

MOTIX™ TLE996x/TLE997x**Microcontroller with LIN and NFET driver for BLDC applications****Features**

- 32-bit Arm® Cortex®-M33 core
 - Clock frequency up to 40 MHz
 - 24-bit system timer (SYSTICK)
 - 32 interrupts
 - Security: Arm® TrustZone enabling software isolation
- Single power supply from 5.5 V to 29 V
- Phase-locked loop (PLL) in combination with a high precision on-chip oscillator or external oscillator
- CRC engine for data integrity
- Flash with up to 132 KB including EEPROM emulation
- RAM with up to 10 KB
- Direct memory access controller (DMA)
- Two UART interfaces with LIN protocol support (LINUART)
- LIN transceiver with safe transmit off (LINTRX)
- Fast synchronous communication interface (SSC)
- Voltage regulator for on-board sensor supply (VDDSNS)
- High voltage monitoring pin (MON)
- Two/three-phase bridge driver (BDRV) with internal charge pump and safe switch off path
- Five 16-bit general purpose timers (GPT12)
- Five 16-bit motor control timers (CCU7) with PWM jittering feature
- Low-side shunt current sense amplifier and comparator (CSA)
- Fast 12-bit ADC for measuring up to 16 inputs with high and low voltage range
- 12 GPIOs (incl. RESET, SWD) and 6 GPIs (analog and digital)
- 64 bytes of low voltage data storage register
- Safety: ISO26262 Safety Element out of Context for safety requirements up to ASIL-B
- Temperature range T_J : -40°C to 175°C
- VQFN-48 package



RoHS

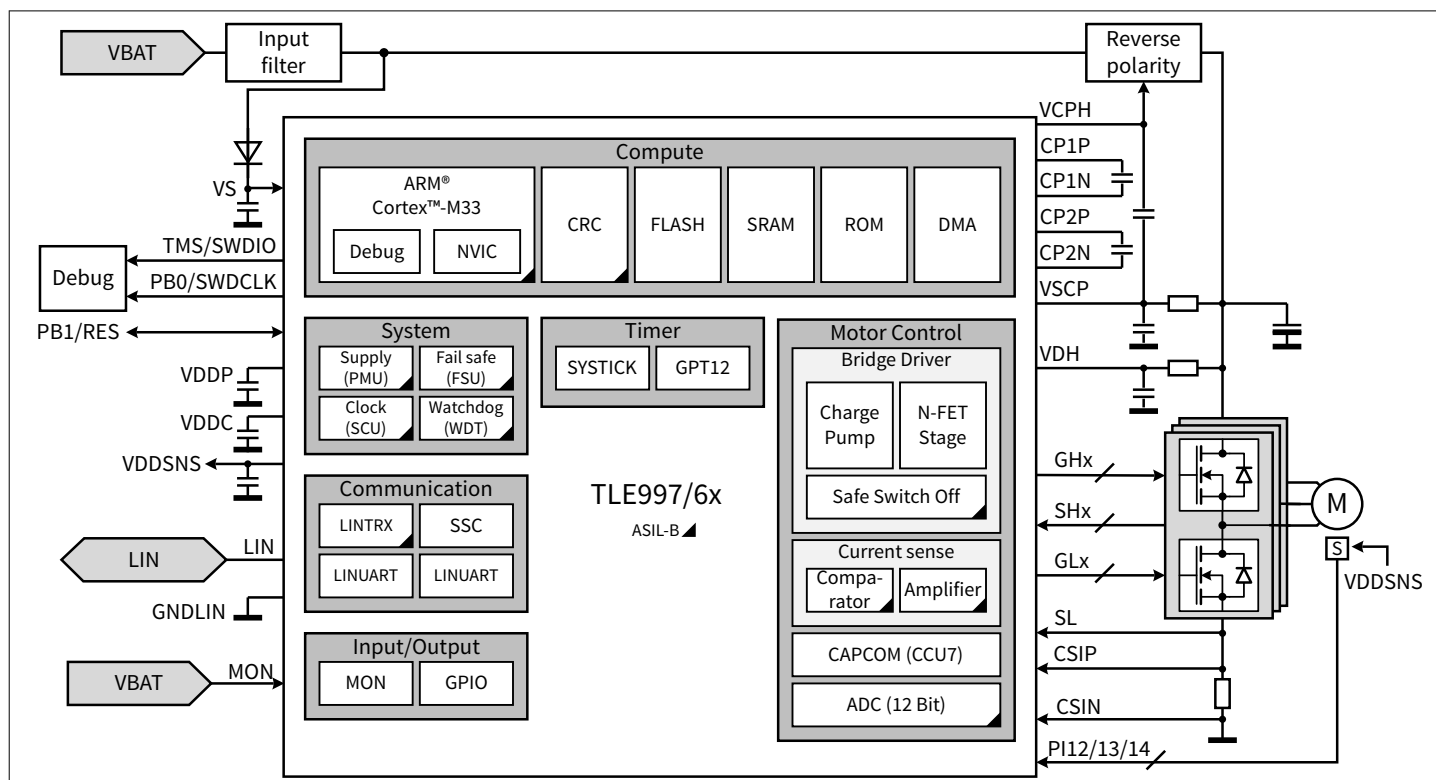
ISO 26262
compliant**Potential applications**

Automotive motor control for auxiliary drives like wiper, pumps and fans in thermal management systems.

