charger portfolio supporting power bank applications, TI has the right product to differentiate your design. Choose from integrated or flexible configuration

solutions with more than 90% boost efficiency. The bq24250 family of flexible switch mode chargers support up to 3A high-efficiency charge current and up to 30V input operating range with a charge-time feature that can reduce the full charge time by 15%. The new bq24195 switching chargers support 4.5A high-efficiency maximum charge current and significantly reduce charging time to 5 hours for a 20,000 mAh battery. The bq24090 series of linear chargers are designed for space-constrained applications and operate from either a USB port or AC adapter.

TI Power Bank Battery Charger Solutions

Product Highlights

bq24195/L

- 4.5A/2.5A switch mode chargers
- 3.9V to 17V input voltage
- USB OTG 5.1V at 2.1A/1.0A
- Power path management

bq24260

- 3A switch mode charger
- 30V input range with 14V OVP
- USB OTG 5V at 1A
- Charge-time optimizer

bq24278

- 2.5A switch mode charger
- 20V input range with 10.5V OVP
- Power path management
- Small WCSP and QFN packages

bq24250

- 2A switch mode charger
- 20V input range with 10.5V OVP
- Power path management
- Charge-time optimizer

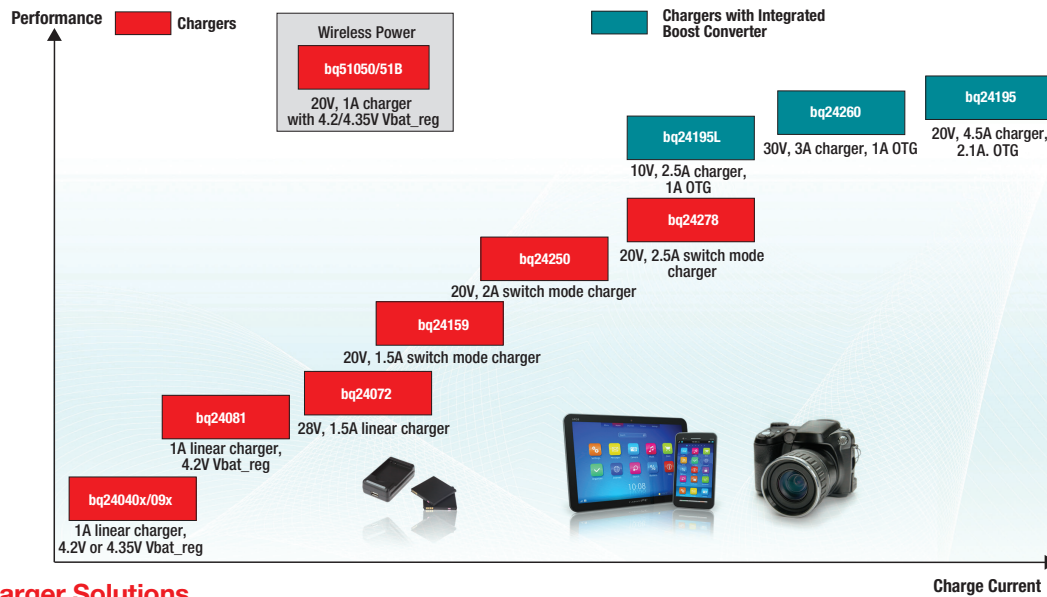
bq24090/95

- 1A linear chargers
- 12V input range with 6.6V OVP
- Dynamic input power regulation
- 4.35V charge voltage (bq24095)

bq51050B/51B

- 1A chargers with wireless power receiver
- 20V input range
- 4.2V/4.35V charge voltage
- Small WCSP and QFN packages

Performance and Feature Positioning



Power Bank Charger Solutions

Battery Charger	Charge Efficiency	Charge Current	OTG Current	Boost Efficiency	V _{in} (max)	Battery Charge Voltage (V)	Packaging
High-power applications – tablets, high-end smartphones							
bq24195	90% at 4A 92% at 2A	4.5A	2.1A	91% at 2.1A	20V	Adjustable	4 x 4 mm ² QFN
bq24260	91% at 2A	3A	1A	90% at 1A	30V	Adjustable	2.4 x 2.4 mm ² WCSP 4 x 4 mm ² QFN
bq24195L	92% at 2A	2.5A	1A	94% at 1A	10V	Adjustable	4 x 4 mm ² QFN
Mid-power applications – tablets, smartphones, portable media players							
bq24278	90% at 2A	2.5A	—	—	20V	Adjustable	2.8 x 2.8 mm ² WCSP 4 x 4 mm ² QFN
bq24250	87% at 2A	2A	—	—	20V	Adjustable	2.4 x 2.0 mm ² WCSP 4 x 4 mm ² QFN
bq24159	86% at 1.5A	1.5A	—	—	20V	Adjustable	2.1 x 2.0 mm ² WCSP
bq51050B/51B	93% peak	1A	—	—	20V	4.2 / 4.35	1.9 x 3.0 mm ² WCSP 4.5 x 3.5 mm ² QFN
bq24072	—	1.5A	—	—	28V	4.2	3 x 3 mm ² QFN
Low-power applications – smartphones, portable audio devices, Bluetooth headsets							
bq24040/45	—	1A	—	—	30V	4.2 / 4.35	2 x 2 mm ² DFN
bq24090/92/95	—	1A	—	—	12V	4.2 / 4.35	MSOP-10
bq24081	—	1A	—	—	7V	4.2	3 x 3 mm ² SON

