

# 3-Phase Sensorless BLDC Fan Motor Driver

## DESCRIPTION

EUM6811 is a 3-phase sensorless BLDC fan motor driver. It senses the Back Electromotive Force of the motor in rotation and provides corresponding commutation current to the motor. The use of sensorless technology means no Hall sensors are needed. The absence of the Hall sensor makes the fabrication of the motor easier and is especially suitable for ultra-small motors.

EUM6811 integrates PWM speed control, soft switching, lock protection, auto restart, fan tachometer, under voltage lock out circuit and forward/reverse functions.

As applying 3-phase driver method, PWM mode controls fan speed by adjusting duty cycle of PWM signal. Internal soft switching function drives fan motor in low noise and low vibration ways. EUM6811 can drive motor from stop mode to rotation mode by adjusting the external capacitor between OSC pin and VSS pin. If a motor is stalled by external force or obstacles, over drive current may incur coil overheat and burning. To prevent motor from overheating, the lock protection circuit shuts down the internal power devices for a few seconds after the motor lock is detected. Then the auto restart circuit resumes to power up the internal power devices. If the lock still persists, EUM6811 shuts down power devices for another few seconds. The lock protection time is built-in and does not need external components. During rotation, FG outputs motor speed feedback signal. The motor rotation direction can be changed by setting FR to high or low.

## FEATURES

- 3-Phase Sensorless Drive (No Hall Sensor Needed)
- Input Voltage Range: 1.8V~6.0V
- Total Driver H+L R<sub>ON</sub> less than 950mΩ
- UVLO Protection
- PWM Speed Control and Soft Switching
- Few External Components
- 20μA Low Standby Current
- Built in TSD
- UDFN Small Package with Thermal Pad (3mm×3mm×0.5mm for Small Fan)
- RoHS Compliant and 100% Lead (Pb)-Free Halogen-Free

## APPLICATIONS

- NB Fan, Low Noise Fan and Low Power Consumption Fan

## Application Circuit

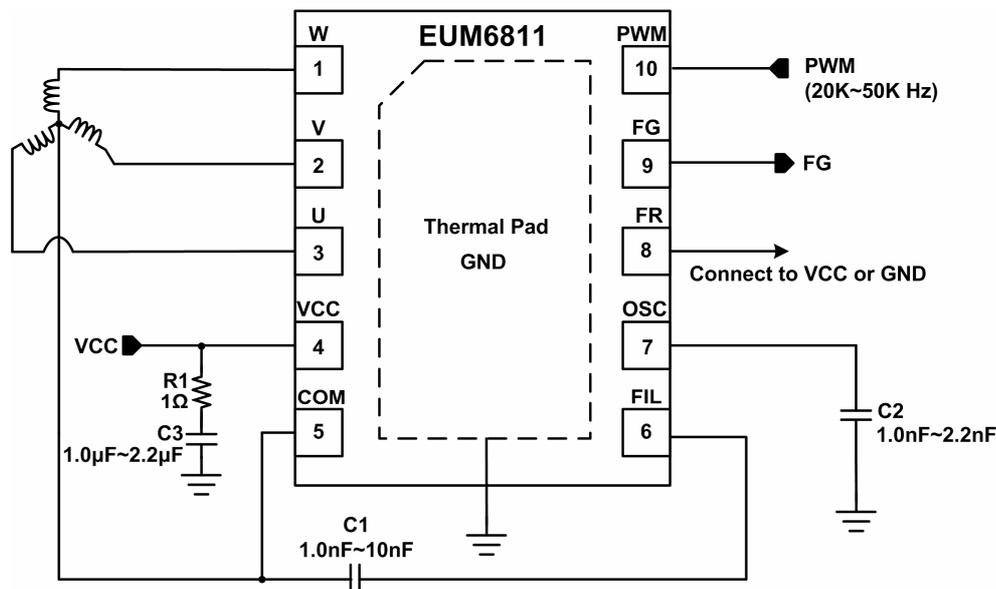


Figure 1.