

High-Speed Interface IC for Inductive Sensing with Digital Output

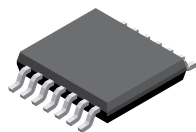
FEATURES AND BENEFITS

- Highly integrated inductive position sensor interface IC optimized for use in e-motor applications.
- State-of-the-art signal conditioning algorithms ensure high accuracy over a wide range of system configurations
- Up to 16-bit resolution at up to 250,000 rpm for traction motor and motor position sensing applications
- Large output interface selection: SPI, SENT, motorSENT, PWM, and ABI
- Qualified to AEC-Q100 grade 0
- ASIL-Compliant: ASIL C(D) safety element out of context (SEooC) developed in accordance with ISO26262, when used as specified in the safety manual



PACKAGE

Not to scale



14-pin TSSOP (Single Die, Suffix LE)

DESCRIPTION

The A17803 is a high-accuracy, high-resolution inductive position sensor interface IC for industrial and automotive applications. It is optimized for use as a position sensor interface in transmission actuators, traction motors, EPS electrical motors, and other high-speed applications.

The A17803 incorporates a coil driver for the transmitting application coil, and two receiving inputs for the receiving application coils. Both receiving signals are subjected to EMC filtering and demodulation in order to extract the target position information.

Compensation of possible error due to coils-target alignments and system design, located in the digital domain of signal path, offers offset adjustment, gain adjustment, and compensation of undesired electrical harmonics.

Due to the possibility of high-frequency input in e-motor applications, the device calculates the speed of the input signals and angle in order to reduce effective latency, resulting in fast tracking position sensing.

The A17803 is offered in surface-mount lead (Pb) free 14-pin TSSOP package.

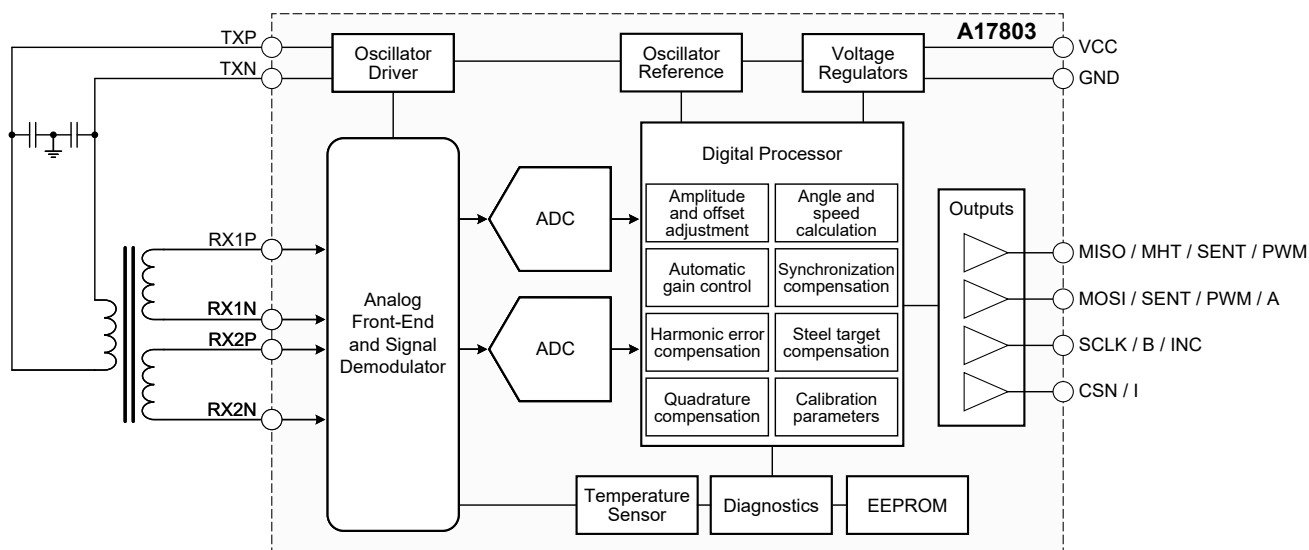


Figure 1: Functional Block Diagram

A17803

High-Speed Interface IC for Inductive Sensing with Digital Output

SELECTION GUIDE

Part Number	Programming Interface	Package	Packing
A17803PLEATR-M	Manchester	14-pin TSSOP	4000 pieces per 13-in reel
A17803PLEATR-S	SPI	14-pin TSSOP	4000 pieces per 13-in reel



PACKAGE OUTLINE DRAWING

For Reference Only – Not for Tooling Use

(Reference Allegro DWG-0000381, Rev. 1 and JEDEC MO-153 AB-1)
Dimensions in millimeters – NOT TO SCALE
Dimensions exclusive of mold flash, gate burrs, and dambar protrusions
Exact case and lead configuration at supplier discretion within limits shown

