

Application Notes

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Application Notes

Wireless Hardware Application Notes

The guide provides a useful reference for wireless hardware documentation released by Silicon Labs. Because most of this documentation is organized into application notes, these pages primarily provide links to these documents.

The pages described below contain most released application notes relevant to wireless hardware development with Silicon Labs devices. However, these lists might not be updated automatically with each new release. For a complete repository of all application notes, see the [Technical Resource Search](#).

In addition to application notes, the Technical Resource Search provides access to other hardware resources, including device data sheets, reference manuals, and kit user guides.

Documentation lists are available for the wireless device categories shown below. A separate page is available for non-device-specific application notes. For all other devices, use the [Technical Resource Search](#) to find available documentation.

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EFR32 Series 1 SoCs

EFR32 Series 1 Application Notes

Hardware Design

Application Note	Title
AN0002.1	EFM32 and EFR32 Wireless Gecko Series 1 Hardware Design Considerations
AN928.1	EFR32 Series 1 Layout Design Guide
AN930.1	EFR32 Series 1 2.4 GHz Matching Guide
AN923.1	EFR32 Series 1 sub-GHz Matching Guide
AN1180	EFR32 Series 1 sub-GHz Discrete Matching Solutions
AN933.1	EFR32 Series 1 Minimal BOM

Evaluation and Manufacturing

Application Note	Title
AN958	Debugging and Programming Interfaces for Custom Designs
AN969	Measuring Power Consumption on Wireless Gecko Devices
AN1082	EFR32 Receive and Transmit Current Measurements
AN718	Manufacturing Test Overview

Integrated Passive Devices for EFR32 Series 1

Application Note	Title
AN1081	Integrated Passive Devices for EFR32 Series 1 Sub-GHz RF Matching
AN1146	Johanson 434 MHz IPDs for EFR32 Series 1 Wireless SOCs
AN1147	Murata 434 MHz IPDs for EFR32 Series 1 Wireless SOCs
AN1148	Johanson 868 MHz IPDs for EFR32 Series 1 Wireless SOCs
AN1149	Murata 868 MHz IPDs for EFR32 Series 1 Wireless SOCs

Application Specific Hardware Guidance

Application Note	Title
Z-Wave Developer's Guide	For Z-Wave specific hardware guidance, see this page.

EFR32 Series 2 SoCs

EFR32 Series 2 Application Notes

Hardware Design

Application Note	Title
AN0002.2	EFM32 and EFR32 Wireless Gecko Series 2 Hardware Design Considerations
AN923.2	EFR32 Series 2 sub-GHz Matching Guide
AN930.2	EFR32 Series 2 2.4 GHz Matching Guide
AN928.2	EFR32 Series 2 Layout Design Guide
AN933.2	EFR32 Series 2 Minimal BOM
AN0016.2	Oscillator Design Considerations

Evaluation and Manufacturing

Application Note	Title
AN958	Debugging and Programming Interfaces for Custom Designs
AN972	EFR32 RF Evaluation Guide
AN969	Measuring Power Consumption on Wireless Gecko Devices
AN1082	EFR32 Receive and Transmit Current Measurements
AN718	Manufacturing Test Overview

Application Specific Hardware Guidance

Application Note	Title
AN1493	Antenna Design Guidelines for BLE Channel Sounding
AN1195	Antenna Array Design Guidelines for Direction Finding
AN1382	RF Performance with Bluetooth Low Energy Simultaneous Scanning
Z-Wave Developer's Guide	For Z-Wave specific hardware guidance, see this page.

Series 3 SoCs

Series 3 Application Notes

Hardware Design

Application Note	Title
AN1520	SiXG30x Hardware Design Considerations
AN928.3	Series 3 Layout Design Guide
AN930.3	Series 3 2.4 GHz Matching Guide
AN0016.3	Oscillator Design Considerations
AN933.3	Series 3 Minimal BOM

Evaluation and Manufacturing

Application Note	Title
AN958	Debugging and Programming Interfaces for Custom Designs
AN972	EFR32 RF Evaluation Guide
AN718	Manufacturing Test Overview

Application Specific Hardware Guidance

Application Note	Title
AN1512	Using SiMG301 with a +20 dBm Front End Module
AN1511	SiMG301 Single-layer Hardware Design Example

EFR32 Modules

Module Application Notes

Application Note	Title
AN958	Debugging and Programming Interfaces for Custom Designs
AN1048	Regulatory RF Module Certifications
AN1223	LGA Manufacturing Guidance

SiWx917

SiWx917 Application Notes

Hardware Design

Application Note	Title
AN1335	RS9116 and SiWx917 Crystal Selection Guide
AN1423	SiWx917 RF Matching and Layout Design Guide
AN1448	SiWx917 Power Supply Architecture and Configurations
AN1494	SiWx917 External Flash and PSRAM Application Note

Evaluation and Manufacturing

Application Note	Title
AN1436	SiWx917 QMS Crystal Calibration Application Note
AN1437	SiWx917M RF Regulatory Testing
AN1439	SiWx917 Hardware Debugging Guidelines
AN1440	SiWx917 Gain Offset Calibration
AN1491	SiWx917 RF Transmit & Receive Measurements
AN1495	Optimizing RF Performance for the SiWx917 Wireless-MCU Family

Application Specific Hardware Guidance

Application Note	Title
AN1510	Neutral-less Dimmer Hardware Design

General

General Application Notes

Application Note	Title
AN853	Single-ended Antenna Matrix Design Guide
AN1088	Designing with an Inverted-F 2.4 GHz PCB Antenna
AN1275	Impedance Matching Network Architectures