

SKW92 User Manual

General Description

The module SKW92 compliant to 802.11 b/g/n Wi-Fi Solution for low power, low-cost, and highly integrated AP and consumer electronic devices, the module requiring only a external 3.3V power supply .

The module based on the single chip MT7628NN which integrates an 802.11n MAC/BB/radio with internal PA and LNA. It supports 802.11n operations up to 144 Mbps for 20 MHz and 300 Mbps for 40 MHz channel respectively, and IEEE 802.11b/g data rates.

The SKW92 module includes an 802.11n MAC and baseband, a 2.4GHz radio and FEM, a 580MHz MIPS CPU, a 5-port 10/100 fast Ethernet switch. Solution for low power, low-cost, and consumer electronic devices, the module requires only an external 3.3V power supply. It supports 802.11n operating up to 144 Mbps for 20 MHz and 300 Mbps for 40 MHz channel respectively, and IEEE 802.11b/g data rates.

The module supports bridge mode and AP Client mode and Gateway mode. The high performance Module can process advanced applications effortlessly, such as security and VoIP. It also includes a selection of interface to support a variety of applications, such as a USB port for accessing external storage and 3G/TLE modem. Especially in the IOT, a wide range of applications.

Applications

- IP TV
- IP DVD(Internet VOD Player)
- Set Top Box
- Home Gateways
- Gaming Consoles
- DVR

Features

- Compliant to IEEE 802.11b/g/n WLANs
- 2T2R Mode with support for a 300Mbps TX/RX PHY rate.
- DDR2 memory up to 512Mb
- Flash memory up to 64Mb
- 4LAN ports and 1WAN port
- Support USB 2.0 host device
- Support USB disk.
- Security: WEP 64/128, WPA, WPA2, TKIP, AES, WAPI
- RoHS compliance meets environment-friendly requirement.

Module Pinout

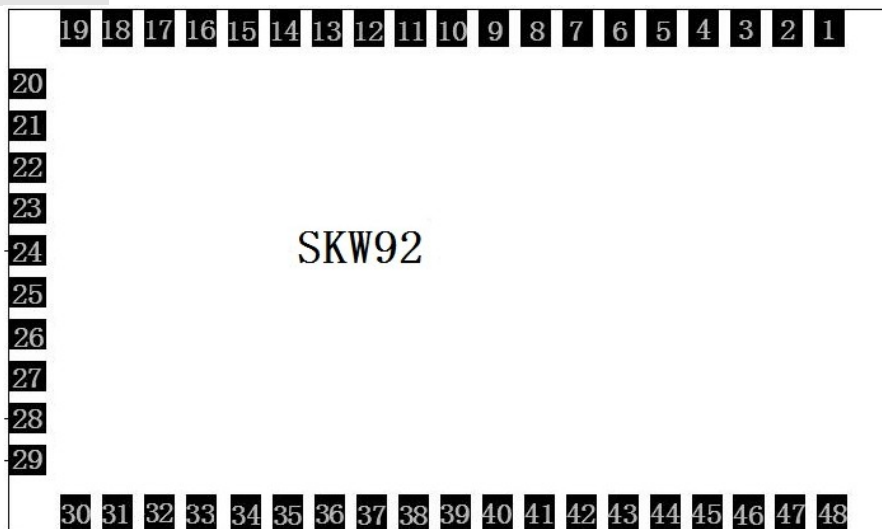


Figure 1: SKW92 Pin Name

Pin Description

Pin No.	Pin name	Description	Remark
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1	WAN_PORT_RX+	WAN port	WAN_RX+
2	WAN_PORT_RX-	WAN port	WAN_RX-
3	WAN_PORT_TX+	WAN port	WAN_TX+
4	WAN_PORT_TX-	WAN port	WAN_TX-
5	LAN_PORT1_TX+	Ethernet port1	SPIS_CS / GPIO#14 / PWM0
6	LAN_PORT1_TX-	Ethernet port1	SPIS_CLK / GPIO#15 / PWM1
7	LAN_PORT1_RX+	Ethernet port1	SPIS_MISO / GPIO#16 / UART2 TXD
8	LAN_PORT1_RX-	Ethernet port1	SPIS_MOSI / GPIO#17 / UART2 RXD
9	LAN_PORT2_RX+	Ethernet port2	GPIO#18 / PWM0 / SD_D7
10	LAN_PORT2_RX-	Ethernet port2	GPIO#19 / PWM1 / SD_D6
11	LAN_PORT2_TX+	Ethernet port2	GPIO#20 / PWM2 / UART2 TXD / SD D5
12	LAN_PORT2_TX-	Ethernet port2	GPIO#21 / PWM3 / UART2 RXD / SD D4
13	LAN_PORT3_TX+	Ethernet port3	SD_WP / GPIO#22
14	LAN_PORT3_TX-	Ethernet port3	SD_CD / GPIO#23
15	LAN_PORT3_RX+	Ethernet port3	SD_D1 / GPIO#24
16	LAN_PORT3_RX-	Ethernet port3	SD_D0 / GPIO#25
17	GND	Ground	GND
18	USB+	USB data pin Data+	USB_D+
19	USB-	USB data pin Data-	USB_D-
20	GND	Ground	GND
21	LAN_PORT4_RX+	Ethernet port4	SD_CLK / GPIO#26
22	LAN_PORT4_RX-	Ethernet port4	SD_CMD/ GPIO#27
23	LAN_PORT4_TX+	Ethernet port4	SD_D3 / GPIO#28
24	LAN_PORT4_TX-	Ethernet port4	SD_D2 / GPIO#29
25	UART_RXD0	UART0 only for debug	UART0_RX / GPIO#13
26	UART_TXD0	UART0 only for debug	UART0_TX / GPIO#12 / O, IPD

