

When VPWM voltage is higher than VMIN pin voltage, fan speed is settable by VMIN pin voltage. The minimum duty cycle is settable by comparing COSC oscillating voltage and VMIN pin voltage. When VPWM voltage is lower than VMIN pin voltage, PWM control system works by comparing VMIN voltage and COSC oscillating voltage. If VMIN voltage is higher than COSC oscillating voltage, the ON duty cycle of the upper side transistor will be minimized and fan speed becomes lower. Vice versa.

Please refer to Figure 3.

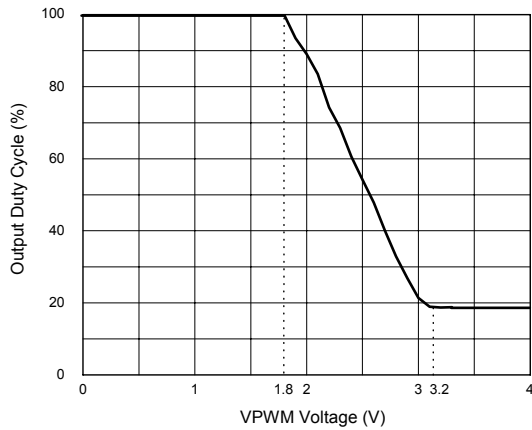


Figure 3. Output Duty Cycle vs. VPWM Voltage

When VPWM voltage is lower than about 1.8V (the low side of COSC oscillating voltage), output duty cycle is 100%. When VPWM voltage is higher than about 3.2V (VMIN pin voltage), output duty cycle is about 18% which is the minimum duty cycle on the condition that $V_{CC}=12V$. Within the range of 1.8V to 3.2V, output duty cycle will be reduced gradually, and fan speed becomes lower and lower.

Please refer to Figure 4.

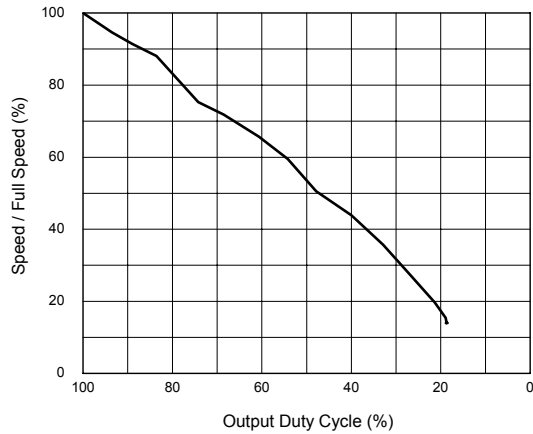


Figure 4. Speed/Full Speed vs. Output Duty Cycle

Therefore, if you wish to adjust speed, it is necessary to change VPWM voltage.

Please refer to Figure 5.

