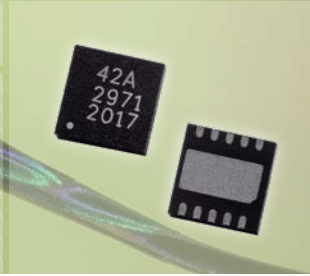


Melexis

INSPIRED ENGINEERING

MLX90412-L

SINGLE-COIL FAN & PUMP DRIVER



The hummingbird's beating wings flap at extremely high frequencies, typically around 50 times per second. This allows it to fly at speeds exceeding 1.5 m/s, to fly backwards or to seemingly be suspended in the air in perfect balance. What better animal to reflect the motor/control driver and actuator capacitors?

LOW NOISE FAN & PUMP DRIVER FOR AUTOMOTIVE APPLICATIONS

MLX90412-L

The **L-grade version** of the MLX90412 operates over a supply voltage range from 3.5 V to 32 V, and is robust up to 40 V. With an operating temperature up to 150°C, it is a perfect fit for any automotive fan, blower or pump application directly on the 12 V boardnet, or even the 24 V boardnet for trucks. With current limit options from 1.5 A up to 2.2 A, the MLX90412 drives automotive applications up to 20 W in a safe and cost effective way, without risk for overheating the device or the motor coil, in complement to the MLX90411 which covers applications up to 7W. The closed-loop speed control limits the speed variation to less than +/-5% regardless of the load condition, battery voltage variation, or fan production tolerances over the full temperature range. Together with the adaptive low noise commutation it enables industry standard efficiency and acoustic performance. Multiple commutation options are available, including a sinewave option offering unprecedented low levels of vibration.



KEY FEATURES

- ✓ All-in-one fan driver, including high-sensitivity Hall-effect sensor
- ✓ Up to 2.2 A motor current
- ✓ Adaptive commutation for best in class efficiency over the full speed range for any fan design
- ✓ Commutation options
 - Maximum torque
 - Very low acoustic noise
- ✓ PWM control input
 - Standby mode
 - Open loop / closed loop speed control (+/-1%)
- ✓ Operating supply range from 3.5 V to 32 V
- ✓ Operating junction temperature from -40 to 150°C
 - Locked Rotor Protection (LRP) (Programmable)
 - Temperature Shutdown (TSD)
- ✓ Protections and diagnostics
 - Over Voltage protection (OVP) (Programmable)
 - 22 V for car 12 V board net
 - 35 V for truck 24 V board net
 - Short circuit protection (OCP)
 - Current limit (CL)
 - FG/RD open drain diagnostics output (Programmable)
- ✓ Certifications MLX90412-L
 - AEC-Q100-Rev-H qualified packages
 - Automotive PPAP (PSW)
- ✓ I2C programming
 - Fast prototyping
 - End-of-line programming
- ✓ Package
 - Exposed pad DFN10 3x3 with wettable flanks
 - small (9mm²) footprint, for minimal PCB size
 - <1mm height

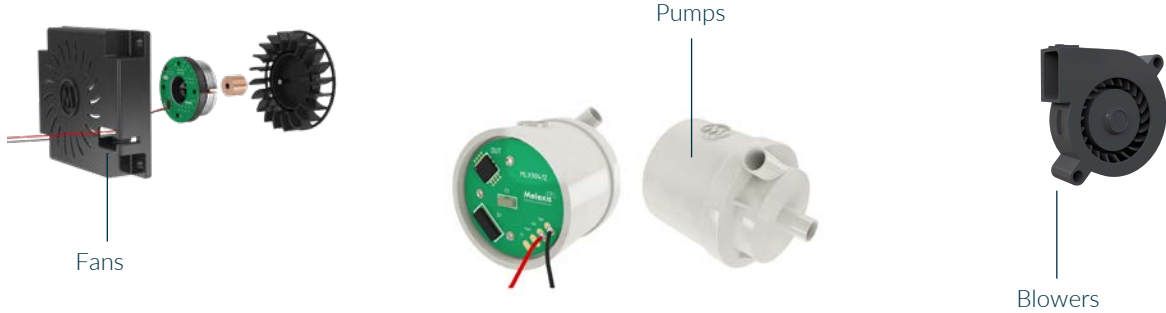
MORE INFO AT WWW.MELEXIS.COM/MLX90412-L-AUTOMOTIVE

Melexis

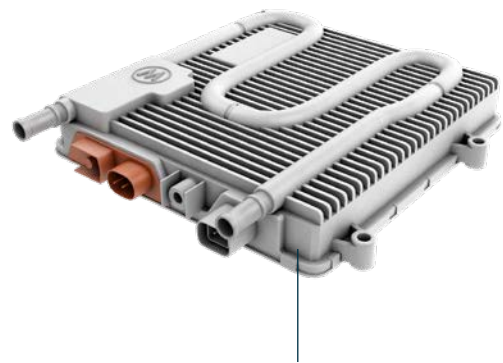
APPLICATION VISUALS



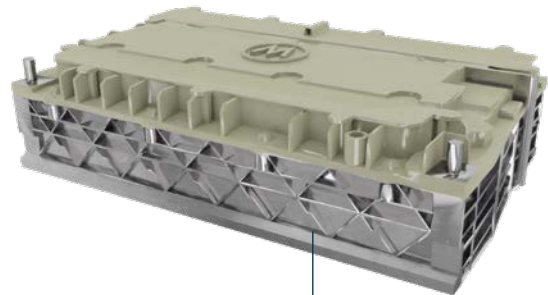
Air pump, water pump, axial fans, radial blower and cross blower



Seat blowers



DC/DC converter cooling fan or pump



Battery cooling fan

The above information is "as is" and believed to be correct and accurate. Melexis disclaims any and all liability in connection with or arising out of the furnishing, application or use of the information or products; any and all liability, including without limitation, special, consequential or incidental damages; and any and all warranties, express, statutory, implied, or by description, including warranties of fitness for particular purpose, non-infringement and merchantability. Melexis reserves the right to change it at any time and without notice. Users should obtain the latest version of the information to verify it is current. Users must further determine the suitability of a product for its application, including the level of reliability required and determine whether it is fit for a particular purpose. Export control regulations may apply and export might require a prior authorization from competent authorities. Melexis' products are intended for use in normal commercial applications. Unless otherwise agreed upon in writing, the products are not designed, authorized or warranted to be suitable in applications requiring extended temperature range and/or unusual environmental requirements. High reliability applications, such as medical life-support or life-sustaining equipment are specifically not recommended by Melexis. Melexis' products are sold under the Melexis' Terms of Sale, which can be found at <https://www.melexis.com/en/legal/terms-and-conditions>.