



Product Brief

DrMOS 4x4

Highest efficiency on smallest form factor

Infineon continues to innovate in the integrated power stage space with its new DrMOS, packaged in a very small $4.0 \times 4.0 \times 1.0 \text{ mm}^3$ PQFN envelope, which offers best-in-class efficiency and very low power loss. Infineon can deliver these benefits by combining its latest generation 25 V OptiMOS™ 5 MOSFET technologies with its proven MOSFET driver silicon. A significant reduction of switching losses enables superior efficiency at higher switching frequencies. Higher switching frequency operation, combined with an extremely small package, enables system designers to save board space and still deliver superior performance.

Customer benefits and safety features

DrMOS 4x4 features PWM three-state functionality, compatible with standard PWM controller ICs with 3.3 V logic and works with +5 V high-side (HS) and low-side (LS) driving voltage. The device can issue a thermal warning to the system, triggered by an integrated temperature sense. DrMOS 4x4 offers additional safety features, such as under voltage lockout, shoot through protection and the integrated remote driver function allows to switch off the LS MOSFET at low loads, improving system efficiency.

Key features

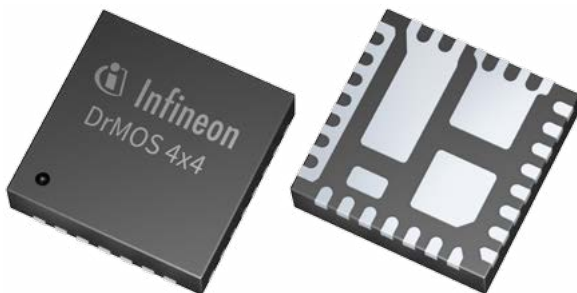
- > Small $4.0 \times 4.0 \times 1.0 \text{ mm}^3$ PQFN package
- > Fast switching technology for improved performance at high switching frequency (> 500 kHz)
- > Recommended input voltage 4.5 V to 16 V
- > Undervoltage lockout
- > Shoot through protection
- > 5 V driver voltage optimized
- > Compatible with standard 3.3 V PWM

Key benefits

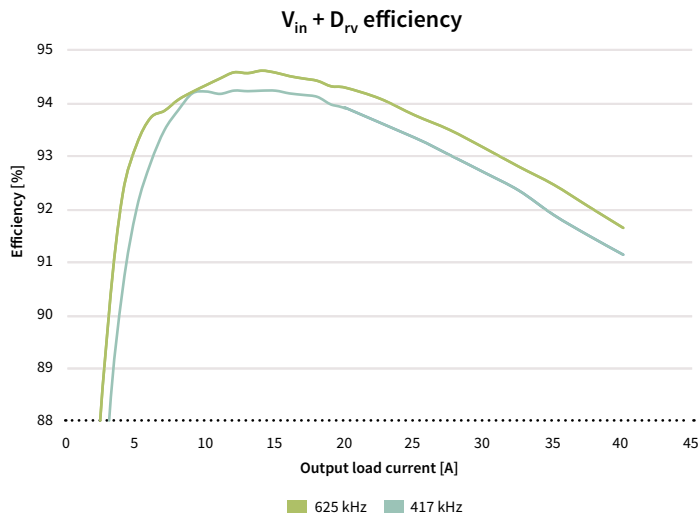
- > Peak efficiency > 94%
- > Integrated bootstrap diode (no need of external diode)
- > Thermal warning
- > Remote driver disable function

Applications

- > Notebook, desktop and server VR buck converter
- > Single-phase and multi-phase POL
- > CPU/GPU regulation in notebook, desktop graphics cards



DrMOS 4x4 efficiency

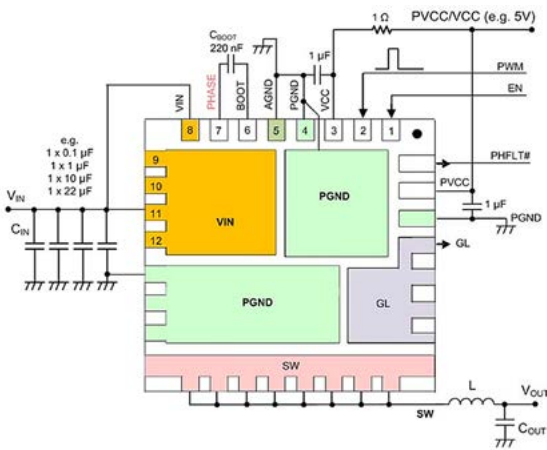


With the following conditions, DrMOS 4x4 provides more than 94 percent efficiency:

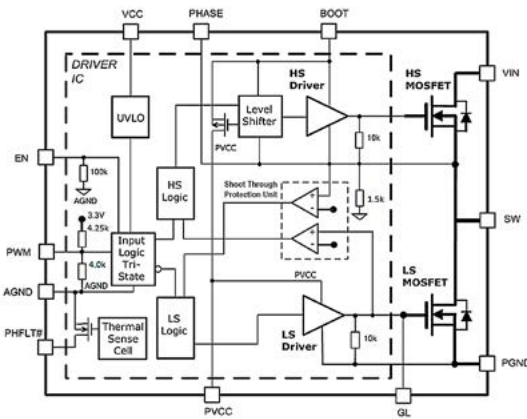
- > V_{in} = 12 V
- > V_{out} = 1.8 V
- > L = 170 nH (0.18 mΩ)
- > Single-phase
- > Airflow = 300 LFM

Peak efficiency:
 94.2% at 417 kHz
 94.6% at 625 kHz

Package footprint and pin-out



Application diagram



Product portfolio

Product**	Maximum average current* [A]	Sample availability	Mass production
TDA21240	40 – 45	Available	Q3 2016
TDA21241	35	May 2016	Q3 2016
TDA21242	25	May 2016	Q3 2016

* Values not finalized and might change slightly

** For more information, please contact your local sales counterpart

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