



Power and Energy Measurement IC

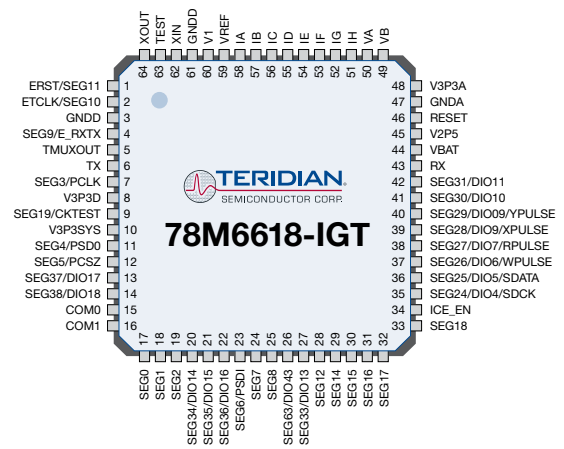
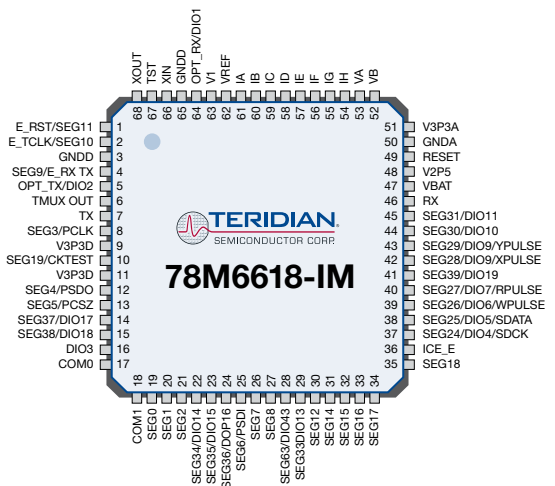
Description

The Teridian 78M6618 is a highly integrated, single phase, 8-outlet, PDU power measurement and monitoring SOC which includes a 32-bit computer engine (CE), an MPU core, RTC, and FLASH. Teridian's patented Single Converter Technology® with a 22-bit delta-sigma ADC, 10 analog inputs, digital temperature compensation, and precision voltage reference supports a wide range of single phase PDU metering applications with very few external components.

With measurement technology leveraged from Teridian's flagship utility metering IC's it offers features including 128KB of FLASH program memory, 4 KB shared RAM, three low power modes with internal timer or external event wake-up, two UARTs, I²C/Micro wire EEPROM I/F, SPI I/F, and an in-system programmable FLASH.

A complete array of ICE and development tools, programming libraries and reference designs enable rapid development and certification of Power and Energy Measurement devices that meet 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 very wide dynamic range
> Up to eight (8) outlets individually measured by one IC	> Lowest cost per outlet
> Provide complete energy measurement and communication protocol capability	> Cost reduction over multi-chip solutions
> Power factor measurement per outlet	> Server power supply failure prediction
> Intelligent switch control per outlet	> Switch relays at zero crossings – avoiding arcing or sparking
> Complete energy measurement host and interface firmware available	> No code development required by customer
	> Time to market advantage



