MAX71313L
ZON M1L/M1 Single-Phase Electricity Meter SoC
Best-in-Class Metrology with Ultra-low Power Metering Mode

NDA Required. Request Full Data Sheet  Subscribe
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.

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

MAX71313L,
MAX71314L:
Diagram

Enlarge+
• 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)
• I²C (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