

General Description

BDE-LE2340RGE is a Bluetooth® 5.3 Low Energy and Proprietary 2.4-GHz wireless module series based on Texas Instrument (TI)'s single-chip wireless microcontroller (MCU) CC2340R52N0RGER or CC2340R21N0RGER. In order to fulfil different integration scenarios, we provide different variants for this module series. They are listed and described in Table 1-1.

BDE-LE2340RGE module series integrates an Arm® Cortex®-M0+ MCU, which supports Bluetooth® 5.3 Low Energy, ZigBee®, SimpleLink™ TI 15.4-stack and Proprietary systems. This device is optimized for low-power wireless communication with on-chip dual image Over the Air Download (OAD) support in building automation (wireless sensors, lighting control, beacons), asset tracking, medical, retail EPOS (electronic point of sale), ESL (electronic shelf label), and personal electronics (toys, HID, stylus pens) markets.

BDE-LE2340RGE module series can support up to +8 dBm output power and a receive sensitivity of -102 dBm for 125 kbps Bluetooth® Low Energy Coded PHY. It is with ultra-low standby current less than 0.71 µA with RTC operational and full RAM retention that enables significant battery life extension especially for applications with longer sleep intervals. The module series supports for Bluetooth® 5 features: High Speed Mode (2 Mbps PHY), Long Range (LE Coded 125 kbps and 500 kbps PHYs), Privacy 1.2.1 and Channel Selection Algorithm #2, as well as backwards compatibility and support for key features from the Bluetooth® 4.2 and earlier Low Energy specifications.

BDE-LE2340RGE module series highly integrates the radio with required passives, high-frequency clock, low-frequency clock, filter, antenna, ect., and also a fully-qualified Bluetooth® 5.3 software protocol stack and profiles from TI. It can work standalone without using an external MCU. With its best-in-class radio performance, ultra-low power, small form factor and low cost, the BDE-LE2340RGE module series is the best choice for the applications that are sensitive to power consumption, size and cost.

Table 1-1. Module Variants

Model Number	Orderable Part Number	Chipset	Flash (KB)	SRAM (KB)	Antenna on 2.4G	On-Board SPI Nor Flash Support
BDE-LE2340RGE	BDE-LE2340R52GEA32	CC2340R52GE	512	36	PCB Trace Antenna	32Mbit
	BDE-LE2340R52GEU32				U.FL Connector	
	BDE-LE2340R52GEN32				ANT Pin	
	BDE-LE2340R52GEA0				PCB Trace Antenna	Not Included
	BDE-LE2340R52GEU0				U.FL Connector	
	BDE-LE2340R52GEN0				ANT Pin	
	BDE-LE2340R52GEA32-IN				PCB Trace Antenna	32Mbit
	BDE-LE2340R52GEU32-IN				U.FL Connector	
	BDE-LE2340R52GEN32-IN				ANT Pin	
	BDE-LE2340R52GEA0-IN				PCB Trace Antenna	Not Included
	BDE-LE2340R52GEU0-IN				U.FL Connector	
	BDE-LE2340R52GEN0-IN				ANT Pin	
	BDE-LE2340R21GEA32	CC2340R21GE	256	28	PCB Trace Antenna	32Mbit
	BDE-LE2340R21GEU32				U.FL Connector	
	BDE-LE2340R21GEN32				ANT Pin	
	BDE-LE2340R21GEA0				PCB Trace Antenna	Not Included
	BDE-LE2340R21GEU0				U.FL Connector	

Model Number	Orderable Part Number	Chipset	Flash (KB)	SRAM (KB)	Antenna on 2.4G	On-Board SPI Nor Flash Support
	BDE-LE2340R21GEN0				ANT Pin	32Mbit
	BDE-LE2340R21GEA32-IN				PCB Trace Antenna	
	BDE-LE2340R21GEU32-IN				U.FL Connector	
	BDE-LE2340R21GEN32-IN				ANT Pin	
	BDE-LE2340R21GEA0-IN				PCB Trace Antenna	Not Included
	BDE-LE2340R21GEU0-IN				U.FL Connector	
	BDE-LE2340R21GEN0-IN				ANT Pin	

Note: This module series supports extended industrial temperature grade which can operates from -40°C to 105°C. The part number should comes with “-IN” suffix. For example, the part number BDE-LE2340R52GEA32-IN is the extended industrial temperature grade version.

