



Power and Energy Measurement IC

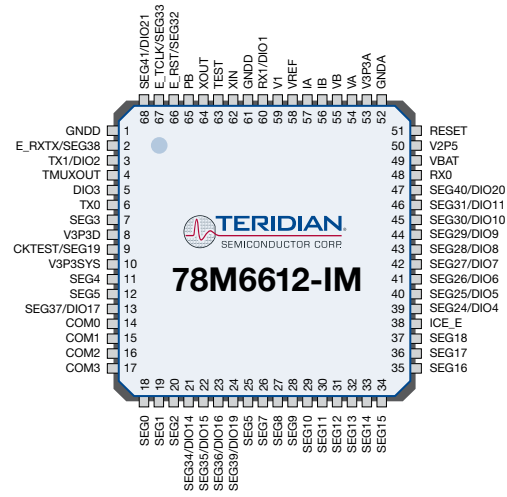
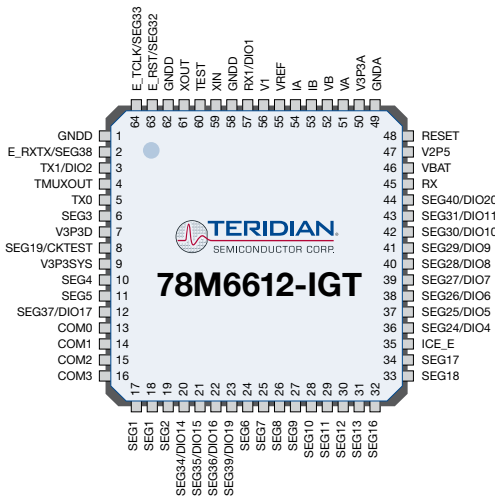
Description

The Teridian 78M6612 is a highly integrated, single phase, power and energy measurement and monitoring SOC which includes a 32-bit compute engine (CE), an MPU core, RTC, and FLASH. Teridian's patented Single Converter Technology™ with a 22-bit delta-sigma ADC, 4 analog inputs, digital temperature compensation, and precision voltage reference supports a wide range of single phase, dual outlet power measurement applications, with very few external components.

With measurement technology leveraged from Teridian's flagship utility metering IC's it offers features including 32KB of FLASH program memory, 2 KB shared RAM, three low power modes with internal timer or external event wake-up, 2 UARTs, I²C/Micro wire EEPROM I/F, and an in-system programmable FLASH. Complete Outlet Measurement Unit (OMU) and AC Power Monitor (AC-PMON) firmware is available and can be pre-loaded into the IC.

A complete array of ICE and development tools, programming libraries and reference designs enable rapid development and certification of Power and Energy Measurement solutions that meet the most demanding worldwide electricity metering standards.

KEY FEATURES	BENEFITS
> <0.5% Wh accuracy over 2000:1 current range and over temperature	> Proven, industry leading accuracy over a wide dynamic range
> Duplex outlet individually measured by a single IC	> Lowest cost per outlet
> Provides complete energy measurement and communication protocol capability in a single chip	> Cost reduction over multi-chip solutions
> Intelligent switch control capability	> Switch relays at zero crossings – avoiding arcing or sparking
> Complete energy measurement and host interface firmware available	> No code development required by customer
	> Time to market advantage



