PRODUCT SUMMARY

SKY5A2105: 5.9 GHz C-V2X and 802.11p DSRC High-Power Front-End Module

Applications

- 802.11p DSRC
- C-V2X (LTE and 5G NR) 3GPP
- Compensator and ECU dual mode operations

Features

- AEC-Q104 Grade 2 (–40 °C to +105 °C)
- Supports dual Compensator and ECU mode
- High output power across temperature range:
  - C-V2X (LTE): +29 dBm typical
  - C-V2X (5G NR): +26.5 dBm typical (2.5 dB MPR)
  - 802.11p DSRC: +26 dBm typical
- Integrated BAW Rx filter
- Integrated temperature sensor
- Integrated logarithmic detector with wide dynamic range
- High resolution digital attenuator for wide TX/RX gain range compensation
- Automotive-friendly package
  - 24-pin, 3 x 5 mm LGA package
  - MSL3, 260 °C, per JEDEC J-STD-020

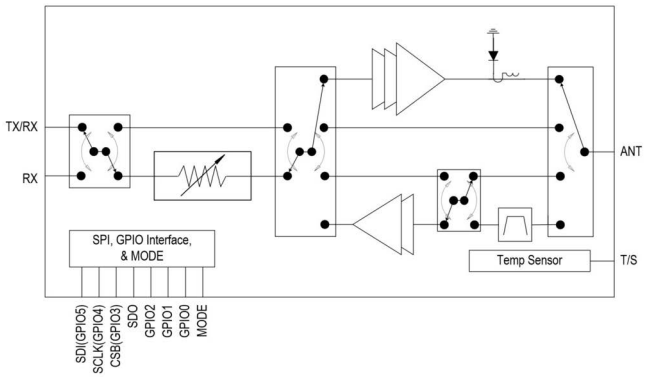

Figure 1. SKY5A2105 Block Diagram

Description

The SKY5A2105 is a highly integrated, 5.9 GHz front-end module (FEM) incorporating a 5.9 GHz single-pole, quad throw (SP4T) switch, low-noise amplifier (LNA), power amplifier (PA), a band-pass BAW filter (BPF), and a digital step attenuator (DSA) for C-V2X LTE and 5G NR applications and systems.

A BAW bypass state and high gain state in RX and TX mode extends dynamic range in compensator mode. LNA and PA functions are disabled in off mode to insure low leakage current.

An integrated logarithmic power detector is included to provide closed-loop power control over more than 25 dB dynamic range.

In addition, the front-end module offers a temperature sensor function to allow system implementation of reliability or safety algorithms.

A MODE control pin supports either compensator or ECU mode:

In compensator mode, a digital SPI interface controls the DSA from 0 dB to 31.75 dB in 0.25 dB steps.

In ECU mode, a GPIO interface controls the DSA from 0 dB to 31.75 dB in 5 dB steps.

GPIO control pins enable fast switching in both compensator mode and ECU mode.

The device is housed in a compact 24-pin 3 x 5 mm Land Grid Array (LGA) package which may reduce the front-end board space by more than 50 percent.

A functional diagram is shown in Figure 1.

Skyworks Green™ products are compliant with all applicable legislation and are halogen-free. For additional information, refer to *Skyworks Definition of Green™*, document number SQ04–0074.

Ordering Information

Part Number	Part Description	Evaluation Board Part Number
SKY5A2105	5.9 GHz C-V2X and 802.11p DSRC High-Power Front-End Module	SKY5A2105EK1