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## General Description

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The EMC6W201 is an environmental monitoring device with automatic fan control capability and enhanced system acoustics for noise suppression. This ACPI compliant device provides hardware monitoring for up to six voltages (including its own VCC) and five external thermal sensors, measures the speed of up to five fans, and controls the speed of multiple DC fans using three Pulse Width Modulator (PWM) outputs. Note that it is possible to control more than three fans by connecting two fans to one PWM output. The EMC6W201 will be available in a 36-pin QFN, lead-free RoHS Compliant package.

The EMC6W201 includes support for monitoring six thermal sensors: five external and one internal. The external temperatures are measured via thermal diode inputs capable of monitoring remote devices. In addition, it is equipped with an ambient temperature sensor for measuring the internal temperature.

The EMC6W201 hardware monitor provides analog inputs for monitoring external voltages of +1.5V, +2.5V, +5V, and two Vccp voltages. This device has the capability to monitor its own internal VCC power supply, which may be connected to either main power (VCC) or the suspend power well (VTR). External components are not required for voltage scaling or similar treatment.

Pulse Width Modulators (PWM) will control the speed of the fans by varying the output duty cycle of the PWM. The Ramp Rate Control feature controls the rate of change of the PWM output, thereby reducing system noise created by changing the fan speed. The speed of each fan is monitored by a Fan Tachometer input. The measured values are compared to values stored in Limit Registers to detect if a fan has stalled or seized.

Fan speed may be under host software control or automatic. In host control mode, the host software continuously monitors temperature and fan speed registers, makes decisions as to desired fan speed and sets each PWM to drive the required fan speed. The PWM frequency is adjustable up to 30kHz. The EMC6W201 device offers an interrupt output signal (INT#), which may be used to interrupt the host on out-of-limit temperature or voltage condition enabling an ACPI response as opposed to the host software continuously monitoring status.

In auto "zone" mode, the EMC6W201 logic continuously monitors the temperature and fan speeds and adjusts speeds without intervention from the host CPU. Fan speed is adjusted according to an algorithm using the temperature measured in the selected zone, the high and low limits set by the user, and the current fan speed. The part can automatically adjust its operation based on its environment for improved acoustic behavior.

## Overview

The EMC6W201 device is an intelligent fan control system with reduced overall acoustic noise features. The EMC6W201 monitors voltages, external temperatures, and fan speeds. It uses this monitoring capability to alert the system to out of limit conditions and can automatically control the speeds of multiple fans.