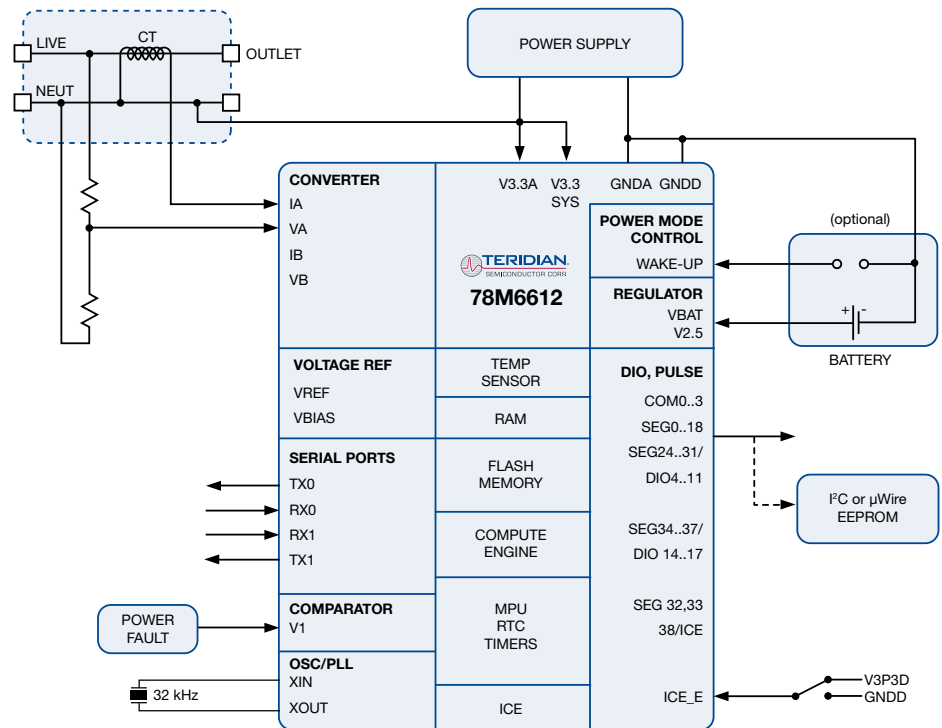
Application

- > Home and Commercial Automation
- > Computer Power Supplies
- > Communication Power Supplies

Additional Features

- > Exceeds IEC62053/ANSIC12.20 standards
- > On chip voltage reference <40ppm/°C
- > Four sensor inputs
- > Low jitter Wh and VARh pulse test outputs (10kHz max.)
- > Pulse count for pulse outputs
- > Line frequency count for RTC
- > Digital temperature compensation
- > Sag detection
- > Independent 32-bit compute engine
- > 46-64Hz line frequency range w/same calibration
- > Phase compensation ($\pm 7^\circ$)
- > Battery backup for RTC and battery monitor
- > Three battery modes with wake-up timer:
 - Brownout mode (48 μ A)
 - LCD mode (5.7 μ A)
 - Sleep mode (2.9 μ A)
- > Wake-up timer
- > 22-bit delta-sigma ADC
- > 8-bit MPU (80515), 1 clock cycle per instruction w/ integrated ICE for MPU debug
- > RTC with temperature compensation
- > Auto-Calibration
- > Hardware watchdog timer, power fail monitor
- > LCD driver (up to 152 pixels)
- > Up to 18 general purpose I/O pins
- > Digital I/O pins compatible with 5V inputs
- > 32kHz time base
- > 32KB FLASH with security
- > 2KB MPU XRAM
- > Two UARTs
- > 64-pin LQFP or 68-pin QFN package
- > RoHS compliant (6/6) lead free package
- > Complete Application Firmware available

Application Block Diagram



Ordering Information

PART DESCRIPTION	ORDERING NUMBER
78M6612 64pin LQFP, Lead Free	78M6612-IGT/F
78M6612 64pin LQFP, Lead Free, Tape and Reel	78M6612IGTR/F
78M6612 68pin QFN, Lead Free	78M6612-IM/F
78M6612 68pin QFN, Lead Free, Tape and Reel	78M6612-IMR/F
78M6612 64pin LQFP, Lead Free, Programmed	78M6612-IGT/F/P
78M6612 64pin LQFP, Lead Free, Tape and Reel, Programmed	78M6612-IGTR/F/P
78M6612 68pin QFN, Lead Free, Programmed	78M6612-IM/F/P
78M6612 68pin QFN, Lead Free, Tape and Reel, Programmed	78M6612-IMR/F/P