MAX71313L

ZON M1L/M1 Single-Phase Electricity Meter SoC

Best-in-Class Metrology with Ultra-low Power Metering Mode

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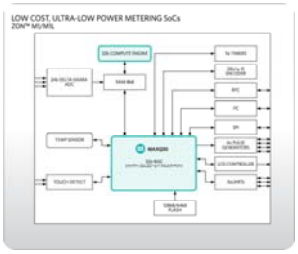
Active: In Production.

OVERVIEW

Description

The ZON™ M1L (MAX71313L) and M1 (MAX71314L) electricity meter systems-on-chip (SoC) integrate dual 32-bit processors for demanding single-phase metering applications with 128KB or 64KB flash, 8KB RAM, and a single-cycle 32 x 32 + 64 multiplier. A low-power metering mode allows metering in the presence of neutral disconnect tampering. The low-power, dedicated compute engine (CE) handles high-rate metrology processing and a 32-bit MAXQ30 MPU core handles other application functions including communications and display control.

MAX71313L, MAX71314L: Diagram



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Key Features

- Single ADC Offers High-Accuracy Performance and Cost-Effective Solution
  - Supports Up to 5 Multiplexed Inputs

    - 0.1% (typ) Wh Accuracy over 2000:1 Current Range
- Dual-Core Architecture Improves System Performance
    - Dedicated 32-bit DSP Core for High-Rate Metrology Processing
    - MAXQ30 32-Bit RISC MPU, 10 MIPS (at 10MHz)
- Highly Integrated Product Features and Flexible Peripherals Support Broad Application Needs
    - 128KB (M1) or 64KB (M1L) Flash, 8KB SRAM
    - Supports Current Transformers or Shunts for Current Measurement
    - RTC with Hardware Temperature Compensation
    - Digital Temperature Compensation for Metrology
    - 45Hz to 65Hz Line Frequency Range
    - Phase Compensation (10)
    - Four Pulse Outputs
    - LCD Controller Supports Up to 39 Segment Drivers and Up to Six Common Planes
    - Two PWM Channels with Programmable Frequency, Duty Cycle, Ramp Time
    - Five General-Purpose Timers
    - Touch Switch Input
    - SPI (Master and Slave)
    - I^2C (Master and Slave)
    - 3x UARTs (One with Optical Encoder)
- Small 64-Pin LQFP Package Saves Board Space

- Low-Power Operation Extends Battery Life
  - Enables Metering Mode Operation During Neutral Disconnect Tampering
  - 5.6mA Consumption at 3.3V in Typical Metering Mode
  - 1.6mA Typical Current Consumption at 3.3V in Low-Power Metering Mode
  - 1.75µA Typical Sleep Mode Current