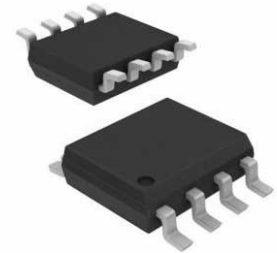


Linear Battery Charger Li-Ion/Li-Pol 2000mA 8.4V 8-Pin SOIC Tube



Images are for reference only

[Inquiry](#)

Manufacturer: [Texas Instruments, Inc](#)

Package/Case: SOP-8

Product Type: Power Management ICs

RoHS: RoHS Compliant/Lead free 

Lifecycle: Active

General Description

The BENCHMARK bq2057 series advanced Lithium-Ion (Li-Ion) and Lithium-Polymer (Li-Pol) linear charge-management ICs are designed for cost-sensitive and compact portable electronics. They combine high-accuracy current and voltage regulation, battery conditioning, temperature monitoring, charge termination, charge-status indication, and AutoComp charge-rate compensation in a single 8-pin IC. MSOP, TSSOP, and SOIC package options are offered to fit a wide range of end applications.

The bq2057 continuously measures battery temperature using an external thermistor. For safety, the bq2057 inhibits charge until the battery temperature is within user-defined thresholds. The bq2057 then charges the battery in three phases: conditioning, constant current, and constant voltage. If the battery voltage is below the low-voltage threshold, $V(\min)$, the bq2057 precharges using a low current to condition the battery. The conditioning charge rate is approximately 10% of the regulation current. The conditioning current also minimizes heat dissipation in the external pass-element during the initial stage of the charge. After conditioning, the bq2057 applies a constant current to the battery. An external sense-resistor sets the current. The sense-resistor can be on either the high or low side of the battery without additional components. The constant-current phase continues until the battery reaches the charge-regulation voltage.

The bq2057 then begins the constant-voltage phase. The accuracy of the voltage regulation is better than $\pm 1\%$ over the operating-temperature and supply-voltage ranges. For single and dual cells, the bq2057 is offered in four fixed-voltage versions: 4.1 V, 4.2 V, 8.2 V, and 8.4 V. Charge stops when the current tapers to the charge termination threshold, $I(\text{TERM})$. The bq2057 automatically restarts the charge if the battery voltage falls below the $V(\text{RCH})$ threshold. The designer also may use the AutoComp feature to reduce charging time. This proprietary technique allows safe and dynamic compensation for the internal impedance of the battery pack during charge.

Key Features

Support for single, two, or three-cell Li-Ion and Li-Polymer batteries

Programmable charge current up to 2A

High-accuracy voltage regulation for safe and efficient charging

Built-in safety features such as overvoltage, overcurrent, and short-circuit protection

Pre-charge conditioning for deeply depleted batteries

Automatic low-power sleep mode when the input supply is removed

LED status indicators for charging state and fault conditions

Charge termination based on minimum current

Temperature sensing and protection

Compact SOIC-8 package

Application

Portable devices, including smartphones, tablets, and laptops

Digital cameras and camcorders

Power tools and battery packs

Medical devices

Wearable devices and IoT applications

Portable audio devices

Alternative Products

MCP73831

MAX1811

BQ2407x

LTC4054

Recommended For You

BQ51013BRHLR

Texas Instruments, Inc
VQFN20

BQ51050BRHLT

Texas Instruments, Inc
QFN

BQ51050BRHLR

Texas Instruments, Inc
VQFN-20

BQ24045DSQR

Texas Instruments, Inc
WSO10

BQ24725ARGRT

Texas Instruments, Inc
QFN

BQ7693000DBT

Texas Instruments, Inc
TSSOP30

BQ25896RTWT

Texas Instruments, Inc
QFN24

TL432BQDBZR

Texas Instruments, Inc
SOT23-3

BQ2050HSN-A508

Texas Instruments, Inc
SOP16

BQ24192RGER

Texas Instruments, Inc
VQFN24

BQ2000SN-B5

Texas Instruments, Inc
SOP8

BQ24105RHLR

Texas Instruments, Inc
VQFN20

BQ24190RGER

Texas Instruments, Inc
VQFN24

BQ24010DRCR

Texas Instruments, Inc
QFN

TPS54360BQDDAQ1

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SOP-8