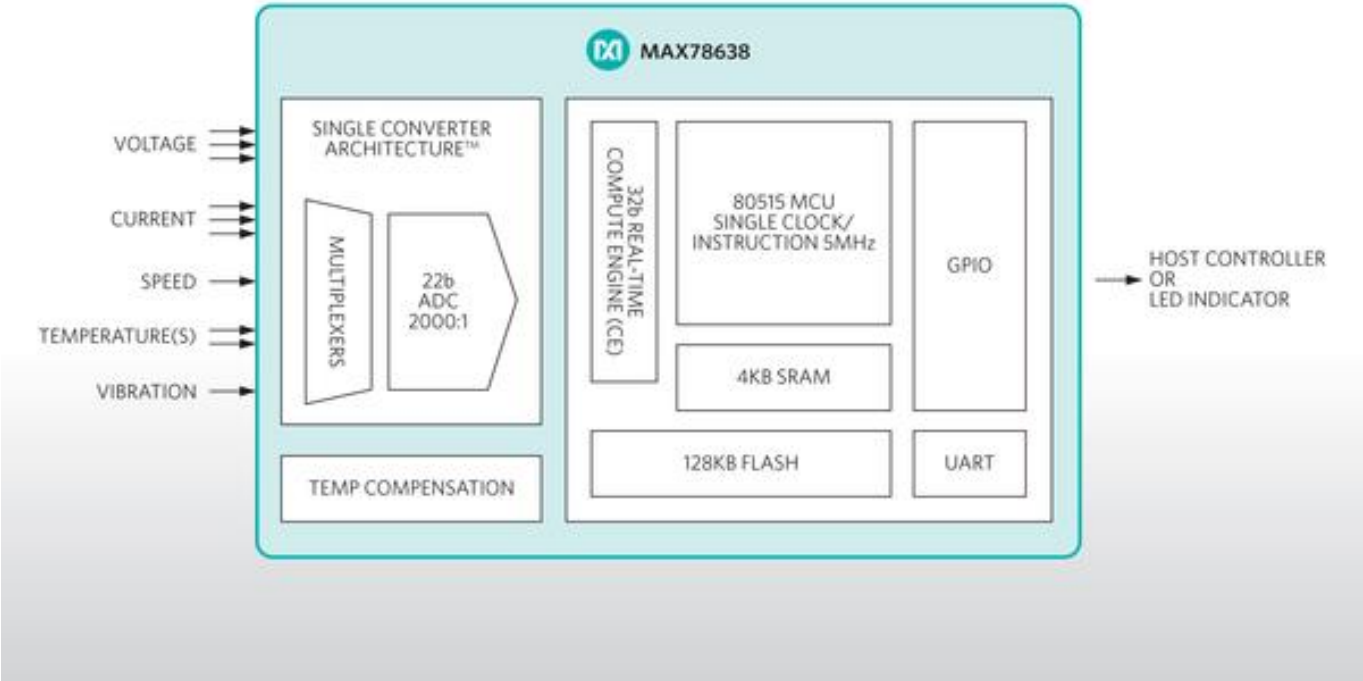
Energy Measurement and Diagnostic Solution for Mission-Critical Motors

Maxim Integrated Products announces the MAX78638, a turnkey solution for 3-phase motor energy measurement and diagnostics. Unlike previous bulky and expensive solutions that required moving the equipment from motor to motor, the highly integrated MAX78638 conveniently allows for constant and simultaneous monitoring of multiple pumps and motors.



In process automation there are mission-critical pumps and motors that, if not operating correctly, can cause a factory to shut down. In processing plants such as paper mills and oil refineries, the cost of stopping operation could result in the loss of hundreds of thousands of dollars or more. Previously, the diagnostic solutions used to monitor these motors were large and expensive, including equipment such as infrared thermography, vibration analyzers, and precision power quality submeters.

The MAX78638 is a fully integrated solution containing a microcontroller, compute engine (with preloaded firmware), and a high-accuracy analog-to-digital converter (ADC). Its flexible and configurable sensor interfaces allow for the measurement of current, voltage, speed, vibration, position, and temperature. By monitoring up to 10 sensors and calculating the mean time to failure (MTTF) and energy consumption, a motor’s health can be assessed. The solution’s preloaded firmware shortens development time by giving the customers easy access to these sensor measurements. The high-accuracy ADC enables a less than 0.5% energy calculation

error compared to the 5% of a standard microprocessor solution.

MAX78638 Key Advantages

Multiple MAX78638s can be placed on many different motors simultaneously to monitor long-time drift, track trends, and quickly detect faults

Low cost and ease of use allow the solution to be used with rental motors or small motors that do not already have diagnostic capabilities built in or provided by a separate motor drive

Preloaded firmware with documentation and source code reduces measurement development time

Maxim Integrated Products [1]

September 26, 2012

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