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SG901-1059 802.11 b/g/n Wireless USB Module

Overview

The SG901-1059 is a high speed module supporting all data rates and the latest standards including 802.11B/G/N Wi-Fi module with a USB 2.0 interface. This module's high level of interoperability and its low cost is desirable for high volume applications. This product is suited for many embedded systems able to support Windows and Linux OS including high bandwidth applications such as set top box.

SG901-1059 WLAN module is designed to operate in 2.4GHz ISM frequency band, it applies a highly integrated MAC/BBP and RF single chip RT3070 with 150Mbps PHY rate supporting. Ralink fully complies with IEEE802.11n draft 3.0 and IEEE802.11b/g feature.



Features

- 802.11b: 1, 2, 5.5, 11Mbps
- 802.11g: 6, 9, 12, 24, 36, 48, 54Mbps
- 802.11n:
 - (20MHz) MCS0-7, Support up to 72 Mbps
 - (40MHz) MCS0-7, Support up to 150Mbps
- OFDM, Peak rate 150Mbps
- Security support for 64/128 WEP, WPA, WPA2, TKIP, AES
- Operates in 2.4GHz frequency bands.
- Low Power Consumption
- Single antenna configuration; I-PEX receptacle for external antenna.

Applications

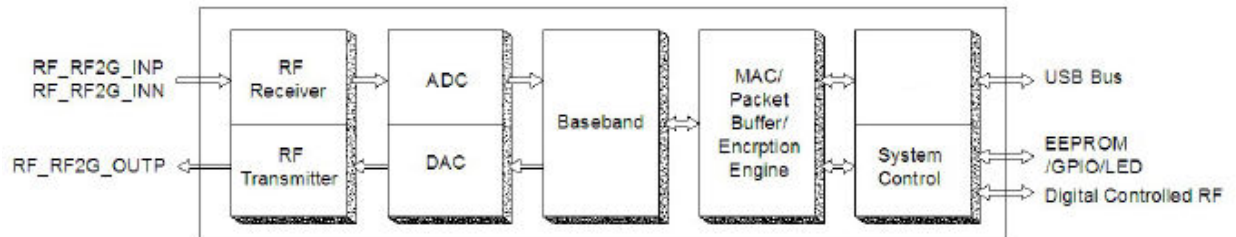
- Personal Digital Assistants (PDA)
- Hand-held Data Transfer Devices
- Video
- IP Cameras
- IP set top box
- GPS
- Internet radio apparatus

Ordering Information

SG901-1059-3.3-C (connector) – Bulk only
SG901-1059-5.0-C (connector) – Bulk only
SG901-1059-3.3-H (header) – Bulk only
SG901-1059-5.0-H (header) – Bulk only



Block Diagram



System Block Diagram of SG901-1059 WLAN Module



General Electrical Specifications

Parameter	Test Condition / Comment	Min.	Typ.	Max.	Units
Absolute Maximum Ratings					
USB Supply		-0.3		7.0	V
Operating Conditions and Input Power Specifications					
Operating Temperature Range	Operating Range	0		+50	°C
	Storage Range	-20		+85	°C
PC Interface			USB 2.0/1.1		
Plug & Play Compatible			YES		
Supply Voltage	SG901-1059-5.0	4.75		5.2	V
Supply Voltage	SG901-1059-3.3	3.14	3.3	3.48	V

RF Characteristics

Parameter	Test Condition / Comment	Min.	Typ.	Max.	Units
Internal Antenna Impedance			50		Ohms
RX Sensitivity	11b, 11Mbps		-84		dBm
	11g, 54Mbps		-68		dBm
	(HT20) 11n, MSC7		-66		dBm
	(HT40) 11n, MSC7		-62		dBm
TX Output Power	11b, 11Mbps	18	19	20	dBm
	11g, 54Mbps	15.5	17	18.5	dBm
	802.11n (HT20)	14.5	16	17.5	dBm
	802.11n (HT40)	14.5	16	17.5	dBm
TX Spectral MASK	CCK		PASS		
	OFDM		PASS		
	QPSK		PASS		
	BPSK		PASS		
Preamble Length			Long/Short		
Operating Current				110	mA

Interface Details

Sagrad Part #	Part Number	Item	Comment
SG901-1066		Antenna	External Antenna via an I-PEX receptacle
SG901-1059-xx-C	ACESCONN 87213-0600I	Host Interface Connector	6 Pin 1.0mm Pitch Connector
SG901-1059-xx-H		Host Interface Connector	6 Pin 2.0mm Male Header



Connector Pin List (Host Interface)