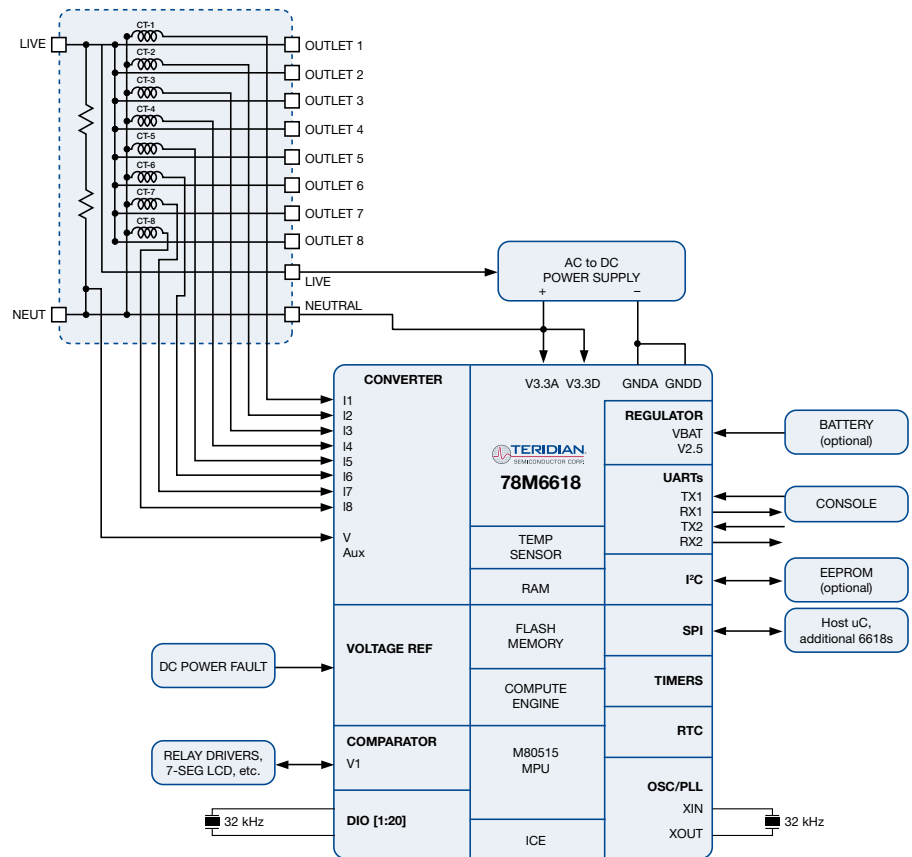
Application

- > Commercial Power Distribution Units
- > Consumer Power Distribution Units

Additional Features

- > Exceeds IEC62053/ANSIC12.20 standards
- > On chip voltage reference <math><40\text{ppm}/^{\circ}\text{C}</math>
- > Ten (10) sensor inputs
- > Phase sequencing
- > Line frequency count for RTC
- > Digital temperature compensation
- > Sag detection
- > Independent 32-bit compute engine
- > 46-64Hz line frequency range with same calibration
- > Phase compensation ($\pm 7^{\circ}$)
- > Battery backup for RTC and battery monitor
- > Three battery modes with wake-up timer:
 - Brownout mode (52 μA)
 - LCD mode (11 μA)
 - Sleep mode (0.5 μA)
- > Wake-up timer
- > 22-bit delta-sigma ADC
- > 8-bit MPU (80515), 1 clock cycle per instruction, 10MHz max., w/integrated ICE for debug
- > High-speed slave SPI interface to data RAM
- > RTC clock rate adjust register
- > Hardware watchdog timer, power fail monitor
- > I²C/ μ Wire EEPROM I/F
- > LCD Driver (up to 70 pixels)
- > Up to 19 general-purpose I/O pins – Digital I/O pins compatible with 5V inputs
- > 32kHz time base
- > FLASH memory with security: 128KB
- > 4 KB MPU XRAM
- > In-system program update
- > Two UARTs (68-pin QFN)
- > Industrial temperature
- > 64-pin LQFP and 68-pin QFN
- > RoHS compliant (6/6) lead free package
- > Complete Application Firmware available

Application Block Diagram



Ordering Information

PART DESCRIPTION	ORDERING NUMBER
78M6618 64pin LQFP, Lead Free	78M6618-IGT/F
78M6618 64pin LQFP, Lead Free, Tape and Reel	78M6618-IGTR/F
78M6618 68pin QFN, Lead Free	78M6618-IM/F
78M6618 68pin QFN, Lead Free, Tape and Reel	78M6618-IMR/F
78M6618 64pin LQFP, Lead Free, Programmed	78M6618-IGT/F/P
78M6618 64pin LQFP, Lead Free, Tape and Reel, Programmed	78M6618-IGTR/F/P
78M6618 68pin QFN, Lead Free, Programmed	78M6618-IM/F/P
78M6618 68pin QFN, Lead Free, Tape and Reel, Programmed	78M6618-IMR/F/P