

ISL91302B

Dual/Single Output Power Management IC

FN8828
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The [ISL91302B](#) is a highly efficient, dual or single output, synchronous multiphase buck switching regulator that can deliver up to 5A per phase continuous output current. The ISL91302B features four integrated power stages and two controllers. The ISL91302B can assign its power stages and controllers to two dual-phase outputs (2+2) or one three-phase and one-phase output (3+1) or one four-phase output (4+0). This flexibility allows seamless design-in for a wide range of applications in which dual, triple, or quad phase outputs are needed, such as CPU and GPU core power mobile applications.

The ISL91302B integrated low ON-resistance MOSFETs, programmable PWM frequency, and automatic diode emulation, which maximizes efficiency while minimizing the external component count and solution size.

The ISL91302B uses the proprietary Renesas R5 modulator technology to deliver a highly robust power solution capable of ultra-fast transient response, excellent loop stability, and seamless DCM/CCM transitions without requiring external compensation.

The ISL91302B is widely configurable through the factory OTP settings. Available features include:

- SPI and I²C interface
- External signal telemetry with an internal ADC
- Dynamic Voltage Scaling (DVS) with selectable slew rate

Contact Renesas [support](#) for additional configurations.

Related Literature

For a full list of related documents, visit our website:

- [ISL91302B](#) device page

Features

- Dual output 3+1 or 2+2, or single output 4-phase
- 2.5V to 5.5V supply voltage
- 5A per phase output current capability
- Small solution size
- High efficiency (94.7% peak for 3.8V V_{IN}, 1.8V V_{OUT}, L = 470nH)
- Low I_Q in low power mode
- Proprietary control scheme reduces the output capacitor and supports fast load transients (such as 50A/μs per phase)
- Voltage, current, and temperature telemetry through integrated ADC plus auxiliary inputs
- ±0.7% system accuracy with remote voltage sensing
- OTP programmable PWM frequency from 2MHz to 6MHz
- I²C and SPI programmable output from 0.3V to 2.0V
- Independent Dynamic Voltage Scaling (DVS) for each output
- Soft-start and fault detection (UV, OV, OC, OT), short-circuit protection
- 2.551mm x 3.670mm 54 ball WLCSP with 0.4mm pin pitch

Applications

- Smart phones and tablets
- FPGA and ASIC power
- Industrial MPU power
- Human machine interface

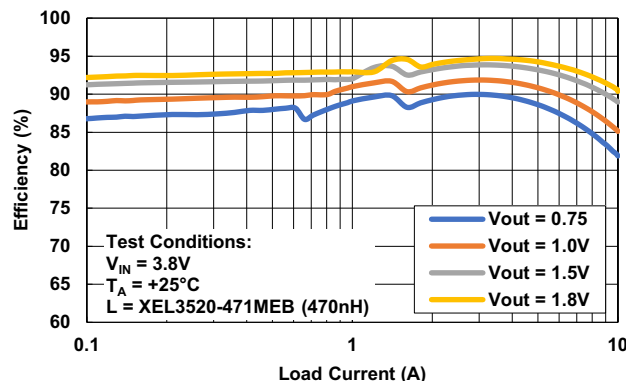


Figure 1. 2-Phase Configuration Efficiency

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Corporate Headquarters

TOYOSU FORESIA, 3-2-24 Toyosu,
Koto-ku, Tokyo 135-0061, Japan
www.renesas.com

Contact Information

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