## Pin Configuration

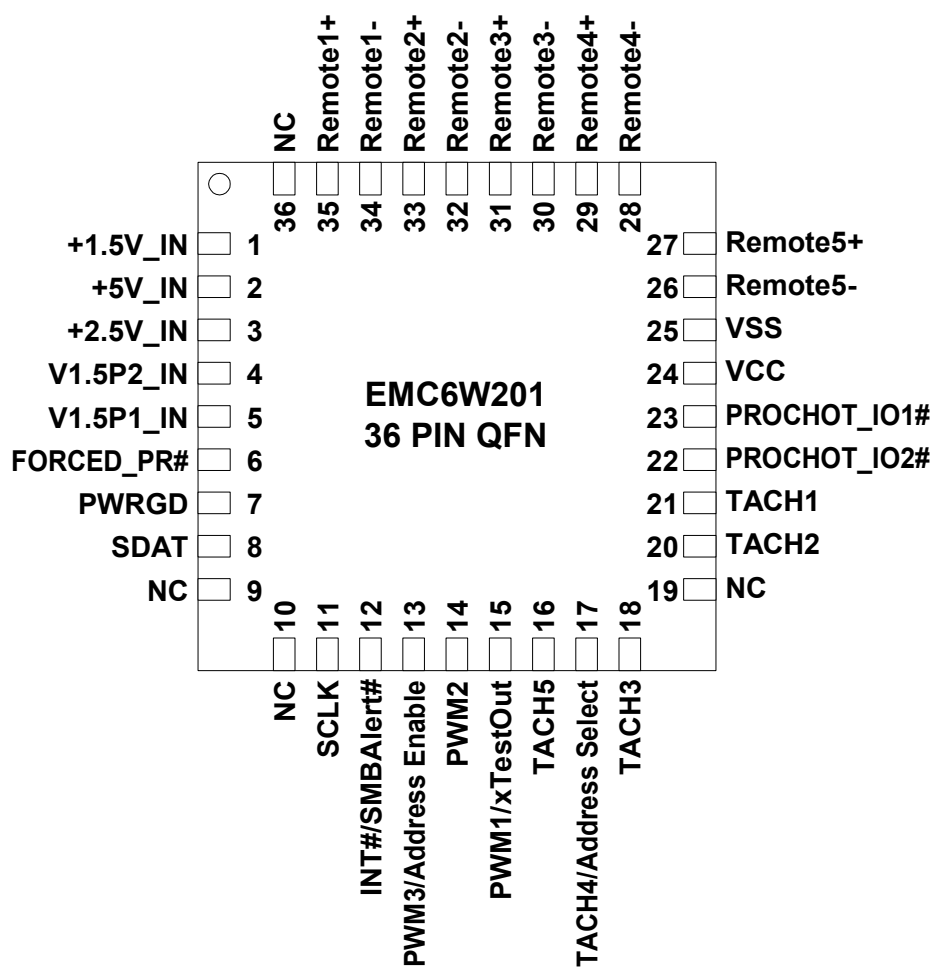


Figure 1 EMC6W201 Pin Configuration

# Package Outline

Revision 0.3 (03-01-07)

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PRODUCT PREVIEW

SMSC EMC6W201

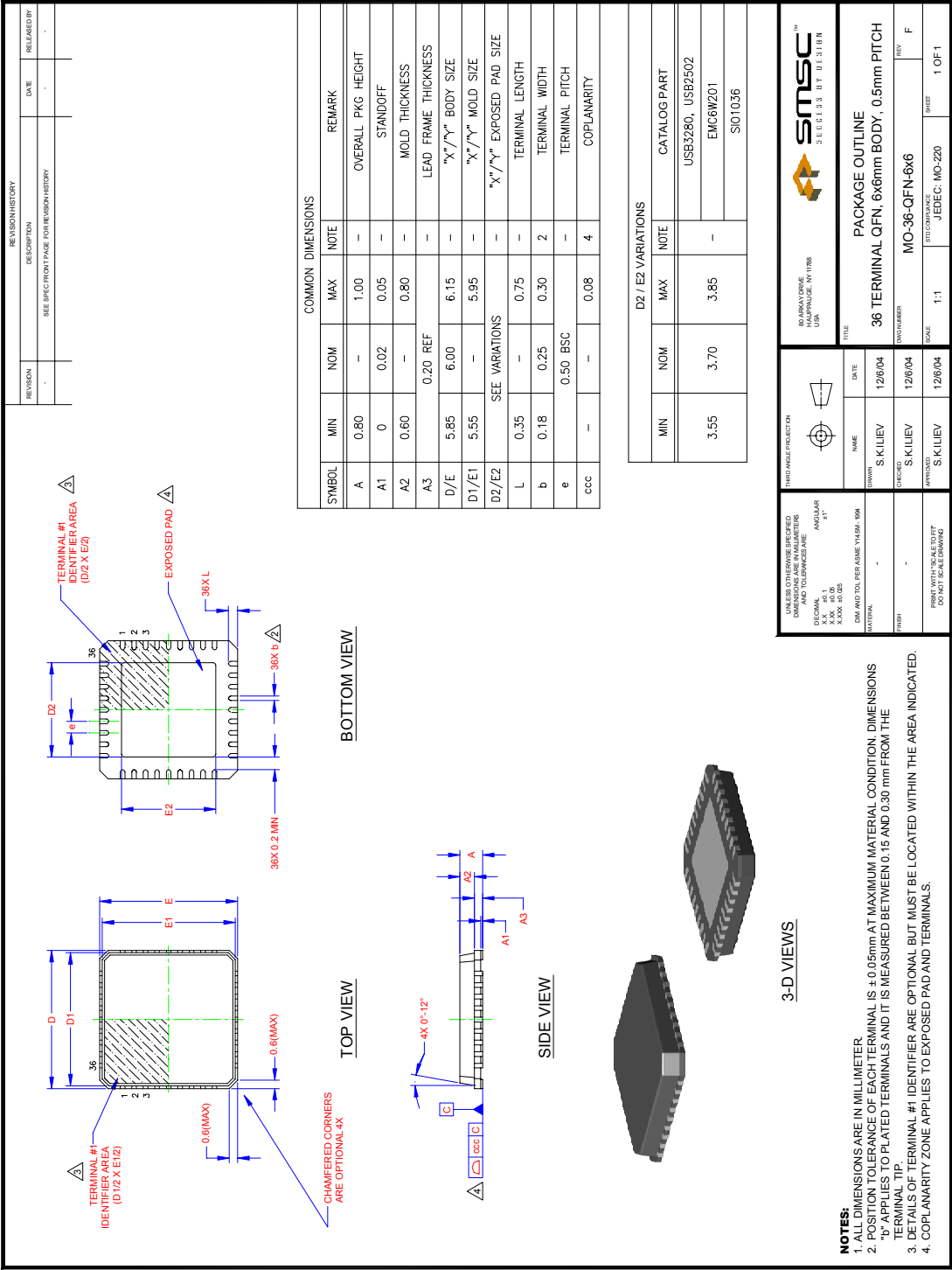


Figure 2 EMC6W201 36-Pin QFN Package Outline