Key Features

- Wireless microcontroller
 - Optimized 48-MHz Arm® Cortex®-M0+ processor
 - 256 KB of in-system programmable flash
 - 12 KB of ROM for bootloader and drivers
 - 28 KB of ultra-low leakage SRAM. Full RAM retention in standby mode
 - Integrated 32-Mbit SPI flash
 - ✧ BDE-LE2340RGEA32
 - ✧ BDE-LE2340RGEU32
 - ✧ BDE-LE2340RGEN32
 - ✧ BDE-LE2340RGEA32-I
 - ✧ BDE-LE2340RGEU32-I
 - ✧ BDE-LE2340RGEN32-I
 - 2.4-GHz RF transceiver compatible with Bluetooth® 5.3 Low Energy and IEEE 802.15.4 PHY and MAC
 - Supports over-the-air upgrade (OTA)
 - Serial Wire Debug (SWD)
- Low power consumption
 - MCU consumption:
 - ✧ 2.6 mA active mode, CoreMark®
 - ✧ 53 µA/MHz running CoreMark®
 - ✧ <710 nA standby mode, RTC, 36 KB RAM
 - ✧ 165 nA shutdown mode, wake-up on pin
 - Radio Consumption:
 - ✧ 5.3 mA RX
 - ✧ 5.1 mA TX at +0 dBm
 - ✧ <11.0 mA TX at +8 dBm
- Wireless protocol support
 - Bluetooth® 5.3 Low Energy
 - Zigbee®
 - Thread
 - Proprietary systems
- High performance radio
 - -102 dBm for Bluetooth® Low Energy 125 kbps
 - -96.5 dBm for Bluetooth® Low Energy 1 Mbps
 - Output power up to +8 dBm with temperature compensation
- Qualification and Regulatory Compliance
 - Bluetooth SIG
 - FCC
 - IC
 - CE-RED
- MCU peripherals
 - Up to 12 I/O Pads
 - ✧ 2 IO pads SWD, muxed with GPIOs
 - ✧ 2 IO pads LFXT, muxed with GPIOs (On-board LFXT is populated by default, these two IOs are not exposed by default)
 - ✧ Up to 8 DIOs (analog or digital IOs)
 - ✧ Four IOs are assigned to on-board SPI flash in SPI variants, refer to Section 2.1
 - 3x 16-bit or 1x 24-bit general-purpose timers, quadrature decode mode support
 - 12-bit ADC, 1.2 Msps with external reference, 267 ksps with internal reference, up to 12 external ADC inputs
 - 1x low power comparator
 - 1x UART
 - 1x SPI
 - 1x I2C
 - Real-time clock (RTC)
 - Integrated temperature and battery monitor
 - Watchdog timer
- Security enablers
 - AES 128-bit cryptographic accelerator
 - Random number generator from on-chip

- analog noise
- Operating range
 - 1.71-V to 3.8-V single supply voltage
 - 2.3-V to 3.6-V single supply voltage (SPI flash variants)
 - Operating temperature range:
 - ✧ -40°C to +85°C
 - ✧ -40°C to +105°C (-IN variants)
- Package
 - Dimension:
 - ✧ 11.5 mm x 13.5 mm x 2.0 mm (-A, -U variants)
 - ✧ 11.5 mm x 9.70 mm x 2.0 mm (-N variants)
 - RoHS-compliant package
- Antenna
 - BDE-LE2340RGEA32/BDE-LE2340RGEA0: Integrated PCB trace antenna
 - BDE-LE2340RGEU32/BDE-LE2340RGEU0: Integrated U.FL connector for connecting external antenna
- BDE-LE2340RGEN32/BDE-LE2340RGEN0: No antenna/connector included, ANT pin out for connecting external antenna
- Additional integrated components
 - 48-MHz HFXT
 - 32.768-kHz LFXT
 - 32-Mbit SPI flash – SPI flash variants
 - RF filter and passive components
- Development Option
 - Functions as a SoC using TI SDK
 - Functions as a UART pass-through using BDE's pre-programmed BDE-SPP firmware with AT comments
 - Functions as a Wireless Network Process (WNP)

Applications

- Medical
 - Home healthcare – blood glucose monitors, blood pressure monitor, CPAP machine, electronic thermometer
 - Patient monitoring & diagnostics – medical sensor patches
 - Personal care & Fitness – electric toothbrush, wearable fitness & activity monitor
- Building automation
 - Building security systems – motion detector, electronic smart lock, door and window sensor, garage door system, gateway
 - HVAC – thermostat, wireless environmental sensor
 - Fire safety system – smoke and heat detector
 - Video surveillance – IP network camera
- Lighting
 - LED luminaire
 - Lighting control – daylight sensor, lighting sensor, wireless control
- Factory automation and control
- Retail automation & payment – Electronic point of sale
 - Electronic shelf label
- Communication equipment
 - Wired networking
 - Wireless LAN or Wi-Fi access points, edge router
- Personal electronics
 - Connected peripherals – consumer wireless module, pointing devices, keyboards and keypads
 - Gaming – electronic and robotic toys
 - Wearables (non-medical) – smart trackers, smart clothing

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1. References

- [1] CC2340R5 resources: <https://www.ti.com/product/CC2340R5>
- [2] CC2340R2 resources: <https://www.ti.com/product/CC2340R2>

2. Block Diagram

The module, as seen in Figure 2-1, comprises of:

- 48-MHz HFXT
- 32.768-kHz LFXT
- 32-Mbit SPI flash (SPI flash variants)
- Power inductors and capacitors
- Pull-up resistor
- Matching circuit
- PCB trace antenna / U.FL connector for external antenna/ ANT pin out for external antenna

