2412191609 SiWG917 SoC, SiWN917 NCP, SiWT917 RCP Datasheet Release v1.0

PCN Issue Date: Dec 19, 2024 **Effective Date:** Mar 31, 2025

PCN Type: Datasheet

Description of Change

Silicon Labs is pleased to announce the release of datasheet version 1.0 for SiWG917 SoC, SiWN917 NCP (Network Connectivity Processor) and SiWT917 RCP (Radio Co-Processor).

SOFTWARE IMPACT DESCRIPTION:
Customer are required to upgrade to WiSeConnect SDK 3.4.0 or higher by the effective date of the PCN.

Links to datasheets:
SiWG917 SoC: https://www.silabs.com/documents/public/data-sheets/siwg917-datasheet.pdf
SiWN917 NCP: https://www.silabs.com/documents/public/data-sheets/siwx917-ncp-datasheet.pdf
SiWT917 RCP: https://www.silabs.com/documents/public/data-sheets/siwt917-rcp-datasheet.pdf

Reason for Change

Reason for Change:
• 6.1 Pin Diagram: Corrected name of UULP_VOUTSCDC pin
• All electrical specifications updated with final char results and test limits
• Removed specification table for internal RC boot oscillator and clarified this is only for boot-up
• 8. Reference Schematics, BOM and Layout Guidelines:
• Updated schematic images with text-searchable versions
• Corrected manufacturer part details for C36, L2, L3, C41, C42, C40, C44, L5, and L7
• Added notes for position and usage of capacitor C38

Changes specific to SiWG917 SoC v1.0:

• Removed LVCMOS external 32.768 kHz clock option. A 32.768 kHz crystal is mandatory for all applications requiring accurate timing or low-power Wi-Fi, BLE, and Coex sleep.
• Removed capacitive touch sensor feature.
• Updated hardware block diagram with missing blocks and corrected power state availability key
• Marked PS1 power state with software roadmap superscript in feature list
• Updated language used for security features throughout document
• Figure 5.4 Dual Independent Flash Configuration on page 38: Corrected diagram to show external flash on M4 and in-package flash
on NWP
• Table 5.9 List of Wakeup Sources in Different States on page 30: Updated table to show availability in current SDK
• Table 5.10 PSRAM and Flash Package Options on page 41: Corrected GPIO pins used for Mode 2
• 6.2.3 Peripheral Interfaces: Added NWP debug print signals to associated pins
• Table 6.11 Recommended Peripheral Interface Options on page 84: Corrected PWM_3H possible combination to GPIO_15
• Aligned signal naming for SSI_ULP block with software, using ULP_SSI_signal
• 7. Electrical Specifications:
• Added 7.4.8.1 Standard Mode and 7.4.8.3 Fast Mode Plus
• Added Table 7.44 Power State Wake Timing on page 130
• Table 7.64 MCU Power State Current Consumption on page 149: Removed PS1 supply current
• 7.5.1 Analog Comparators : Split voltage reference range into Vref_min and Vref_max lines to express as possible setting range
instead of absolute max range
• Table 7.9 Flash LDO Electrical Specifications - Regulation Mode on page 102: Load regulation maximum changed to 3%

Changes specific to SiWN917 NCP v1.0:

• Updated language used for security features throughout document
• 7. Electrical Specifications:
• Table 7.7 Flash LDO Electrical Specifications - Regulation Mode on page 34: Load regulation maximum changed to 3%

Changes specific to SiWT917 RCP v1.0:

• Removed LVCMOS external 32.768 kHz clock option. A 32.768 kHz crystal is mandatory for all applications requiring low-power Wi-Fi, BLE, and Coex sleep.
• 7. Electrical Specifications:
• 7.1 Absolute Maximum Ratings: Added absolute maximum voltage and current ratings for I/O pins
• 7.3.2 Power On Control (POC) and Reset Clarified POC and Reset functionality
• 7.5 RF Characteristics Added supported WLAN channels for different regions

Impact on Form, Fit, Function, Quality, Reliability

• Form – No change
• Fit – No change
• Quality – No change
• Reliability – No Change
• Function: There has been a change in RF performance for WLAN/BLE and changes to WLAN, BLE & MCU power consumption data. There are updates to Max values for Load current for DCDC switching converter and SoC LDO Electrical specifications. Please refer to the sections mentioned below in the datasheets for more details.

SiWG917 SoC v1.0 Datasheet:
• Section 7.3.6.1, 7.3.6.2 & 7.3.6.3 for DCDC switching converter and & SoC LDO Electrical specifications
• section 7.5.1 Analog comparator Electrical specifications, Section 7.5.3 AUX LDO specifications, section 7.5.4 ADC Electrical Specifications, Section 7.5.5 DAC Electrical specifications, Section 7.5.6 Op-Amp Electrical Specifications & Section 7.5.7 Temp sensor accuracy
• Section 7.6.3 for WLAN 2.4GHz Rx Characteristics, section 7.6.4/7.6.5 for BLE Transmitter characteristics & Section 7.6.8 for BLE Rx characteristics
• Section 7.7.1 for WLAN 3.3V Current consumption, Section 7.7.2 for BLE Current consumption & section 7.7.3 for MCU current consumption

SiWN917 NCP v1.0 Datasheet:
• Section 7.3.4.1 & 7.3.4.2 for DCDC switching converter and & SoC LDO Electrical specifications
• Section 7.5.3 for WLAN 2.4GHz Rx Characteristics, Section 7.5.4/7.5.5 for BLE Transmitter characteristics & Section 7.5.8 for BLE Rx characteristics
• Section 7.6.1 for WLAN 3.3V Current consumption & Section 7.6.2 for BLE Current consumption