Product validation

Product validation according to AEC-Q100, Grade 0 and Grade 1. Qualified for automotive applications.

Description



Product type	Package	Temperature grade	Flash/RAM [KB]	Frequency [MHz]	BDRV
TLE9974QXA40	VQFN-48-42	Grade-1	72/6	40	3-phase
TLE9974QXW40	VQFN-48-42	Grade-0	72/6	40	3-phase
TLE9976QXA40	VQFN-48-42	Grade-1	132/10	40	3-phase
TLE9976QXW40	VQFN-48-42	Grade-0	132/10	40	3-phase
TLE9964QXA40	VQFN-48-42	Grade-1	72/6	40	2-phase
TLE9964QXW40	VQFN-48-42	Grade-0	72/6	40	2-phase
TLE9966QXA40	VQFN-48-42	Grade-1	132/10	40	2-phase
TLE9966QXW40	VQFN-48-42	Grade-0	132/10	40	2-phase



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Package

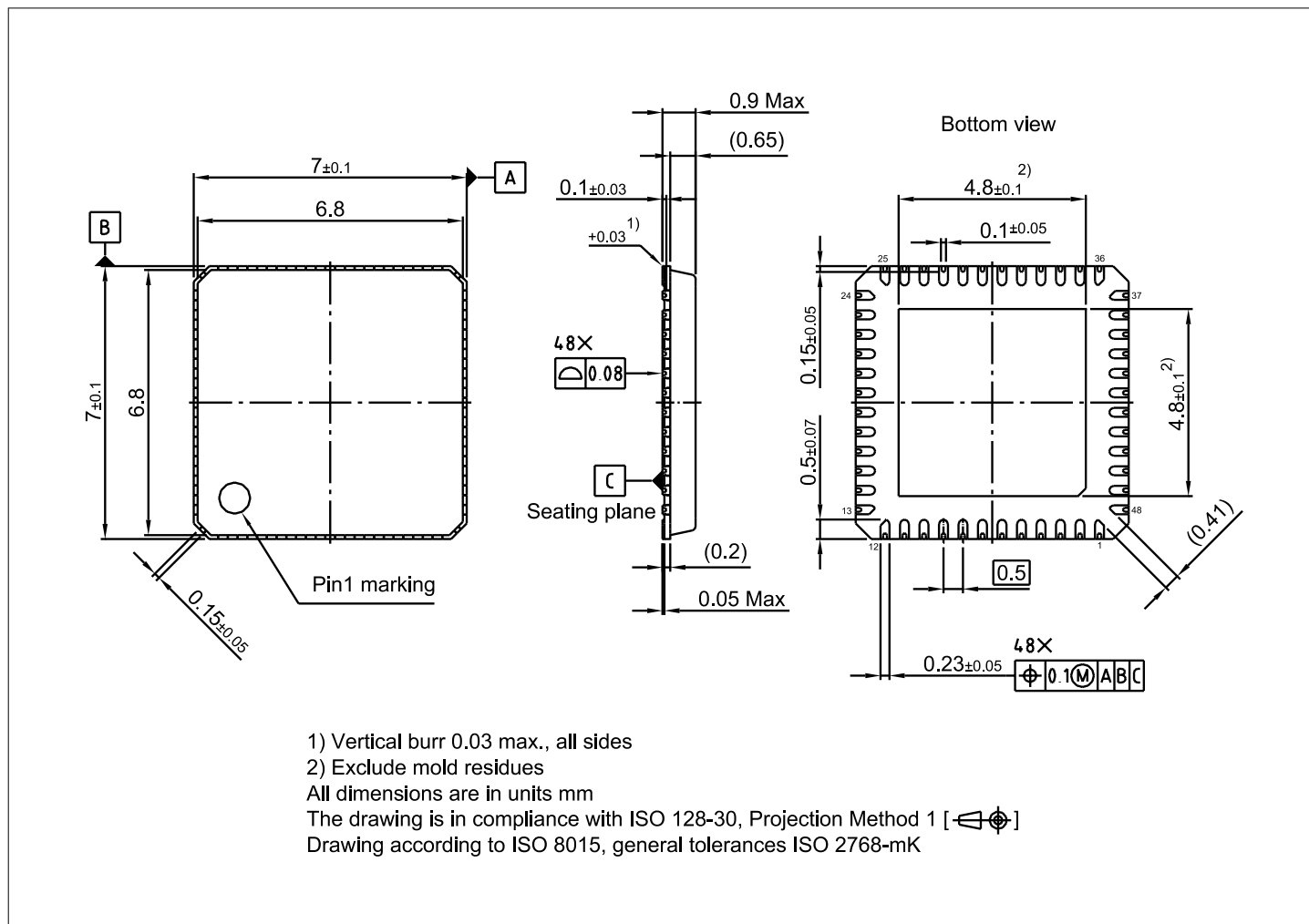