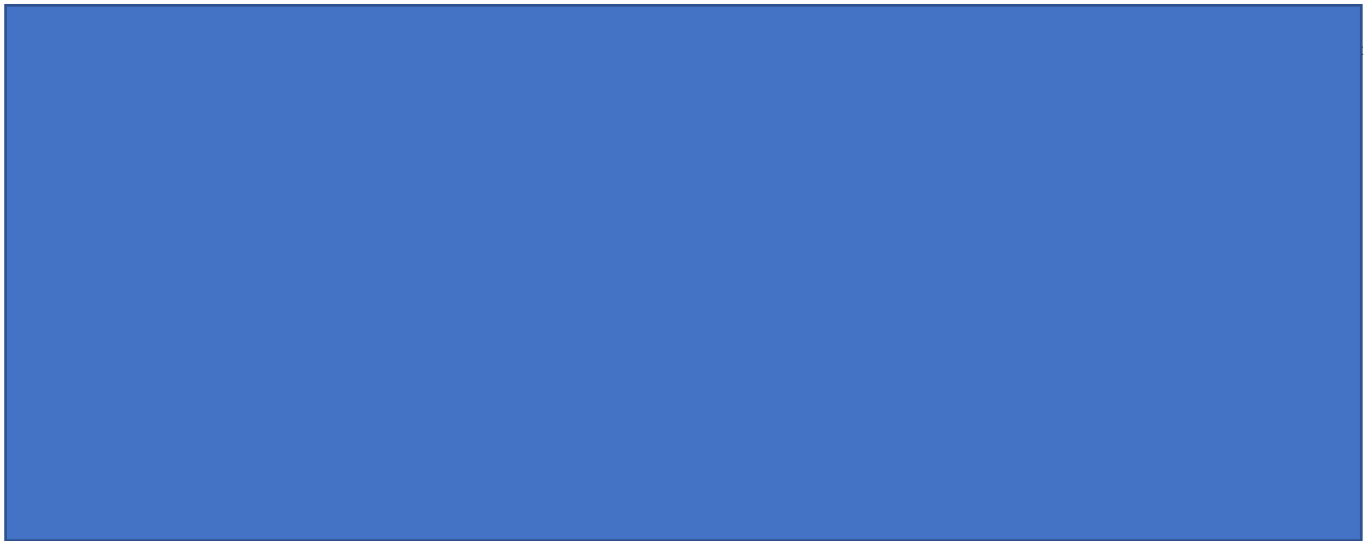


Figure 2-1. BDE-LE2340RGE Module Block Diagram

3. Terminal Configuration and Functions

3.1. Pin Diagram

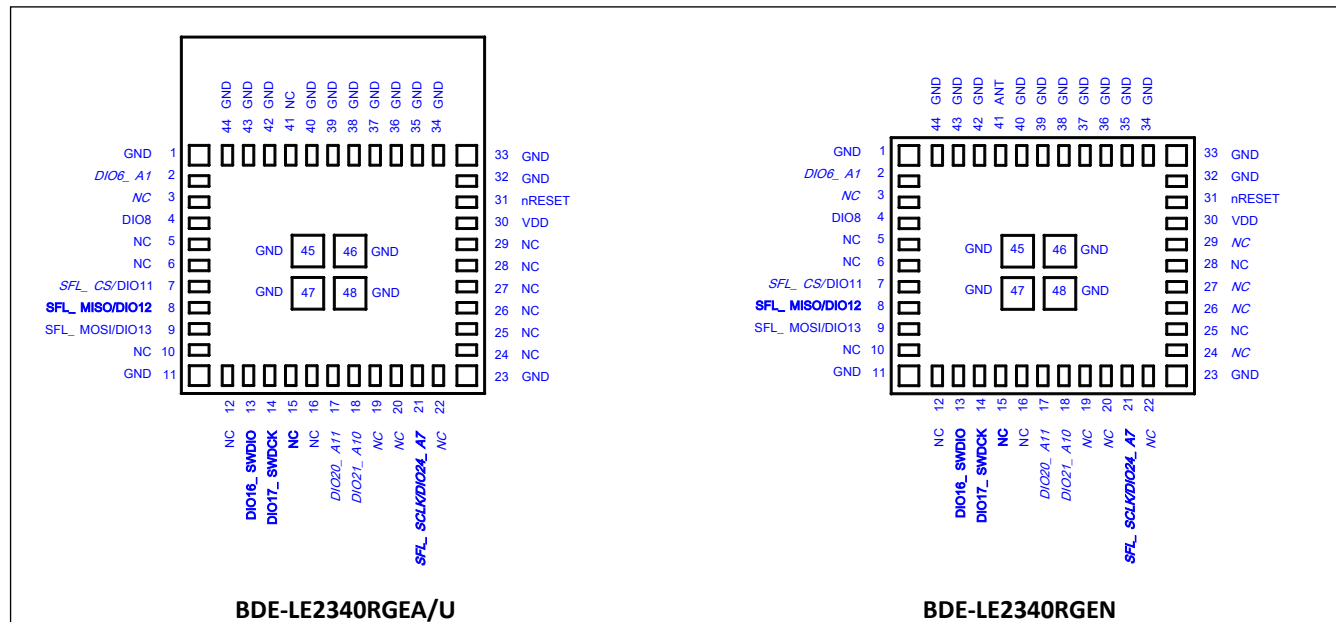


Figure 3-1. Pin Diagram (Top View)

3.2. Pin Attributes and Pin Multiplexing

Table 3-1 describes the definitions of the pins of the module. Pin number of the chip is also stated here, because the VQFN pin is referred to in the software design kit (SDK).

Table 3-1. Pin Description ⁽¹⁾

Module Pin #	Pin Name	Type	Description
1	GND	GND	Ground
2	DIO6_A1	I/O	GPIO, analog capability
3	NC	-	NC
4	DIO8	I/O	GPIO
5	NC	-	NC
6	NC	-	NC
7	SFL_CS/DIO11	I/O	SFL_CS ⁽²⁾ , GPIO
8	SFL_MISO/DIO12	I/O	SFL_MISO ⁽²⁾ , GPIO, high-drive capability
9	SFL_MOSI/DIO13	I/O	SFL_MOSI ⁽²⁾ , GPIO
10	NC	-	NC
11	GND	GND	Ground
12	NC	-	NC
13	DIO16_SWDIO	I/O	GPIO, SWD interface: mode select or SWDIO, high-drive capability
14	DIO17_SWDCCK	I/O	GPIO, SWD interface: clock, high-drive capability
15	NC	-	NC
16	NC	-	NC
17	DIO20_A11	I/O	GPIO, analog capability
18	DIO21_A10	I/O	GPIO, analog capability
19	NC	-	NC
20	NC	-	NC
21	SFL_SCLK/DIO24_A7	I/O	SFL_SCLK ⁽²⁾ , GPIO, analog capability, high-drive capability
22	NC	-	NC
23	GND	GND	Ground
24	NC	-	NC
25	NC	-	NC or DIO3 ⁽⁴⁾
26	NC	-	NC
27	NC	-	NC
28	NC	-	NC or DIO4 ⁽⁴⁾

