

HE910 Family Product Description

Preliminary

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1. Introduction

1.1. Scope

Scope of this document is to give an overview of the Telit HE910 family, which can support GSM/GPRS/EDGE and WCDMA/HSPA with data/voice capabilities and optional GPS.

1.2. Audience

This document is intended for customers who are evaluating the HE910 family.

1.3. Contact Information, Support

For general contact, technical support, to report documentation errors and to order manuals, contact Telit Technical Support Center (TTSC) at:

TS-EMEA@telit.com

TS-NORTHAMERICA@telit.com

TS-LATINAMERICA@telit.com

TS-APAC@telit.com

Alternatively, use:

<http://www.telit.com/en/products/technical-support-center/contact.php>

For detailed information about where you can buy the Telit modules or for recommendations on accessories and components visit:

<http://www.telit.com>

To register for product news and announcements or for product questions contact Telit Technical Support Center (TTSC).

Our aim is to make this guide as helpful as possible. Keep us informed of your comments and suggestions for improvements.

Telit appreciates feedback from the users of our information.



2. Overview

The new HE910 product family introduces the first and smallest penta-band HSPA+ Land-Grid-Array (LGA) module in the market incorporating a 2G/3G solution built on 40nm CMOS technology.

The LGA package provides ultra low profile in the integrated solution while at the same time enhancing the performance of mechanical resistance to shock and reducing cost in high-volume applications, saving space and weight in portable devices.

The HE910 includes features like HSDPA 14.4 Mbps (Cat 10), HSUPA 5.7 Mbps (Cat 6), EGPRS Class 33, digital voice interface, circuit switched data transfer, phonebook and SMS support, embedded TCP/IP protocol stack and custom Telit AT commands.

Due to its low profile, low consumption and advanced connectivity features, HE910 is particularly suitable for applications such as mobile computing devices, PDAs, smartphones, table PCs and consumer electronics in general, both for business and personal life.

HE910 family can also be provided with an optional integrated high sensitivity A-GPS functionality for indoor fixes and simultaneous GPS with voice and data.

As a part of Telit's corporate policy of environmental protection, all Telit products comply with the RoHS (Restriction of Hazardous Substances) directive of the European Union (EU Directive 2002/95/EG)



NOTE:

Some of the performances of the Telit modules depend on S/W version installed on the module itself. The Telit modules S/W group is continuously working in order to add new features and improve the overall performances. The Telit modules are easily upgraded by the developer using the Telit Flash Programmer.



NOTE:

In order to meet the competitive OEM and vertical market stringent requirements, Telit supports its customers with a dedicated Support Policy with:

- Telit Evaluation Kit EVK2 to help you to develop your application;
 - A website with all updated information available;
 - An high level specialist technical support to assist you in your development;
-



SMS

- Point to point mobile originated and mobile terminated SMS
- Concatenated SMS supported
- SMS cell broadcast
- Text and PDU mode
- SMS over GPRS

Data transmission

- HSPA: category 10 in downlink e category 6 in uplink
 - DL up to 14.4Mbps
 - UL up to 5.76Mbps
- WCDMA: up to 384kbps downlink/uplink
- EDGE: DL up to 296kbps, UL up to 236.8kbps
- GPRS: DL up to 107kbps, UL up to 85.6kbps
- Asynchronous non-transparent CSD up to 9.6kbps
- EDGE Class 33, MS class B
- Coding scheme 1 to 4 (GPRS) & Modulation Coding scheme 1 to 9 (EDGE)

Optional GPS receiver

GPS features

- SUPL1.0
- C-Plane rel.6

Power consumptions

- 15mA in low power tracking mode (1 fix per second)
- 30uA in sleep mode (GPS warm- and hot-start possible from sleep mode)

High sensitivity for indoor reception, up to -163 dBm (with active antenna)

Accuracy < 3m

Extremely fast TTIFF's at low signal levels

Hot start autonomous < 3sec.

Warm start autonomous < 40 sec,

Cold start autonomous < 45 sec.