Figure 2 **Package dimensions PG-VQFN-48-42**

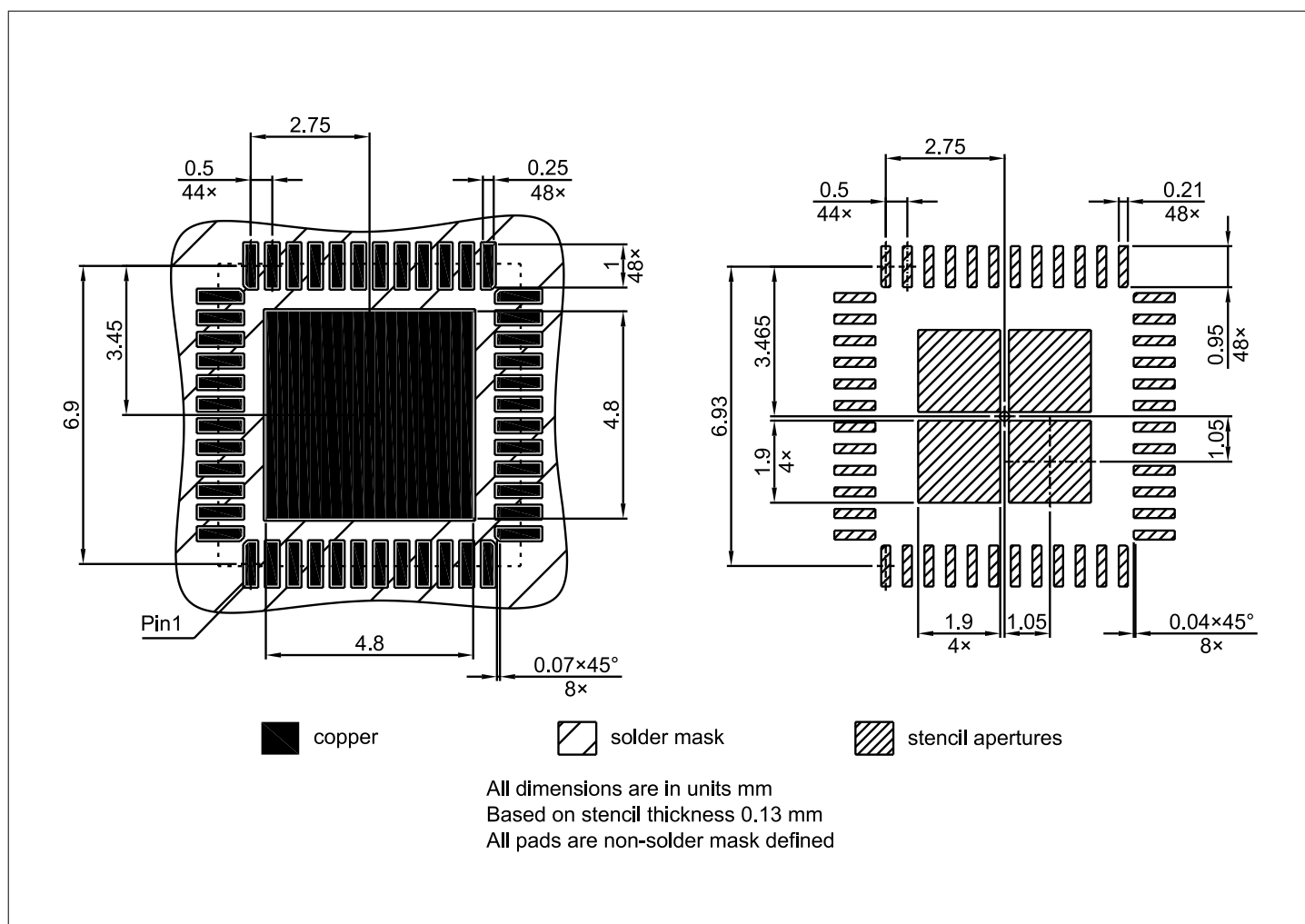


Figure 3 Footprint dimensions PG-VQFN-48-42

Green Product (RoHS compliant)

To meet the world-wide customer requirements for environmentally friendly products and to be compliant with government regulations the device is available as a green product. Green products are RoHS-Compliant (i.e Pb-free finish on leads and suitable for Pb-free soldering according to IPC/JEDEC J-STD-020).

Further information on packages

<https://www.infineon.com/packages>



Revision history

Revision number	Date of release	Description of changes
Rev. 1.00	2026-04-02	Initial public release

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