Product Summary

VERA-P1 series

DSRC 802.11p V2X host-based modules

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Standard

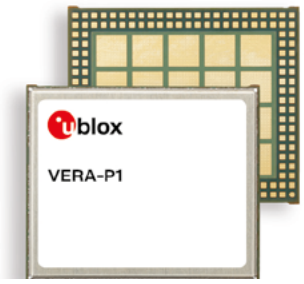
Professional

Automotive

The most flexible and best performing V2X modules in the market

- Automotive grade 802.11p V2X transceiver modules for infrastructure and vehicles
- Compliance with WAVE and ETSI ITS G5 for US and Europe operation
- Product variants: Non-concurrent dual-channel with antenna diversity or concurrent dual-channel without antenna diversity
- Communication range of more than 1 km (with line-of-sight)
- Operational in ambient temperature –40 °C to +95 °C

24.8 × 29.6 × 3.5 mm



Product description

The VERA-P1 series are compact, embedded transceiver modules that enable development of electronics for Vehicle-to-Everything (V2X) communication systems. These automotive grade modules are designed for applications such as traffic safety and intelligent traffic management. The modules can be used for both in-vehicle units (OBU – On Board Unit) and infrastructure (RSU – Road Side Unit). They provide superior performance compared to V2X systems based on consumer-grade Wi-Fi chipsets, especially at high vehicle speeds and in non-line-of-sight (NLOS) conditions.

The VERA-P1 series includes an integrated MAC/LLC/Baseband processor and the required RF front-end components. The module is connected to a host processor through a USB interface.

Key features

- VERA-P1 is based on the RF chip that scored best RF performance in ETSI plug tests
- The pin-to-pin compatible product variants offer operation modes with single channel or concurrent dual-channel
- The transmit mask meets IEEE 802.11p Class C (5.9 GHz band) requirements
- Security acceleration is integrated in the module

	VERA-P173	VERA-P174
Grade		
Automotive	•	•
Professional		
Standard		
Radio		
Wi-Fi IEEE 802.11 standards	p	p
Channel width [MHz]	10	10
Antenna type	2a	2a
OS support		
Linux	•	•
Interfaces		
USB 2.0	1	1
GPIO	1	1
PPS	1	1
Features		
Antenna diversity	•	#
Single channel operation	•	•
Concurrent dual-channel operation		#

2a = 2 pins for 2 external antennas

= User can configure as dual-channel or diversity

VERA-P1 series

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Features

Standards conformance	IEEE 802.11p (IEEE 802.11-2016) ETSI ES 302 663 IEEE 1609.4 - 2016
Frequency band	5.9 GHz
Antenna	2 antenna pins for external 5 GHz antennas
Output power	0 to +23 dBm
Receiver sensitivity	–98 dBm @ 3 Mbit/s
Data rates	3 to 27 Mbit/s

Software features

Operating modes	Non-concurrent dual-channel with antenna diversity Concurrent dual-channel without antenna diversity
Radio channel measurements	Channel utilization Channel active ratio Per-channel statistics Received signal and noise power levels

Interfaces

Host interface	USB 2.0
Other interfaces	GPIO and 1PPS

Package

Dimensions	24.8 x 29.6 x 3.5 mm
Pin-out	160 pins LCC (Leadless Chip Carrier)

Environmental data, quality & reliability

Operating temperature –40 °C to +95 °C
According to Baseband/radio AEC-Q100 and ISO 16750-4

Electrical data

Power supply	3.3 V and 5 V
Power consumption	4 W (max)

Certifications and approvals

Europe (ETSI RED)
US (FCC parts 90, 95L)

Support products

The VERA-P1 evaluation kit includes an evaluation board with full access to the module interfaces. The board has SMA connectors for connecting external antennas and two antennas.

EVK-VERA-P174	Evaluation kit for VERA-P1 modules

Product variants

VERA-P173	Module with single channel and diversity
VERA-P174	Module with single channel and diversity, or dual-channel

Further information

For contact information, see www.u-blox.com/contact-us.

For more product details and ordering information, see the product data sheet.