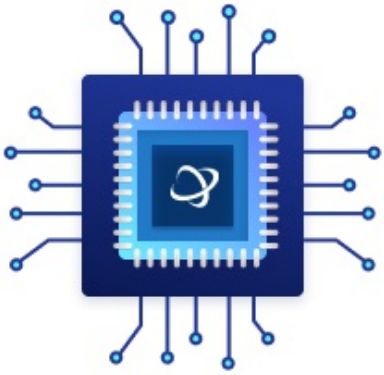
ISL81601FRZ

Data Sheet

60V Bidirectional 4-Switch Synchronous Buck-Boost Controller

Manufacturers	Renesas Technology Corp
Package/Case	
Product Type	Power Management ICs
RoHS	
Lifecycle	



Images are for reference only

Please submit RFQ for ISL81601FRZ or Email to us: sales@ovaga.com We will contact you in 12 hours.

RFQ

General Description

The ISL81601 is a true bidirectional 4-switch synchronous buck-boost controller with peak and average current sensing and monitoring at both ends. Its wide input and output voltage ranges make it suitable for industrial, telecommunication, and after-market automotive applications.

The ISL81601 uses the proprietary buck-boost control algorithm with valley current modulation for Boost mode and peak current modulation for Buck mode control.

The ISL81601 has four independent control loops for input and output voltages and currents. Inherent peak current sensing at both ends and cycle-by-cycle current limit of this family of products ensures high operational reliability by providing instant current limit in fast transient conditions at either ends and in both directions. It also has two current monitoring pins at both input and output to facilitate Constant Current (CC) limit and other system management functions. CC operation down to low voltages avoids any runaway condition at over load or short-circuit conditions. In addition to multilayer overcurrent protection, it also provides full protection features such as OVP, UVP, OTP, and average and peak current limit on both input and output to ensure high reliability in both unidirectional and bidirectional operation. The IC is packaged in a space conscious 32 Ld 5mmx 5mm QFN package or easy to assemble 4.4mm x 9.7mm 38 Ld HTSSOP package. Both packages use an EPAD to improve thermal dissipation and noise immunity. Low pin count, fewer external components, and default internal values make the ISL81601 an ideal solution for quick to market simple power supply designs. The unique DE/Burst mode at light-load dramatically lowers standby power consumption with consistent output ripple over different load levels.

Features

Single inductor 4-switch buck-boost controller

On-the-fly bidirectional operation with independent control of voltage and current on both ends

Proprietary algorithm for smoothest mode transition MOSFET drivers with adaptive shoot-through protection

Wide input voltage range: 4.5V to 60V

Wide output voltage range: 0.8V to 60V

Supports pre-biased output with SR soft-start

Programmable frequency: 100kHz to 600kHz

Supports parallel operation current sharing with cascade phase interleaving

External sync with clock out or frequency dithering

External bias for higher efficiency supports 8V - 36V input

Output and input current monitor

Selectable PWM mode operation between PWM/DE/Burst modes

Accurate EN/UVLO and PGOOD indicator

Low shutdown current: 2.7μA

Complete protection: OCP, SCP, OVP, OTP, and UVP
Dual-level OCP protection with average current and pulse-by-pulse peak current limit

Selectable OCP response with either hiccup or constant current mode

Negative pulse-by-pulse peak current limit

Related Products

ISL6262ACRZ

Renesas Technology Corp

QFN-48

ISL6294IRZ-T

Renesas Technology Corp

QFN-8

ISL21080CIH315Z-TK

Renesas Technology Corp

SOT-23-3

ISL6506BCBZ

Renesas Technology Corp

SOP-8

[ISL6377HRZ-T]

Renesas Technology Corp

QFN-48

[ISL62771HRTZ-T]

Renesas Technology Corp

40-WFQFN Exposed Pad

[ISL62771HRTZ]

Renesas Technology Corp

QFN40

[ISL95808HRZ-T]

Renesas Technology Corp

DFN-8