Module Pin #	Pin Name	Type	Description
29	NC	-	NC
30	VDD ⁽⁵⁾	Power	1.71-V to 3.8-V or 2.3-V to 3.8-V power supply
31	nRESET	I	Reset, active low, internal 100Kpull-up and 100nF decouple
32	GND	GND	Ground
33	GND	GND	Ground
34	GND	GND	Ground
35	GND	GND	Ground
36	GND	GND	Ground
37	GND	GND	Ground
38	GND	GND	Ground
39	GND	GND	Ground
40	GND	GND	Ground
41	ANT/NC	-	Antenna port ⁽³⁾ /NC
42	GND	GND	Ground
43	GND	GND	Ground
44	GND	GND	Ground
45	GND	GND	Ground
46	GND	GND	Ground
47	GND	GND	Ground
48	GND	GND	Ground

Note:

- (1) For pin multiplexing details, refer to [CC2340R2 SimpleLink™ 32-bit Arm® Cortex®-M0+ Bluetooth® Low Energy wireless MCU](#);
- (2) These four pins are assigned as SPI for on-board 32-Mbit flash in SPI flash variants modules and are not exposed for user;
- (3) Pin 41 used as antenna port in modules BDE-LE2340RGEN32 and BDE-LE2340RGEN0. Leave NC in other variants;
- (4) Pin 25 (DIO3) and pin 28 (DIO4) are assigned as LFXT pins by default. They can be used as GPIOs if the on-board LFXT are unpopulated (by request);
- (5) For operating voltage, please refer to [4.2](#).

4. Specifications

4.1. Absolute Maximum Ratings

Stresses beyond those listed under Absolute Maximum Ratings may cause permanent damage to the device. These are stress ratings only, so functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specification are not implied. Exposure to Absolute Maximum Rating conditions for extended periods may affect device reliability.

PARAMETER	MIN	MAX	UNIT	Notes
VDD	-0.3	4.1	V	
Voltage on any digital pins	-0.3	VDD+0.3≤4.1	V	Including DIOs with analog capability
Voltage on ADC input	0	VDDS	V	
Input level, for ANT pin (Pin41)		8	dBm	For -N variants
Storage temperature	-40	125	°C	

4.2. Recommended Operating Conditions

PARAMETER	MIN	TYP	MAX	UNIT	NOTE
VDD	1.71	3.3	3.8	V	
	2.3	3.3	3.8	V	SPI flash variants
Operating temperature	-40	-	85	°C	
	-40	-	105	°C	-IN variants
Rising supply voltage slew rate	0		100	mV/μs	
Falling supply voltage slew rate	0		1	mV/μs	

5. Mechanical Specifications

5.1 Dimensions

The following pages include mechanical, footprint drawings, and marking information. This information is the most current data available for the designated devices. This data is subject to change without notice and revision of this document.

