XG-182M IEEE802.11g SDIO Module

AirRunner™ Embedded Series

In the world of SDIO embedded modules there is high demand to provide a device with a small footprint that still gives appropriate attention to both power consumption and reliability. The XG-182M SDIO module was designed with those considerations preeminently in mind. Designed specifically for mobile devices, the XG-182M delivers low power consumption and marries it with a wireless interface robust enough to handle today's video, voice and multimedia throughput requirements.

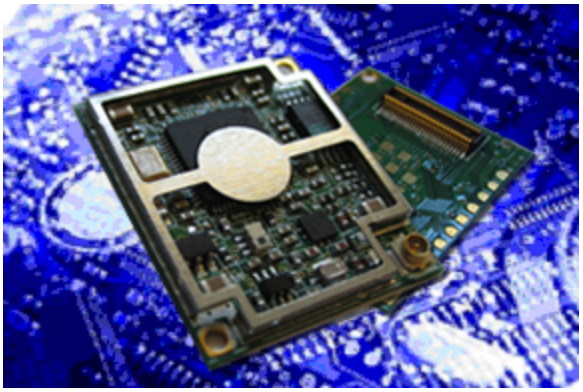
Operating in the unlicensed 2.4GHz wireless spectrum, the XG-182M requires no special grants or licensing for expedient deployment. Security concerns are addressed via the XG-182M's compatibility with 802.11i, 802.1x and 802.11e security standards. A Hirose U.FL connector assures a solid connection to the antenna. The XG-182M comes standard with an SDIO host interface via a NAIS AXK850145Y board to board connector but is also available with an SPI interface option.

The XG-182M is the gold standard SDIO embedded module. Please contact a sales professional today to learn more about this or any other of our wireless modules.

XG-182M at a Glance

Chipset	Marvell 88w8686 B2 chipset QFN
Transmit Power	13 dBm @ 11 Mbps data rate
Receive Sensitivity	-82 dBm @ 6 Mbps data rate
Antenna Connector	Hirose U.FL-R-SMT connector

IEEE	Radio	RoHS	Interface
IEEE 802.11G	MARVELL	RoHS	SDIO



XG-182M Embedded Module

Key Features

- **Small form factor with SDIO Host interface via NAIS AXK850145Y connector**
- **Optional SPI interface**
- **Adheres to the IEEE 802.11b/g standard**
- **Uses the popular Marvell 88w8686 B2 chipset**
- **RoHS compliant**
- **PCB mounted Hirose U.FL Antenna Connector**
- **WiFi WPA2 compliant**

Radio Specification			
Modulation	OFDM/DSSS: DBPSK, DQPSK, CCK, BPSK, QPSK, 16-QAM, 64-QAM		
RF Frequency	**USA (FCC)**	**Europe (ETSI)**	**Japan (TELEC)**
	2.412GHz ~ 2.462GHz	2.412GHz ~ 2.472GHz	2.412GHz ~ 2.462GHz
RF Output Power (± 2dB)	**802.11g**	**802.11b**	
	12dBm @ 6 ~ 24Mbps	13dBm @ 1/2mbps	
	12dBm @ 36/48/54Mbps	13dBm @ 5.5/11Mbps	
	Note: 2.484GHz = 10dBm @ 802.11b/g		
Receiver Sensitivity	**802.11g**	**802.11b**	
	≤ -82dBm @ 6Mbps	≤ -87dBm @ 1Mbps	
	≤ -81dBm @ 9Mbps	≤ -84dBm @ 2Mbps	
	≤ -79dBm @ 12Mbps	≤ -83dBm @ 5.5Mbps	
	≤ -77dBm @ 18Mbps	≤ -82dBm @ 11Mbps	
	≤ -74dBm @ 24Mbps		
	≤ -70dBm @36Mbps		
	≤ -68dBm @54/48mbps		
Antenna Connector	Hirose U.FL-R-SMT compliant connector		
Antenna Setting	0x00, Ant1 for Tx / Rx		

Physical Specification			
Interface	SDIO host interface via NAIS AXK850145Y board to board connector SPI interface is optional		
Dimensions	20mm x 23mm x 3.85mm		
Weight	≤ 5g		
Operating Voltage	DC 3.3V ± 7% max. voltage = 6.5V		
Internal Voltage	+ 3.3V, 1.8V, 1.2V		
EEPROM	8Kbit		
Working Temperature	-20°C to 65°C, 90% relative humidity (non-condensing)		
Storage Temperature	-40°C to 80°C, 90% relative humidity (non-condensing)		
Green	RoHS Compliant		
Power Consumption	**Transmit**	**Receive**	**Peak**
	≤ 400mA (typ)	≤ 400mA (typ)	< 700mA
Power Management	Supports both power save mode and deep sleep mode		