6-pin 1.0mm pitch connector

SIGNAL NAME	PIN NUMBER	DESCRIPTION	NOTES
VCC (3.3 or 5.0 VDC)	1	Supply	USB Standard Function
UD-	2	Complementary USB Data	USB Standard Function
UD+	3	Complementary USB Data	USB Standard Function
GND	4	Ground	USB Standard Function
LED	5	Low Active for WLAN LED Link.	
TX	6	Low Voltage to disable RF function	

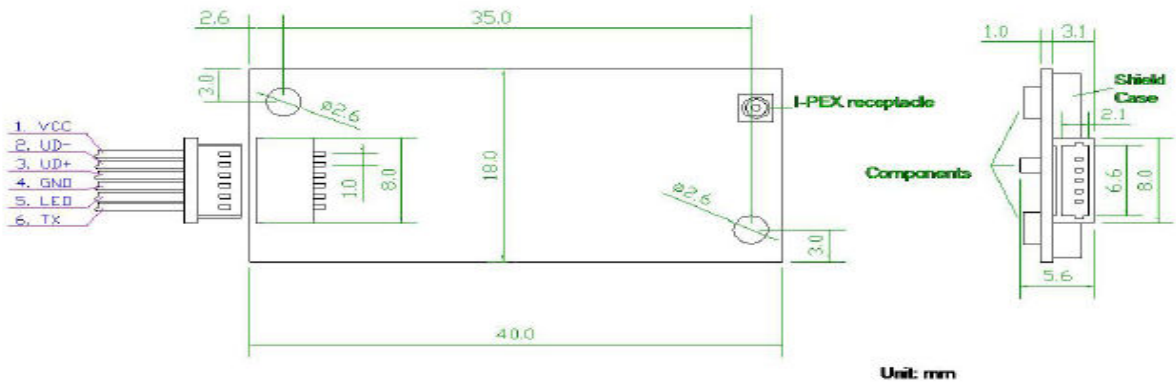
6-pin 2.0mm pitch male header

SIGNAL NAME	PIN NUMBER	DESCRIPTION	NOTES
VCC (3.3 or 5.0 VDC)	1	Supply	USB Standard Function
UD-	2	Complementary USB Data	USB Standard Function
UD+	3	Complementary USB Data	USB Standard Function
GND	4	Ground	USB Standard Function
TX	5	Low Voltage to disable RF function	
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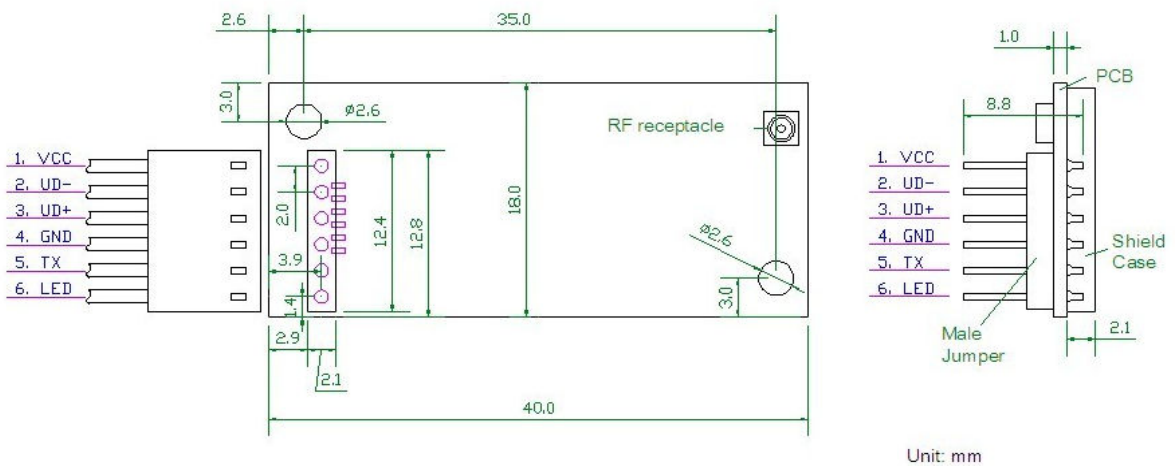


Mechanical Drawing

6-pin 1.0 mm pitch male connector



6-pin 2.0 mm pitch male header



For custom applications: the direction of the male header can be mounted upside down, please contact Sagrad Inc. for availability.



Regulatory Approval

Agency	Approval
Industry Canada	In-Process
FCC	In-Process
Part 15	✓
CE	✓
RoHS	✓

Suggested Antennas

- Airgain N2420
- Thinkyard T000701 & T000805

Software Support

Operating System	Driver
Linux 2.4/2.6	Available
Windows 2000/XP/VISTA	Available
Windows CE 5.0/6.0	Available

Security Support

- Complete Security Features – WPA/WP2, 64/128/152-bit WEP, WPS