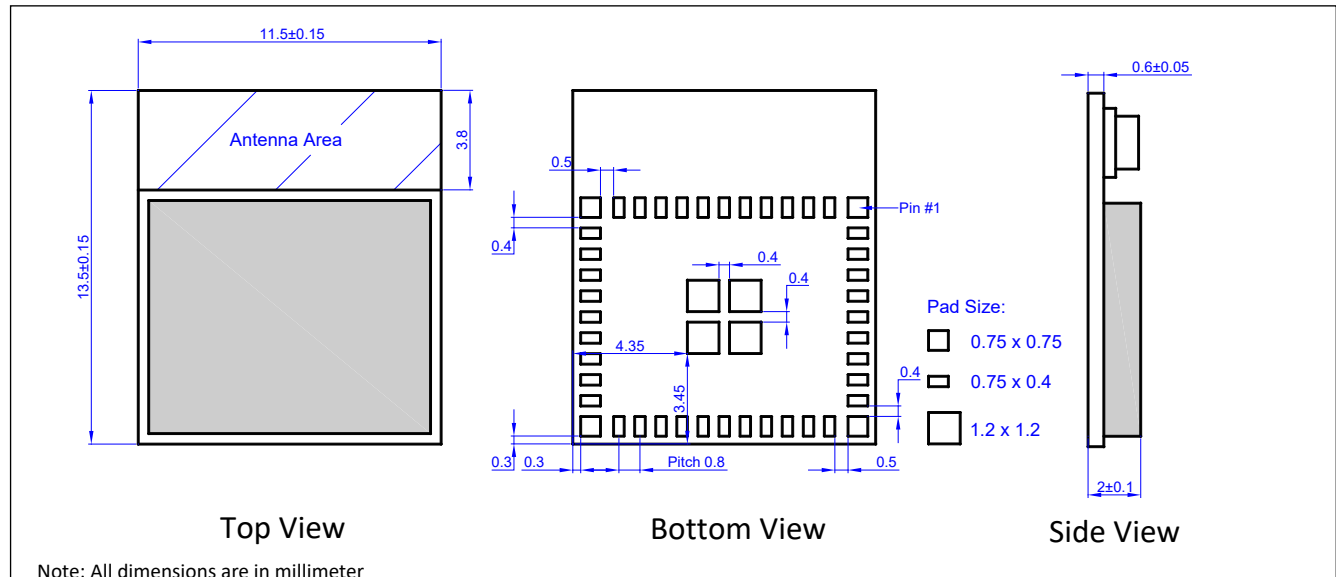


Fig 5-1. Module Dimensions of BDE-LE2340RGEA/U Variants

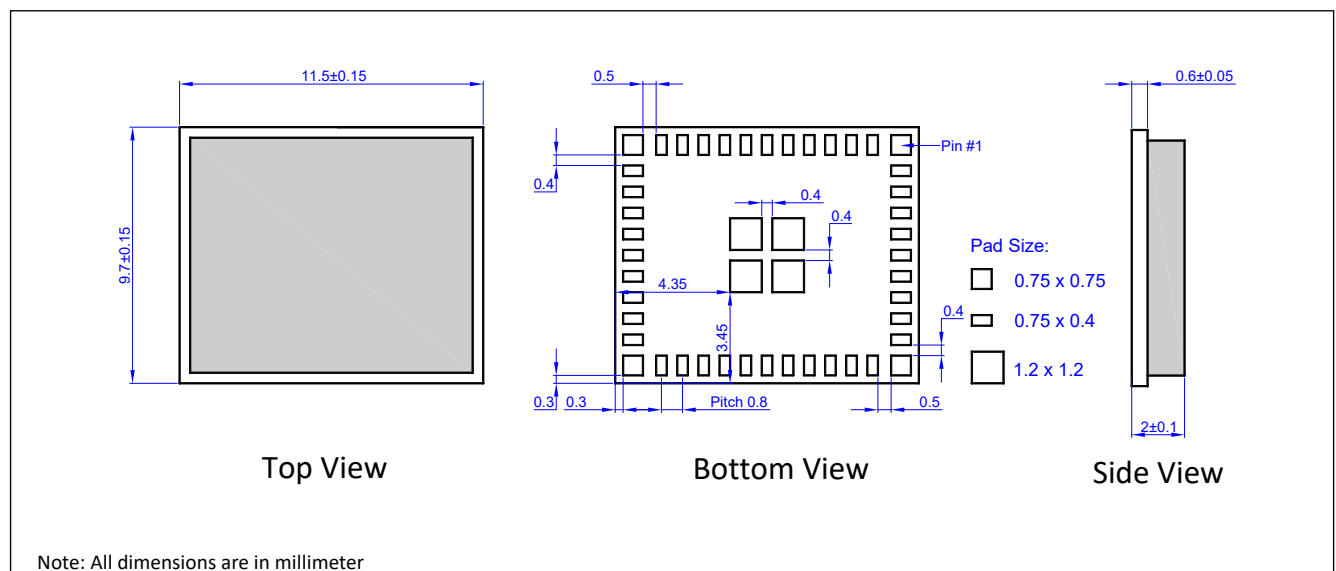


Figure 5-2. Module Dimensions of BDE-LE2340RGEN Variants

5.2 PCB Footprint

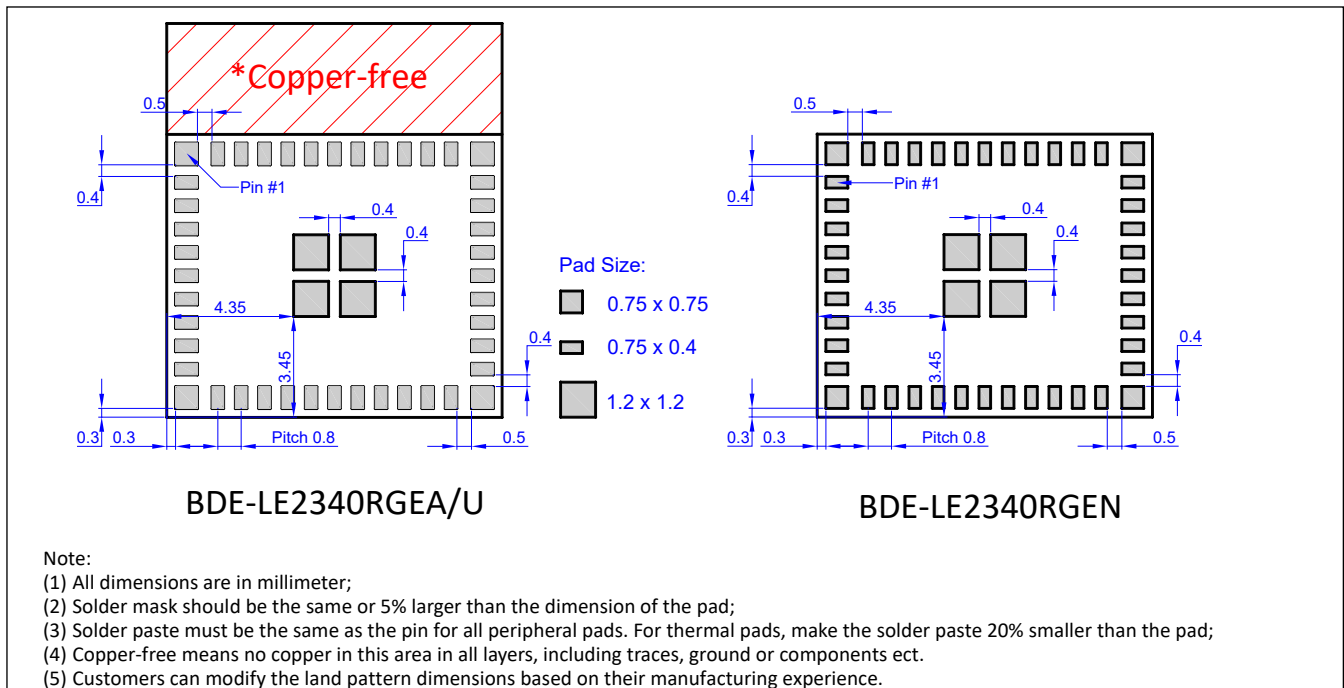


Fig 5-3. Module Footprint Top View

6. Typical Reflow Profile

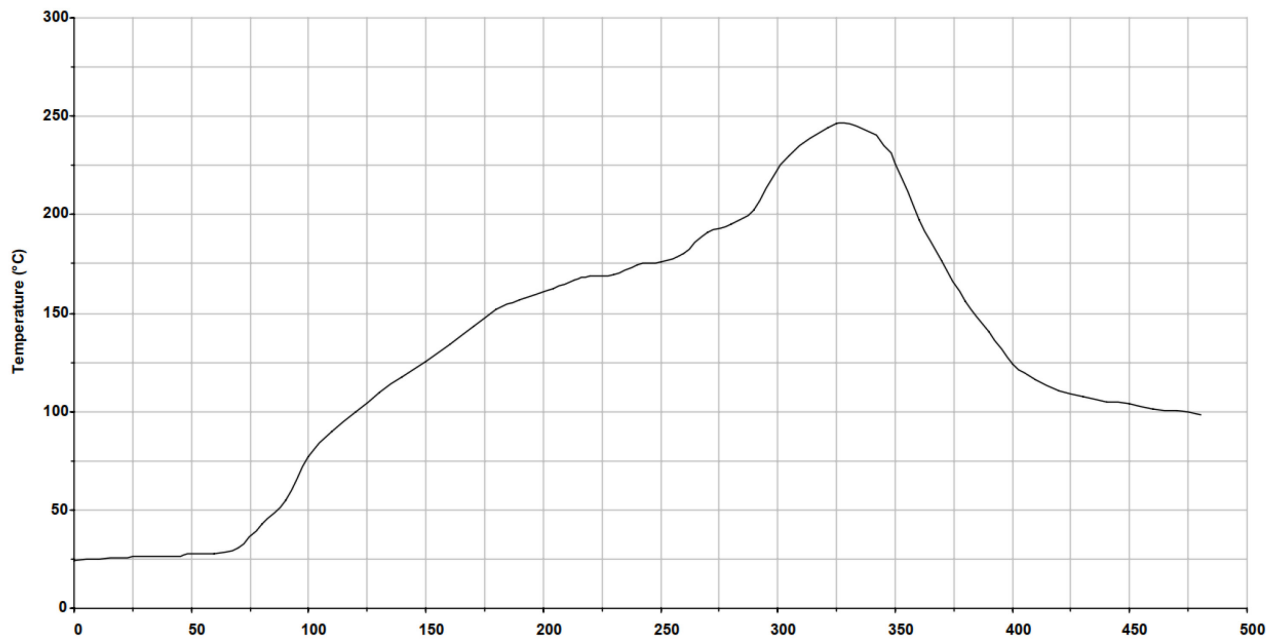


Figure 6-1. Typical Reflow Profile

Key features of the profile:

- Initial ramp = 1-2.5°C/sec to 175°C ±25°C equilibrium
- Equilibrium time = 60 to 180 seconds
- Ramp to maximum temperature (245°C) = 3°C/sec max.
- Time above liquidus temperature (217°C): 45-90 seconds
- Device absolute maximum reflow temperature: 260°C

7. Certification

7.1 Bluetooth Qualification

7.1.1 Bluetooth Qualification Information

The module series is listed on the Bluetooth SIG website as a qualified End Product, referencing a Controller and Host Subsystem combination. The detail information can be found in below table.

Table 2. Bluetooth Qualification Information

Declaration ID	Reference QDID	
TBD	Controller Subsystem	TBD
	Host Subsystem	TBD

7.1.2 Bluetooth Qualification Process

Below Bluetooth qualification process is provided for customers when they are listing their end product referencing BDE module.

- (1) Go to <https://launchstudio.bluetooth.com/> and log in;
- (2) Select **Start the Bluetooth Qualification Process with No Required Testing**;
- (3) Project Basics:
 - (a) Enter your project name, it can be the product name or the product series name;
 - (b) Enter QDID that the product reference, in this case the QDID is TBD.
- (4) Product Declaration:
 - (a) Select the listing date. You can select a date that you want your product listed and go public, although the qualification will complete immediately after your submission.
 - (b) Add every product that integrated with this module. You can add a series of individual product models that use the same design/module without any modification.
- (5) Declaration ID:
 - (a) Select a DID. If you don't have one, you need to purchase a DID for your product by clicking Pay Declaration Fee.
- (6) Review and Submit:
 - (a) Review all information that you have entered and make sure no mistakes;
 - (b) Tick all check boxes if you confirmed above information and add your name to the signature page;
 - (c) Click **Signature Confirmed – Complete Project & Submit Product(s) for Qualification**.
- (7) The qualification will be done immediately and your product will be listed to the Bluetooth SIG website as per your required listed date in step (4).