Security	
XG-182M security will support the latest Marvell driver releases	WPA / WPA2 / WPA-PSK / WPA2-PSK
	40bit and 128-bit WEP
	EAP-TLS / EAP-TTLS / EAP-PEAP
Standards	802.11i, 802.1x and 802.11e standards are supported

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Warranty	
Warranty Period	1 Year limited warranty from the date of purchase

Pin Definition

CON1 Pin #	Pin Name	I/O	Connection	Description
2	BT_STATE	I	88W8686 Pin.56	Bluetooth State 0 = normal priority, Rx 1 = high priority, Tx Priority is signaled after BT_PRIORITY has been asserted. After priority signaling, BT_STATE indicates the Tx/Rx mode of Bluetooth radio.
3	BT_FREQ	I	88W8686 Pin.57	4-Wire BCA Mode: Bluetooth Frequency Asserted (logic high) when the Bluetooth transceiver hops into the restricted channels defined by the coexistence mechanism. 2-Wire, 3-Wire BCA Mode: Tie to ground (VSS)
4	BT_TX_CONFIRM	O	88W8686 Pin.58	Bluetooth WLAN Active 2-Wire BCA Mode: When high, WLAN is transmitting or receiving packets. 3-Wire BCA Mode: 0 = Bluetooth device allowed to transmit 1 = Bluetooth device not allowed to transmit This pin drives low when PDn is asserted. In WLAN Sleep mode, all I/O pads are powered down. This pad must stay at a low state even in power down mode.
5	BT_PRIORITY	I	88W8686 Pin.59	Bluetooth Priority 2-Wire BCA Mode: When high, Bluetooth is transmitting or receiving high priority packets. 3-Wire BCA Mode: When high, Bluetooth is transmitting or receiving packets.
49	SDIO_SPI_SEL	O	88W8686 Pin.22 or Pin.24	High or NC for SDIO, low for SPI interface
9	SPI_SDI/SD_CMD	I/O	88W8686 Pin.43	G-SPI Mode: SPI_SDI G-SPIData Input SDIO 4-bit Mode: SD_CMD Command/Response SDIO 1-bit Mode: SD_CMD Command Line SDIO SPI Mode: SD_CMD Data Input
10	SPI_SINTn/ SD_D2	I/O	88W8686 Pin.46	G-SPI Mode: SPI_SINTn G-SPI Interrupt Output (active low) SDIO 4-bit Mode: SD_D2 Data Line Bit[2] or Read Wait (optional) SDIO 1-bit Mode: SD_D2 Read Wait (optional) SDIO SPI Mode: SD_D2 Reserved

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Pin Definition – (Continued)				
CON1 Pin #	Pin Name	I/O	Connection	Description
25	SPI_SCSn/SD_D0	I	88W8686 Pin.44	G-SPI Mode: SPI_SCSn G-SPI Chip Select Input (active low) SDIO 4-bit Mode: SD_D0 Data Line Bit [0] SDIO 1-bit Mode: SD_D0 Data Line SDIO SPI Mode: SD_D0 Data Output
32	SPI_CLK/SD_CLK	I/O	88W8686 Pin.42	G-SPI Mode: SPI_CLK G-SPI Clock Input SDIO 4-bit Mode: SD_CLK Clock Input SDIO 1-bit Mode: SD_CLK Clock Input SDIO SPI Mode: SD_CLK Clock Input
34	SPI_SDO/SD_D1	I/O	88W8686 Pin.45	G-SPI Mode: SPI_SDO G-SPI Data Output SDIO 4-bit Mode: SD_D1 Data Line Bit [1] SDIO 1-bit Mode: SD_D1 Interrupt SDIO SPI Mode: SD_D1 Reserved
35	SD_D3	I/O	88W8686 Pin.47	SDIO 4-bit Mode: SD_D3 Data Line Bit [3] SDIO 1-bit Mode: SD_D3 Reserved SDIO SPI Mode: SD_D3 Card Select (active low)
39	GPIO0	I/O	88W8686 Pin.11	Internal pull-up General Purpose Input/Output These pins are asynchronous to internal clocks. Several of these pins can be selected to perform alternate functions such as an LED controller. When not used, these pins should be left floating. GPIO1 – LED output (strap pin) (Tx power or Rx ready LED) GPIO0 – external oscillator control/SLEEPn; Wake up control During power down sleep mode, the external crystal oscillator is disabled, and, if implemented, also powered down by GPIO0
45	GPIO1	I/O	88W8686 Pin.40	
13,38	3.3V	Power	—	Power supply from host
1, 50	GND	Ground	—	Ground
Pins that are **not** connected: 6,7,8,11,12,14,15,16,17,18,19,20,21,22,23,24,26,27,28,29,30,31,33,36,37,40,41,42,43,44,46,47,48				