SiWT917 RCP v1.0 Datasheet:
• Section 7.3.4.1 & 7.3.4.2 for DCDC switching converter and & SoC LDO Electrical specifications
• Section 7.5.3 for WLAN 2.4GHz Rx Characteristics, Section 7.5.4/7.5.5 for BLE Transmitter characteristics & Section 7.5.8 for BLE Rx characteristics
• Section 7.6.1 for WLAN 3.3V Current consumption & Section 7.6.2 for BLE Current consumption

Product Identification

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Existing Part #
SIWG917M100MGTBA
SIWG917M100MGTBAR
SIWG917M110LGTBA
SIWG917M110LGTBAR
SIWG917M111MGTBA
SIWG917M111MGTBAR
SIWG917M111XGTBA
SIWG917M111XGTBAR
SIWG917M121XGTBA
SIWG917M121XGTBAR
SIWG917M141XGTBA
SIWG917M141XGTBAR
SIWN917M100LGTBA
SIWN917M100LGTBAR
SIWT917M100XGTBA
SIWT917M100XGTBAR
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Last Date of Unchanged Product: Mar 31, 2025

Qualification Samples

N/A

Customer Response

Lack of acknowledgment of the PCN within 30 days constitutes acceptance of the change, Ref. JEDEC-J-STD-046.

To request further data or inquire about this notification, please contact your Silicon Labs sales representative. A list of Silicon Labs sales representatives is available at http://www.silabs.com.

Customers may approve early PCN acceptance by emailing approval, along with PCN # to PCN@silabs.com

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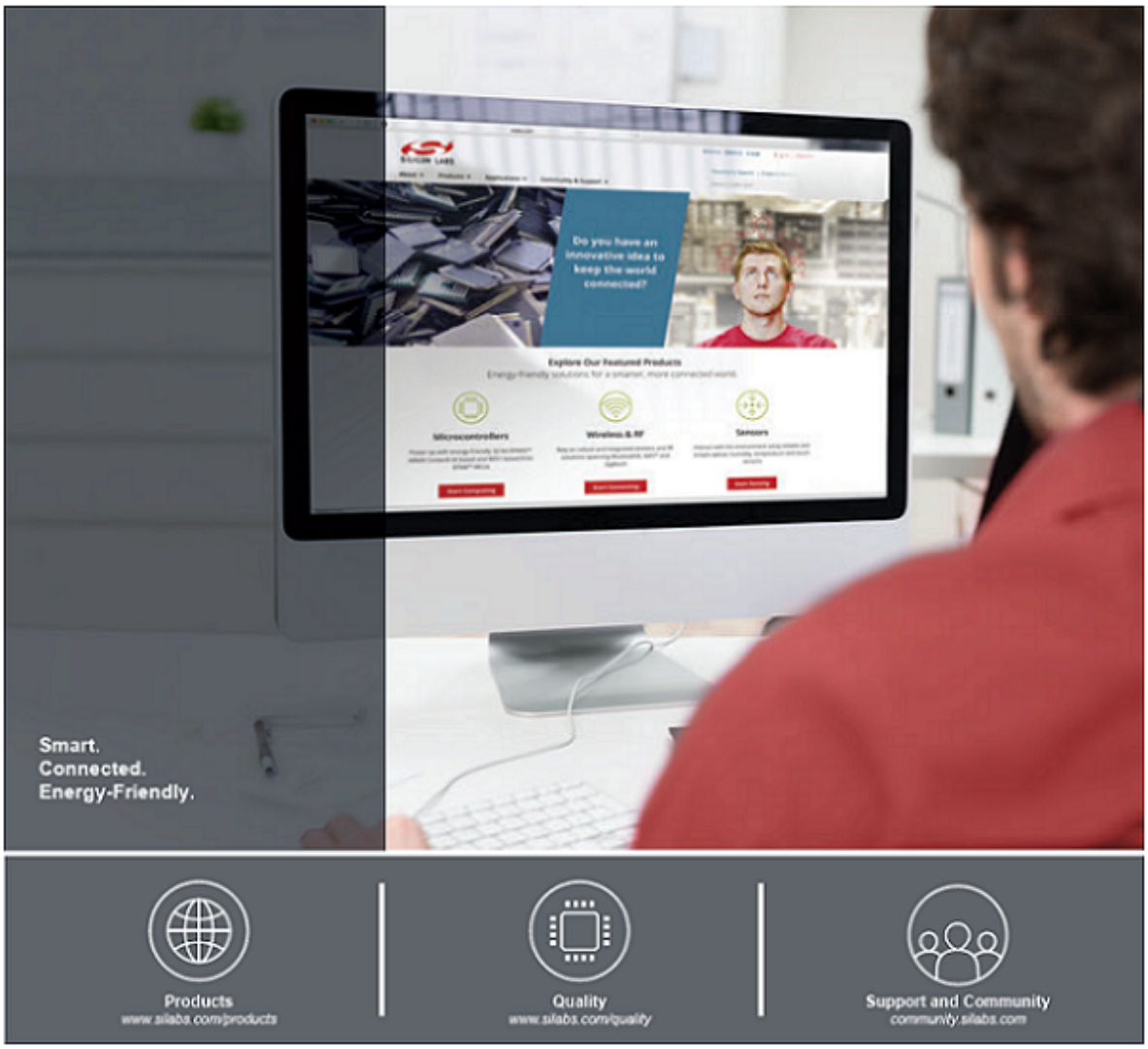
Qualification Data

N/A



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