Support multi-channel GPS

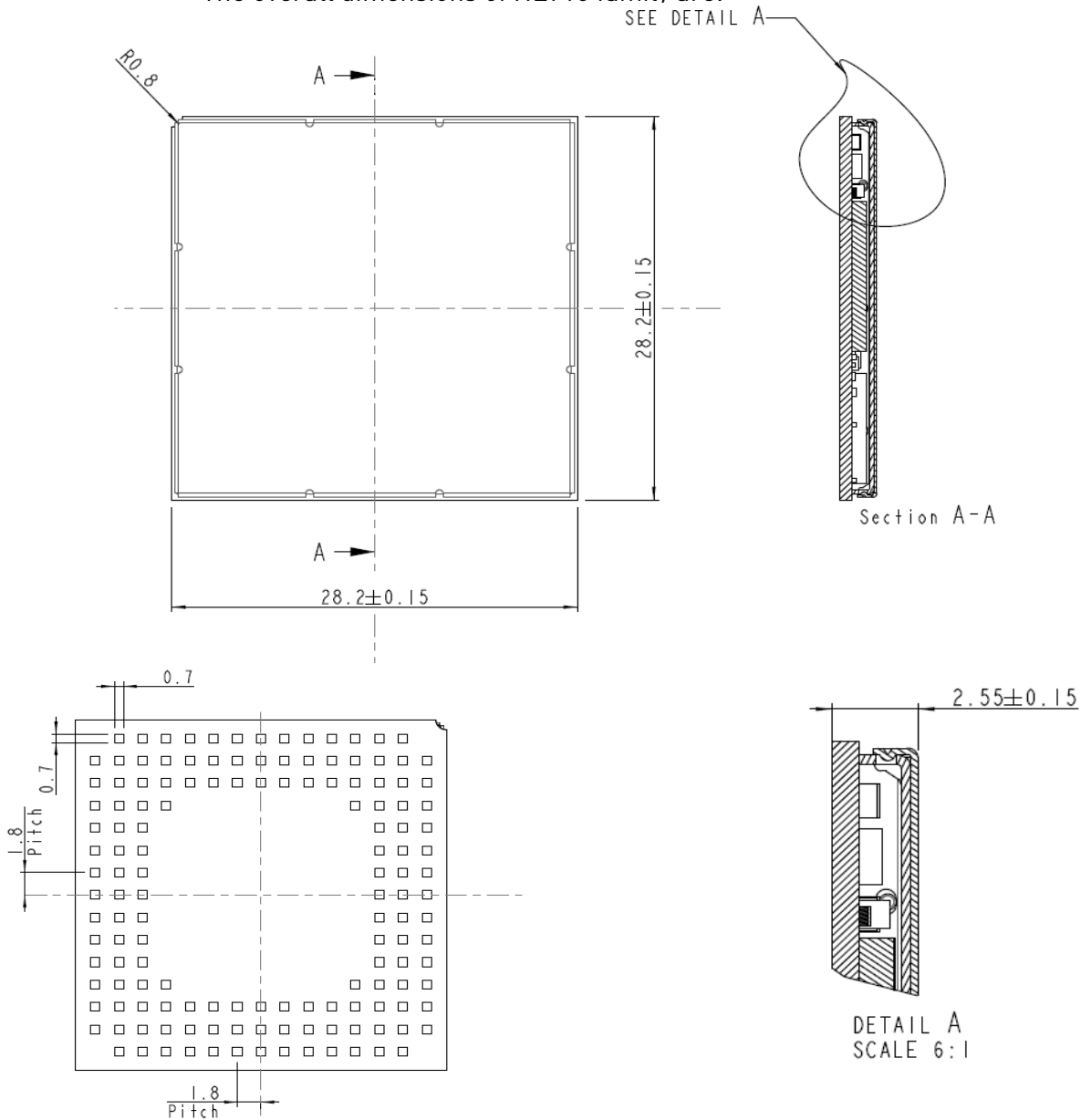


3. General Product Description

3.1. Dimensions and 2D mechanical drawing

HE910 has a Land-Grid-Array (LGA) package, with 144 pads.

The overall dimensions of HE910 family are:



The module weight of HE910 family is about 10 grams.



3.3. Environmental requirements

3.3.1. Temperature range

		Note
Operating Temperature Range	-20°C ~ +55°C	The module is fully functional(*) in all the temperature range, and it fully meets the ETSI specifications.
	-30°C ~ +85°C	The module is fully functional(*) in all the temperature range. Temperatures outside of the range -20°C ÷ +55°C might slightly deviate from ETSI specifications.
Storage and non operating Temperature Range	-40°C ~ +85°C	

(*)Functional: the module is able to make and receive voice calls, data calls and SMS.