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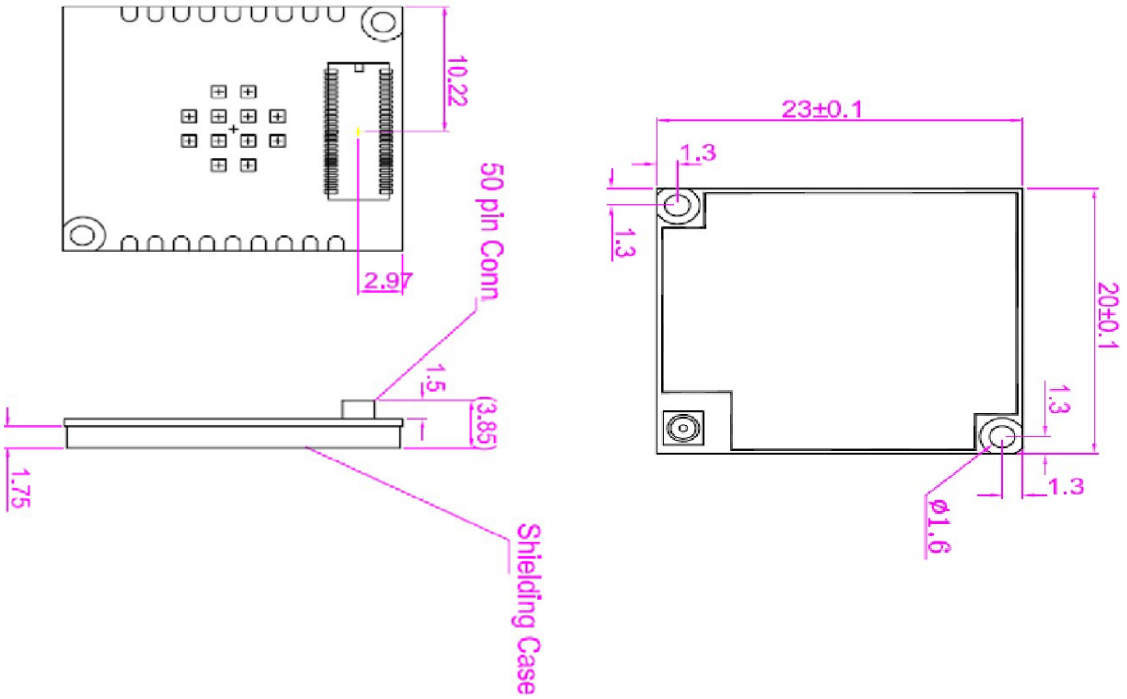
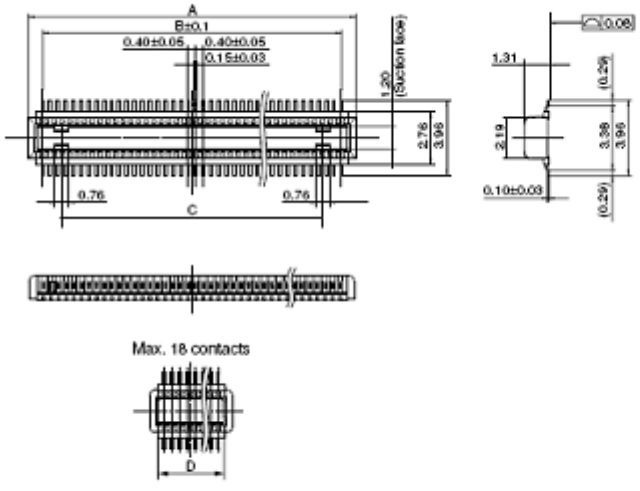
Product Outline Drawing



Connector Drawing (NAIS AXK850 145Y)



General tolerance: ±0.2

Dimension table (mm)

Number of contacts/ dimension	A	B	C	D
14	3.9	2.4	—	3.04
16	4.3	2.8	—	3.44
20	5.1	3.6	1.6	—
22	5.5	4.0	2.0	—
24	5.9	4.4	2.4	—
26	6.3	4.8	2.8	—
28	6.7	5.2	3.2	—
30	7.1	5.6	3.6	—
34	7.9	6.4	4.4	—
36	8.3	6.8	4.8	—
40	9.1	7.6	5.6	—
44	9.9	8.4	6.4	—
50	11.1	9.6	7.6	—
54	11.9	10.4	8.4	—
60	13.1	11.6	9.6	—
64	13.9	12.4	10.4	—
70	15.1	13.6	11.6	—
80	17.1	15.6	13.6	—
90	19.1	17.6	15.6	—
100	21.1	19.6	17.6	—

Note: "Products with V notch" and "products with V notch and post edge horseshoe bend" are mating compatible.

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