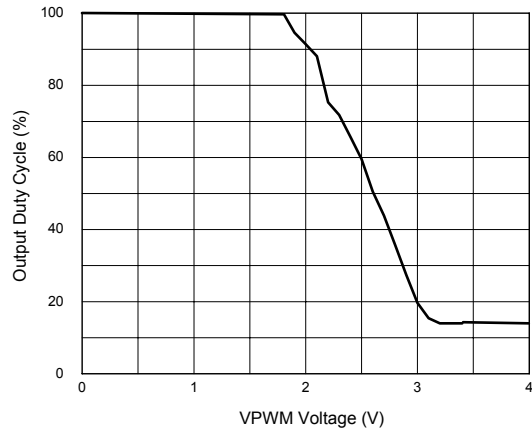
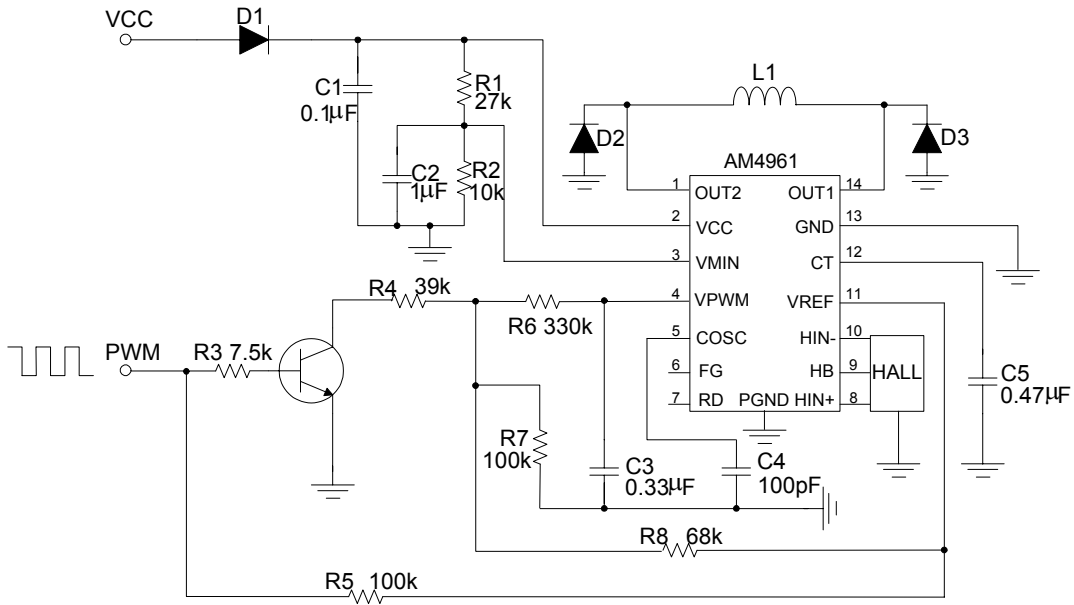


Figure 5. Speed/Full Speed vs. VPWM Voltage

2. Typical Application (Continued)



Note: D2 and D3 are recommended to be used when the average current in coil L1 is higher than 300mA.

Figure 6. Typical Application 2

The VPWM voltage is changed with the input duty cycle of PWM (refer to Figure 7), therefore, the fan speed is changeable with input (refer to Figure 8).

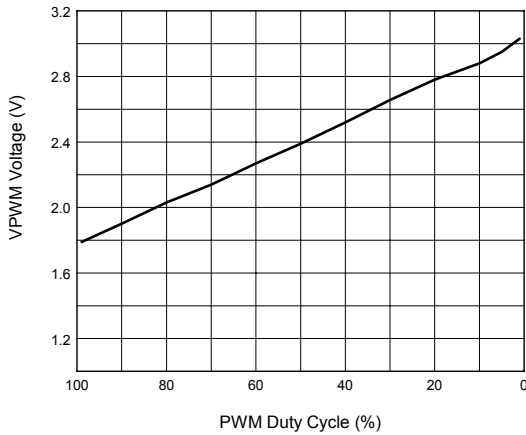


Figure 7. VPWM Voltage vs. PWM Duty Cycle

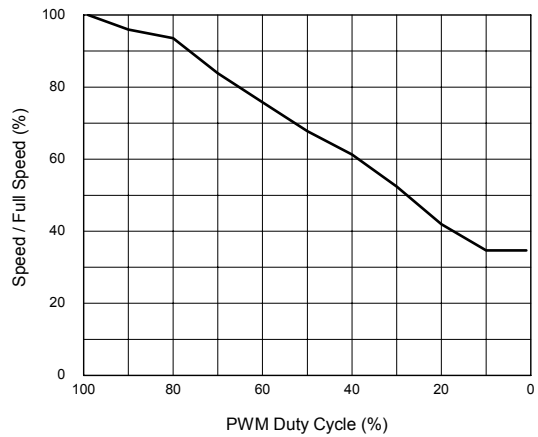


Figure 8. Speed / Full Speed vs. PWM Duty Cycle