For more information about listing your product to Bluetooth SIG, please visit below webpage:

<https://www.bluetooth.com/develop-with-bluetooth/qualification-listing/>

7.2 Regulatory Compliance

The module is certified for FCC, IC/ISED and ETSI/CE as listed in below table. More regions can be cover by request.

Table 7-2. Certification Information

Regulatory Body / Region	ID	MPN
FCC (USA)	2ABUR-LE2340RGE	BDE-LE2340R52GEA32
IC/ISED (Canada)	25657-LE2340RGE	BDE-LE2340R52GEU32
ETSI/CE (Europe)	NA	BDE-LE2340R52GEN32
		BDE-LE2340R52GEA0
		BDE-LE2340R52GEU0
		BDE-LE2340R52GEN0
		BDE-LE2340R52GEA32-IN

Regulatory Body / Region	ID	MPN
		BDE-LE2340R52GEU32-IN BDE-LE2340R52GEN32-IN BDE-LE2340R52GEA0-IN BDE-LE2340R52GEU0-IN BDE-LE2340R52GEN0-IN BDE-LE2340R21GEA32 BDE-LE2340R21GEU32 BDE-LE2340R21GEN32 BDE-LE2340R21GEA0 BDE-LE2340R21GEU0 BDE-LE2340R21GEN0 BDE-LE2340R21GEA32-IN BDE-LE2340R21GEU32-IN BDE-LE2340R21GEN32-IN BDE-LE2340R21GEA0-IN BDE-LE2340R21GEU0-IN BDE-LE2340R21GEN0-IN

7.3 Antenna

Table 7-3. Certified Antenna List

Manufacturer	Manufacturer Part Number	Antenna Type	Frequency Range (MHz)	Gain (dBi)	Note
BDE	BDE-ANT-LE2340RA	PCB trace antenna	2400 - 2450	0.96	Integrated
BDE	BDE-W25-19513-HRP	Whip antenna	2400 - 2500	3.0	External

7.4 FCC Compliance

7.1.1. FCC Statement

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and,
- (2) This device must accept any interference received, including interference that may cause undesired operation.

7.1.2. FCC Caution

Any changes or modifications to this unit not expressly approved by BDE for compliance could void the user's authority to operate the equipment. The integrator will be responsible to satisfy SAR/RF Exposure requirements, when the module integrated into the host device.

7.1.3. Integration Instructions

List of applicable FCC rules

FCC Part 15.247

Specific operational use conditions

This transmitter/module and its antenna(s) must not be co-located or operating in conjunction with any transmitter. This information also extends to the host manufacturer's instruction manual.

Limited module procedures

Not applicable

Trace antenna designs

Not applicable

RF exposure considerations

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This compliance to FCC radiation exposure limits for an uncontrolled environment, and minimum of 20cm separation between antenna and body. The host product manufacturer would provide the above information to end users in their end-product manuals.

Antennas

Refer to Table 7-3

Label and compliance information

The end product must carry a physical label or shall use e-labeling followed KDB784748D01 and KDB784748 stating "Contains Transmitter Module FCC ID: 2ABRU-LE2340RGE".

Information on test modes and additional testing requirements

Contact BDE for more information.

Additional testing, Part 15 Subpart B disclaimer

The modular transmitter is only FCC authorized for the specific rule parts (FCC Part 15.247) listed on the grant, and that the host product manufacturer is responsible for compliance to any other FCC rules that apply to the host not covered by the modular transmitter grant of certification. The final host product still requires Part 15 Subpart B compliance testing with the modular transmitter installed when contains digital circuitry.

(OEM) Integrator has to assure compliance of the entire end-product that includes the module. For 15 B (§15.107 and if applicable §15.109) compliance, the host manufacturer is required to show compliance with 15 while the module is installed and operating.

Furthermore, the module should be transmitting and the evaluation should confirm that the module's intentional emissions (15C) are compliant (fundamental / out-of-band). Finally, the integrator has to apply the appropriate equipment authorization (e.g. Verification) for the new host device per definition in §15.101. Integrator is reminded to assure that these installation instructions will not be made available to the end-user of the final host device.

7.5 IC/ISED Compliance

7.1.4. IC Statement

This device contains license-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's license-exempt RSS(s). Operation is subject to the following two conditions:

- (1) This device may not cause interference, and,
- (2) This device must accept any interference, including interference that may cause undesired operation of the device.

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

- (1) L'appareil ne doit pas produire de brouillage;
- (2) L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

7.1.5. IC Caution

Any changes or modifications to this unit not expressly approved by BDE for compliance could void the user's authority to operate the equipment. The integrator will be responsible to satisfy SAR/RF Exposure requirements, when the module integrated into the host device.

7.1.6. Integration Instructions

Label and compliance information

The final host device, into which this RF module is integrated has to be labeled with an auxiliary label stating the IC of the RF module, such as "Contains transmitter module IC: 25657-LE2340RGE".

Informations sur l'étiquette et la conformité

Le périphérique hôte final, dans lequel ce module RF est intégré "doit être étiqueté avec une étiquette auxiliaire indiquant le CI du module RF, tel que "Contient le module émetteur IC: 25657-LE2340RGE".

Radio Frequency Exposure Statement for IC

The device has been evaluated to meet general RF exposure requirements. The device can be used in mobile exposure conditions. The min separation distance is 20cm.

Déclaration d'exposition aux radiofréquences pour IC

L'appareil a été évalué pour répondre aux exigences générales en matière d'exposition aux RF. L'appareil peut être utilisé dans des conditions d'exposition mobiles. La distance de séparation minimale est de 20 cm. (TBD)

This radio transmitter [IC: 25657-LE2340RGE] has been approved by Innovation, Science and Economic Development Canada to operate with the antenna types listed in Table 6, with the maximum permissible gain indicated. Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device.

