

Features

- Wide 2.5 V to 7.5 V input voltage range
- Up to 140 A continuous output current (70 A per phase)
- Up to 3 MHz switching frequency
- Peak efficiency up to 92.5% ($6.75V_{IN}$ to $0.8V_{OUT}$)

- Dual independent outputs configurable for dual-rail operation or paralleled for up to 140 A output current
- Integrated smart drivers, MOSFETs, and inductors
- Accurate current and junction temperature sensing
- Integrated power stage reduces PCB area and routing losses

- VIN and VDRV UVLO
- High-side overcurrent protection
- Cycle-by-cycle current limiting
- Overtemperature protection (OTP)

- Compact 10 mm × 9 mm × 5 mm, 72-pin LGA package
- Operating junction temperature: -40°C to +125°C
- Low-profile package maximizes power density
- RoHS compliant

- AI Accelerators
- GPUs
- FPGA and ASIC Core Power
- Servers and Data Centers
- High-Performance Computing (HPC)

The RSM5G05 is a highly integrated 140 A (70 A/phase) two-phase DC-DC power block that combines smart gate drivers, power MOSFETs, and inductors into a compact, low-profile package to simplify high-current power supply design. Operating from a 2.5 V to 7.5 V input, it delivers up to 140 A of continuous output current and supports configurable dual independent outputs or parallel operation.

Designed for AI accelerators, GPUs, FPGAs, ASICs, networking equipment, and data center power systems, the RSM5G05 delivers exceptional power density while minimizing PCB area, routing complexity, and power loss. Its reduced package height makes it particularly well suited for space-constrained server, accelerator, and high-performance computing platforms where airflow and thermal management are critical.

Combined with [Reed Semiconductor's multiphase DC-DC controllers](#), the RSM5G05 provides a complete, scalable power solution for high-current computing and AI applications.

Integrated current sensing, junction temperature monitoring, undervoltage lockout (UVLO), overcurrent protection, cycle-by-cycle current limiting, and overtemperature protection simplify system design while improving reliability. The compact, thermally enhanced LGA package is optimized for automated assembly and low-profile thermal solutions.

The schematic diagram illustrates the RSM5G05 DC-DC converter. It features a 5V input connected to the VIN pin, which is also connected to a 5V supply and a VDRV pin. The output is connected to VOUT1 and VOUT2, which are also connected to a 5V supply and a GND pin. The converter has two enable pins (EN1, EN2) with ON/OFF controls, two PWM pins (PWM1, PWM2) with pulse inputs, and two temperature monitoring pins (TMON1, TMON2) and two current monitoring pins (IMON1, IMON2).