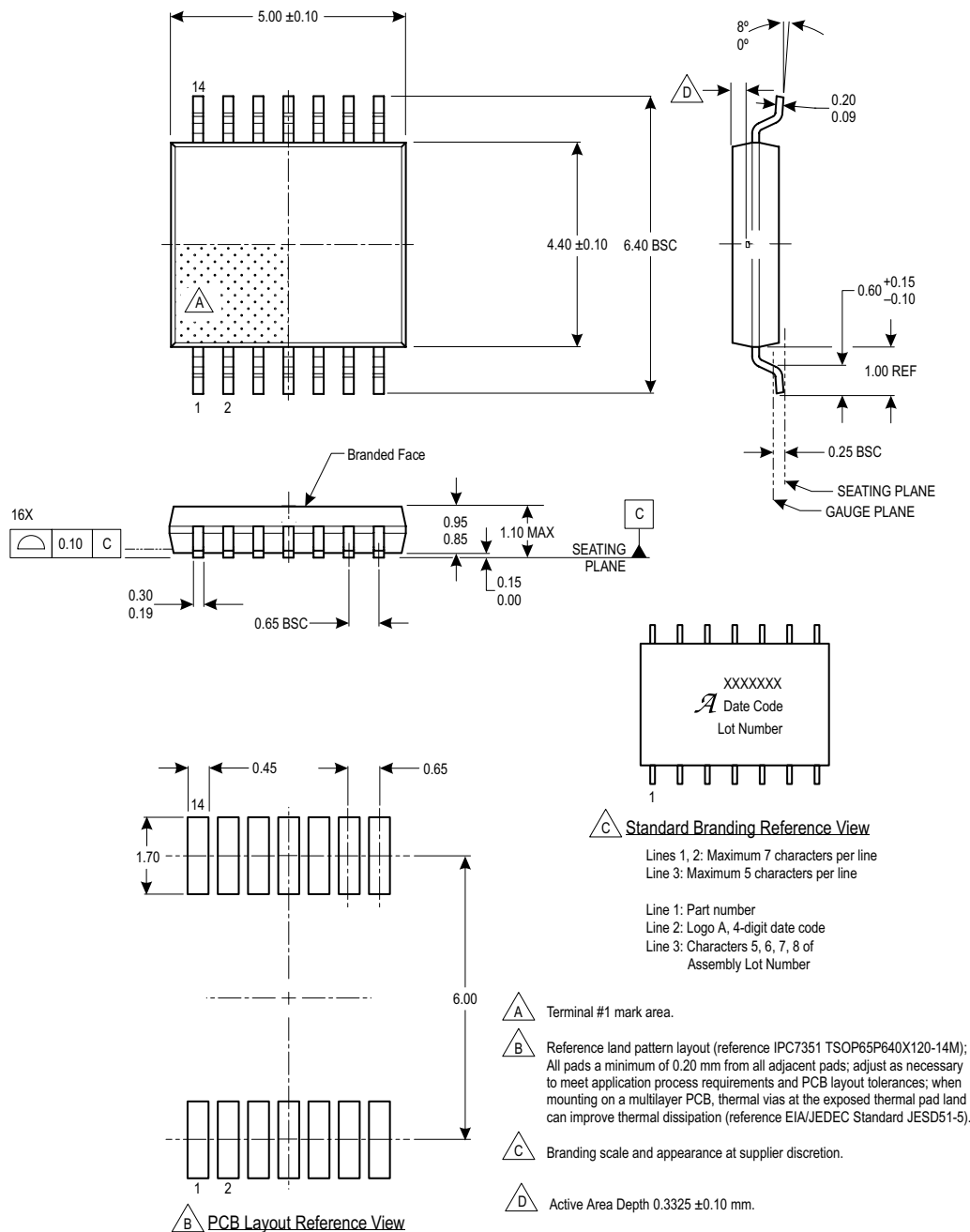


Figure 2: 14-Pin TSSOP Package

Revision History

Number	Date	Description
–	March 13, 2025	Initial release
1	April 22, 2025	Updated ASIL logo (page 1), Created short-form datasheet
2	January 9, 2026	Updated Functional Block Diagram (page 1), Operating Characteristics table (page 7, page 11), updated motorSENT table name (page 27), removed SPI Interface Timings Output table and updated Timing section (page 39), (pages 42, 43), added Programming Characteristics table (page 44), updated Read Command section (page 46), updated memory addresses (pages 49, 50), updated Address 0xF Temperature table and Temperature bit range (page 57), updated addresses and descriptions (page 87, 88)
3	February 6, 2026	Updated Supply Current characteristic (page 7); corrected OGA to offset autocalibration throughout; updated CRC Python code example (page 41); clarified t_d , t_b , and T_{BIT} references (pages 44-45); updated OGA_AMP_DIS default to 1 (page 70); and removed Address 0x5B and 0x5D (pages 87-88).

Copyright 2026, Allegro MicroSystems.

Allegro MicroSystems reserves the right to make, from time to time, such departures from the detail specifications as may be required to permit improvements in the performance, reliability, or manufacturability of its products. Before placing an order, the user is cautioned to verify that the information being relied upon is current.

Allegro's products are not to be used in any devices or systems, including but not limited to life support devices or systems, in which a failure of Allegro's product can reasonably be expected to cause bodily harm.

The information included herein is believed to be accurate and reliable. However, Allegro MicroSystems assumes no responsibility for its use; nor for any infringement of patents or other rights of third parties which may result from its use.

Copies of this document are considered uncontrolled documents.

For the latest version of this document, visit our website:

www.allegromicro.com