IMPORTANT NOTICE

Texas Instruments Incorporated and its subsidiaries (TI) reserve the right to make corrections, enhancements, improvements and other changes to its semiconductor products and services per JESD46, latest issue, and to discontinue any product or service per JESD48, latest issue. Buyers should obtain the latest relevant information before placing orders and should verify that such information is current and complete. All semiconductor products (also referred to herein as "components") are sold subject to TI's terms and conditions of sale supplied at the time of order acknowledgment.

TI warrants performance of its components to the specifications applicable at the time of sale, in accordance with the warranty in TI's terms and conditions of sale of semiconductor products. Testing and other quality control techniques are used to the extent TI deems necessary to support this warranty. Except where mandated by applicable law, testing of all parameters of each component is not necessarily performed.

TI assumes no liability for applications assistance or the design of Buyers' products. Buyers are responsible for their products and applications using TI components. To minimize the risks associated with Buyers' products and applications, Buyers should provide adequate design and operating safeguards.

TI does not warrant or represent that any license, either express or implied, is granted under any patent right, copyright, mask work right, or other intellectual property right relating to any combination, machine, or process in which TI components or services are used. Information published by TI regarding third-party products or services does not constitute a license to use such products or services or a warranty or endorsement thereof. Use of such information may require a license from a third party under the patents or other intellectual property of the third party, or a license from TI under the patents or other intellectual property of TI.

Reproduction of significant portions of TI information in TI data books or data sheets is permissible only if reproduction is without alteration and is accompanied by all associated warranties, conditions, limitations, and notices. TI is not responsible or liable for such altered documentation. Information of third parties may be subject to additional restrictions.

Resale of TI components or services with statements different from or beyond the parameters stated by TI for that component or service voids all express and any implied warranties for the associated TI component or service and is an unfair and deceptive business practice. TI is not responsible or liable for any such statements.

Buyer acknowledges and agrees that it is solely responsible for compliance with all legal, regulatory and safety-related requirements concerning its products, and any use of TI components in its applications, notwithstanding any applications-related information or support that may be provided by TI. Buyer represents and agrees that it has all the necessary expertise to create and implement safeguards which anticipate dangerous consequences of failures, monitor failures and their consequences, lessen the likelihood of failures that might cause harm and take appropriate remedial actions. Buyer will fully indemnify TI and its representatives against any damages arising out of the use of any TI components in safety-critical applications.

In some cases, TI components may be promoted specifically to facilitate safety-related applications. With such components, TI's goal is to help enable customers to design and create their own end-product solutions that meet applicable functional safety standards and requirements. Nonetheless, such components are subject to these terms.

No TI components are authorized for use in FDA Class III (or similar life-critical medical equipment) unless authorized officers of the parties have executed a special agreement specifically governing such use.

Only those TI components which TI has specifically designated as military grade or "enhanced plastic" are designed and intended for use in military/aerospace applications or environments. Buyer acknowledges and agrees that any military or aerospace use of TI components which have **not** been so designated is solely at the Buyer's risk, and that Buyer is solely responsible for compliance with all legal and regulatory requirements in connection with such use.

TI has specifically designated certain components as meeting ISO/TS16949 requirements, mainly for automotive use. In any case of use of non-designated products, TI will not be responsible for any failure to meet ISO/TS16949.

Products

Audio	www.ti.com/audio
Amplifiers	amplifier.ti.com
Data Converters	dataconverter.ti.com
DLP® Products	www.dlp.com
DSP	dsp.ti.com
Clocks and Timers	www.ti.com/clocks
Interface	interface.ti.com
Logic	logic.ti.com
Power Mgmt	power.ti.com
Microcontrollers	microcontroller.ti.com
RFID	www.ti-rfid.com
OMAP Applications Processors	www.ti.com/omap
Wireless Connectivity	www.ti.com/wirelessconnectivity

Applications

Automotive and Transportation	www.ti.com/automotive
Communications and Telecom	www.ti.com/communications
Computers and Peripherals	www.ti.com/computers
Consumer Electronics	www.ti.com/consumer-apps
Energy and Lighting	www.ti.com/energy
Industrial	www.ti.com/industrial
Medical	www.ti.com/medical
Security	www.ti.com/security
Space, Avionics and Defense	www.ti.com/space-avionics-defense
Video and Imaging	www.ti.com/video

TI E2E Community

e2e.ti.com