3.3.2. RoHS compliance

As a part of Telit corporate policy of environmental protection, the HE863 family complies with the RoHS (Restriction of Hazardous Substances) directive of the European Union (EU directive 2002/95/EG).



3.4. Operating Frequency

The operating frequencies in GSM850, EGSM900, DCS1800, PCS1900, WCDMA modes are compliant to the 3GPP and WCDMA specifications.

Mode	Freq. TX (MHz)	Freq. RX (MHz)	Channels	TX - RX offset
GSM850	824.2 ~ 848.8	869.2 ~ 893.8	128 ~ 251	45 MHz
EGSM900	890.0 ~ 914.8	935.0 ~ 959.8	0 ~ 124	45 MHz
	880.2 ~ 889.8	925.2 ~ 934.8	975 ~ 1023	45 MHz
DCS1800	1710.2 ~ 1784.8	1805.2 ~ 1879.8	512 ~ 885	95MHz
PCS1900	1850.2 ~ 1909.8	1930.2 ~ 1989.8	512 ~ 810	80MHz
WCDMA850 (band V)	826.4 ~ 846.6	871.4 ~ 891.6	Tx: 4132 ~ 4233 Rx: 4357 ~ 4458	45MHz
WCDMA900 (band VIII)	882.4 ~ 912.6	927.4 ~ 957.6	Tx: 2712 ~ 2863 Rx: 2937 ~ 3088	45MHz
WCDMA1700 (band IV)	1710.4 ~ 1755.6	2112.4 ~ 2167.6	Tx: 1312 ~ 1513 Rx: 9662 ~ 9938	400MHz
WCDMA1900 (band II)	1852.4 ~ 1907.6	1932.4 ~ 1987.6	Tx: 9262 ~ 9538 Rx: 9662 ~ 9938	80MHz
WCDMA2100 (Band I)	1922.4 ~ 1977.6	2112.4 ~ 2167.6	Tx: 9612 ~ 9888 Rx: 10562 ~ 10838	190MHz



3.19.4. Data Transmission capabilities

The HE910 family supports:

- HSPA: D/L up to 14.4Mbps, U/L up to 5.76Mbps
- EDGE:D/L up to 296kbps, U/L up to 236.8kbps
- GPRS: D/L up to 107kbps, U/L up to 85.6kbps
- Asynchronous non-transparent CSD up to 9.6kbps for GSM, 14.4kbps for WCDMA
- EDGE Class 33, MS class B
- Coding scheme 1 to 4 (GPRS) & Modulation Coding scheme 1 to 9 (EDGE)

3.19.5. Local security management

The local security management can be done with the lock of Universal Subscriber Identity Module (USIM), and the security code will be requested at power-up.

3.19.6. Call control

The calling cost control function is supported.

3.19.7. Phonebook

This function allows storing the telephone numbers into SIM memory. The capability depends on the SIM version and its embedded memory.

3.19.8. Characters management

The HE910 family supports the IRA, GSM, PCCP437, 8859-1 and UCS2 character sets, in TEXT and PDU mode.

3.19.9. SIM related functions

Activation and deactivation of the numbers stored in phone book FDN (Fixed Dialing Numbers), ADN (Abbreviated Dialing Number) and PIN insertion are supported. Extension at the PIN2 for the PUK2 insertion capability for lock condition is supported too.

3.19.10. Call status indication

The call status indication is supported.

3.19.11. Automatic answer

The automatic answering feature is supported. The user/application can specify the number of rings after which the module will make an answer automatically.



HE910 Family Product Description

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MT	Mobile Terminated
OEM	Other Equipment Manufacturer
PCB	Printed Circuit Board
PCM	Pulse Code Modulation
PDA	Personal Digital Assistant
PDU	Protocol Data Unit
PIN	Personal Identification Number
POS	Point Of Sales
PWM	Pulse Width Modulation
RF	Radio Frequency
RoHS	Restriction of Hazardous Substances
RTC	Real Time Clock
SAIC	Single Antenna Interface Cancellation
SIM	Subscriber Identity Module
SMD	Surface Mounted Device
SMS	Short Message Service
S/W	Software
TBD	To Be Determined
TCP/IP	Transmission Control Protocol/Internet Protocol
TTSC	Telit Technical Support Center
UART	Universal Asynchronous Receiver and Transmitter
USB	Universal Serial Bus
USIM	Universal Subscriber Identity Module
WCDMA	Wideband Code Division Multiple Access

