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## Device Information

### ISL9519R

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#### Narrow VDC Regulator/Charger with SMBus Interface

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### Datasheet



#### ISL9519R

The ISL9519R datasheet is restricted to a very limited number of customers. To request a datasheet please email Jia Wei at [jwei@intersil.com](mailto:jwei@intersil.com)

Input Voltage Range (V)	4.5 to 22
Input Current Limit Accuracy (%)	±3
Battery Charge Voltage (V)	2V to 16.3V in 16mV Steps
Charging Voltage Accuracy (max) (%)	±0.5
Battery Charge Voltage Adjust (%)	16mV steps
Charge Current Limit Accuracy (%)	±3
Trickle Charge Current Limit Accuracy (%)	166A to 346mA
Automatic Trickle Charge (typ) (V)	Yes (Threshold Set by User)
Battery Leakage Current (max) (µA)	25 (DCIN=0V, No System Load)
Automatic Power Source Selection	Yes
DC Adapter Detection	No
Topology	Variable Frequency Synchronous Buck
Switching Frequency (typ) (kHz)	100 to 400
Max Duty Cycle (%)	99
Audible Noise	No
Operating Temp. Range (°C)	-10 to 100
Thermal Shutdown (°C)	150
Input Voltage (min) (V)	4.5
Input Voltage (max) (V)	22
Battery Chemistry	Multi-Cell Li+/Polymer

### Product Information

#### Key Features

- ±0.5% System Voltage Accuracy (-10°C to +100°C)
- ±3% Accurate Input Current Limit
- ±3% Accurate Battery Charge Current Limit
- Variable Switching Frequency at Light Load Conditions for Higher Efficiency
- Fixed Frequency Operation at Higher Loads
  - Fixed Frequency Mode can be Forced by an External Pin
- Trickle Charge System for Deeply Discharged Batteries
  - Automatic Trickle Charge Current (256mA)
  - Holds Minimum Voltage to System
- SMBus 2-Wire Serial Interface
  - Default System Voltage Values for 1-Cell, 2-Cell or 3-Cell Operation Selected by an External Pin
- Adapter In-rush FET Control
- Adapter Isolation FET Control
- Battery Short Circuit Protection
- Fast System-Load Transient Response
- Monitor Outputs
  - Adapter Current (2.5% Accuracy)
  - AC-adapter Present Indicator
- 11-Bit Max System Voltage Setting
- 7-Bit Min System Voltage Setting
- 6-Bit Charge Current Setting
  - Over 8A Battery Charger Current
- 6-Bit Adapter Current Setting
  - Over 8A Adapter Current






+4.5V to +22V Adapter Voltage Range  
Pb-Free (RoHS Compliant)







## Description

The ISL9519R is a highly integrated Narrow VDC system voltage regulator and battery charger controller. Operating parameters are programmable over the System Management Bus (SMBus). The ISL9519R is designed for applications where the system power source is either the battery pack or the output of the regulator/charger. This makes the max voltage to the system equal to the max battery voltage instead of the max adapter voltage. The ISL9519R also includes a patented system to control trickle charging deeply discharged batteries while maintaining system voltage at a user defined minimum. High efficiency is achieved with a DC/DC synchronous-rectifier buck converter, equipped with diode emulation and variable switching frequency for enhanced light load efficiency and AC-adapter boosting prevention. The ISL9519R can charge one, two or three series connected Lithium-ion cells, at up to 8A charge current. Default settings for 1-, 2- or 3-cell operation at power-up are selected by an external pin. Integrated MOSFET drivers and bootstrap diode result in fewer components and smaller implementation area. Low offset current-sense amplifiers provide high accuracy.

The ISL9519R provides an open drain digital output that indicates the presence of the AC-adapter. The ISL9519R also provides an analog output that indicates the adapter current.

## Pricing / Packaging / Samples / Ordering

 iBuy direct from Intersil     iBuy direct - out of stock     Request samples  
 Check distributor inventory     Available in RoHS/Pb-Free

Part No.	Design-In Status	Temp.	Package	MSL	Price US \$		
ISL9519RHRTZ	Active	Hi-Temp Comm	28 Ld TQFN	1			
ISL9519RHRTZ-T	Active	Hi-Temp Comm	28 Ld TQFN T+R	1			

The price listed is the manufacturer's suggested retail price for quantities of 1K units. However, prices in today's market are fluid and may change without notice.

MSL = Moisture Sensitivity Level - per IPC/JEDEC J-STD-020

SMD = Standard Microcircuit Drawing

## Technical Documentation

Datasheet(s):

 The ISL9519R datasheet is restricted to a very limited number of customers. To request a datasheet please email Jia Wei at [jwei@intersil.com](mailto:jwei@intersil.com)

## Tools And Support

### iSim Design Simulation

No Models Available

### Design Model(s):

[ISL9519 Compensation Component Calculator](#)

### Applications

Notebook Computers  
Tablet PCs  
Portable Equipment with Rechargeable Batteries

### Related Devices

 [Parametric Table](#)

[ISL6251](#) Low Cost Multi-Chemistry Battery Charger Controller  
[ISL6251A](#) Low Cost Multi-Chemistry Battery Charger Controller  
[ISL6252](#) Highly Integrated Battery Charger Controller for Notebook Computers  
[ISL6252A](#) Highly Integrated Battery Charger Controller for Notebook Computers

<a href="#">ISL6253</a>	Highly Integrated Battery Charger for Notebook Computers
<a href="#">ISL6255</a>	Highly Integrated Battery Charger with Automatic Power Source Selector for Notebook Computers
<a href="#">ISL6255A</a>	Highly Integrated Battery Charger with Automatic Power Source Selector for Notebook Computers
<a href="#">ISL6256</a>	Highly Integrated Battery Charger with Automatic Power Source Selector for Notebook Computers
<a href="#">ISL6256A</a>	Highly Integrated Battery Charger with Automatic Power Source Selector for Notebook Computers
<a href="#">ISL6257</a>	Highly Integrated Narrow VDC Battery Charger for Notebook Computers
<a href="#">ISL6258</a>	Narrow VDC Regulator/Charger with SMBus Interface
<a href="#">ISL6258A</a>	Narrow VDC Regulator/Charger with SMBus Interface
<a href="#">ISL88731</a>	SMBus Level 2 Battery Charger
<a href="#">ISL88731A</a>	SMBus Level 2 Battery Charger
<a href="#">ISL88731C</a>	SMBus Level 2 Battery Charger
<a href="#">ISL9220</a>	Switching Charger for 1-Cell and 2-Cell Li-ion Batteries
<a href="#">ISL9220A</a>	Switching Charger for 1-Cell and 2-Cell Li-ion Batteries
<a href="#">ISL9518</a>	Narrow VDC Regulator/Charger with SMBus Interface
<a href="#">ISL9518A</a>	Narrow VDC Regulator/Charger with SMBus Interface
<a href="#">ISL9519</a>	Narrow VDC Regulator/Charger with SMBus Interface
<a href="#">ISL9519C</a>	Narrow VDC Regulator/Charger with SMBus Interface and Internal Switching FETs
<a href="#">ISL9519Q</a>	Narrow VDC Regulator/Charger with SMBus Interface
<a href="#">ISL95871C</a>	SMBus Interfaced Battery Charger with Internal FETs

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