Cet émetteur radio [IC: 25657-LE2340RGE] a été approuvé par Innovation, Sciences et Développement économique Canada pour fonctionner avec les types d'antenne énumérés ci-dessous, avec le gain maximal admissible indiqué. Les types d'antenne non inclus dans cette liste qui ont un gain supérieur au gain maximum indiqué pour tout type répertorié sont strictement interdits pour une utilisation avec cet appareil.

7.6 ETSI/CE Compliance

The module is certified with required EU radio and EMC directives. See Table 7-2 for detailed standards the module complies with, or refer to UK Declaration of Conformity.

8. Ordering Information

Part Number	Core Chip	Size (mm)	Operation Temperature	Shipping Form	MOQ
BDE-LE2340R52GEA32	CC2340R52NORGER	11.5 x 13.5 x 2.0	-40 to +85°C	Tape & Reel	1.5K
BDE-LE2340R52GEU32	CC2340R52NORGER	11.5 x 13.5 x 2.0	-40 to +85°C	Tape & Reel	1.5K
BDE-LE2340R52GEN32	CC2340R52NORGER	11.5 x 9.7 x 2.0	-40 to +85°C	Tape & Reel	1.5K
BDE-LE2340R52GEA0	CC2340R52NORGER	11.5 x 13.5 x 2.0	-40 to +85°C	Tape & Reel	1.5K
BDE-LE2340R52GEU0	CC2340R52NORGER	11.5 x 13.5 x 2.0	-40 to +85°C	Tape & Reel	1.5K
BDE-LE2340R52GEN0	CC2340R52NORGER	11.5 x 9.7 x 2.0	-40 to +85°C	Tape & Reel	1.5K
BDE-LE2340R52GEA32-IN	CC2340R52NORGER	11.5 x 13.5 x 2.0	-40 to +105°C	Tape & Reel	1.5K
BDE-LE2340R52GEU32-IN	CC2340R52NORGER	11.5 x 13.5 x 2.0	40 to +105°C	Tape & Reel	1.5K
BDE-LE2340R52GEN32-IN	CC2340R52NORGER	11.5 x 9.7 x 2.0	40 to +105°C	Tape & Reel	1.5K
BDE-LE2340R52GEA0-IN	CC2340R52NORGER	11.5 x 13.5 x 2.0	40 to +105°C	Tape & Reel	1.5K
BDE-LE2340R52GEU0-IN	CC2340R52NORGER	11.5 x 13.5 x 2.0	40 to +105°C	Tape & Reel	1.5K
BDE-LE2340R52GEN0-IN	CC2340R52NORGER	11.5 x 9.7 x 2.0	40 to +105°C	Tape & Reel	1.5K
BDE-LE2340R21GEA32	CC2340R21NORGER	11.5 x 13.5 x 2.0	-40 to +85°C	Tape & Reel	1.5K
BDE-LE2340R21GEU32	CC2340R21NORGER	11.5 x 13.5 x 2.0	-40 to +85°C	Tape & Reel	1.5K
BDE-LE2340R21GEN32	CC2340R21NORGER	11.5 x 9.7 x 2.0	-40 to +85°C	Tape & Reel	1.5K
BDE-LE2340R21GEA0	CC2340R21NORGER	11.5 x 13.5 x 2.0	-40 to +85°C	Tape & Reel	1.5K
BDE-LE2340R21GEU0	CC2340R21NORGER	11.5 x 13.5 x 2.0	-40 to +85°C	Tape & Reel	1.5K
BDE-LE2340R21GEN0	CC2340R21NORGER	11.5 x 9.7 x 2.0	-40 to +85°C	Tape & Reel	1.5K
BDE-LE2340R21GEA32-IN	CC2340R21NORGER	11.5 x 13.5 x 2.0	-40 to +105°C	Tape & Reel	1.5K
BDE-LE2340R521GEU32-IN	CC2340R21NORGER	11.5 x 13.5 x 2.0	40 to +105°C	Tape & Reel	1.5K
BDE-LE2340R21GEN32-IN	CC2340R21NORGER	11.5 x 9.7 x 2.0	40 to +105°C	Tape & Reel	1.5K
BDE-LE2340R21GEA0-IN	CC2340R21NORGER	11.5 x 13.5 x 2.0	40 to +105°C	Tape & Reel	1.5K
BDE-LE2340R21GEU0-IN	CC2340R21NORGER	11.5 x 13.5 x 2.0	40 to +105°C	Tape & Reel	1.5K
BDE-LE2340R21GEN0-IN	CC2340R21NORGER	11.5 x 9.7 x 2.0	40 to +105°C	Tape & Reel	1.5K

Note: This module series supports extended industrial temperature grade which can operates from -40°C to 105°C. The part number should comes with “-IN” suffix. For example, the part number BDE-LE2340R52GEA32-IN is the extended industrial temperature grade version.

9. Revision History

Revision	Date	Description
V1.0	8-June-2023	Initial release

You can find the latest documentation from this [Link](#).

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Contacts

BDE Technology Inc.

USA: 67 E Madison St, #1603A, Chicago, IL 60603, US

Tel: +1-312-379-9589

China: B2-403, 162 Science Avenue, Huangpu District, Guangzhou 510663, China

Tel: +86-20-28065335

Website: www.bdecomm.com Email: info@bdecomm.com