27	GND	Ground	GND
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28	3.3VD	3.3V input 1000mA	+3.3V
29	3.3VD	3.3V input 1000mA	+3.3V
30	GND	Ground	GND
31	P4_LED	LAN_PORT4_LED	P4_LED_N / GPIO#39
32	P3_LED	LAN_PORT3_LED	P3_LED_N / GPIO#40
33	P2_LED	LAN_PORT2_LED	P2_LED_N / GPIO#41
34	P1_LED	LAN_PORT1_LED	P1_LED_N / GPIO#42
35	P0_LED	WAN_PORT_LED	P0_LED_N / GPIO#43
36	WLED_N	Wireless LED	WLED_N / GPIO#44
37	UART_TXD1	UART1 Serial Data Output	UART1_TXD / GPIO#45 / O, IPU
38	UART_RXD1	UART 1 Serial Data Input	UART1_RXD / GPIO#46
39	WDT_RST_N	WPS/Factory Setting_Button_Key	WDT_RST_N / I2S_MCLK / GPIO#38/O, IPU
40	WPS_LED	WPS_LED	WPS_LED_N / GPIO#37
41	I2S_DI	I2S data input	I2S_SDI/GPIO#0/PCMDRX
42	I2S_WS	I2S word select	I2S_WS/GPIO#2/PCMCLK
43	I2S_DO	I2S data output	I2S_SDO /GPIO#1/PCMDTX/IPD
44	I2S_CLK	I2S clock	I2S_CLK/GPIO#3/PCMFS
45	HW_RESET	Power on reset	HW_RESET_N#
46	I2C_SD	I2C Data	I2C_SDA(PU 2K2) / GPIO#5
47	I2C_SCLK	I2C clock	I2C_SCL(PU 2K2) / GPIO#4
48	GPIO0	General Purpose I/O	POWER_ON# / GPIO#11/IPD

PCB Dimensions

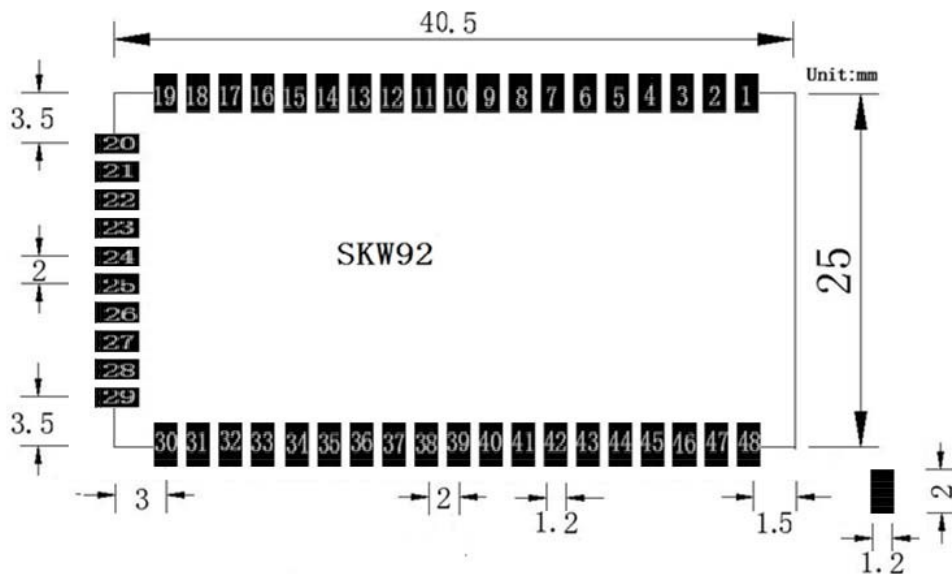


Figure 2: SKW92 Dimensions

Manufacturing Process Recommendations

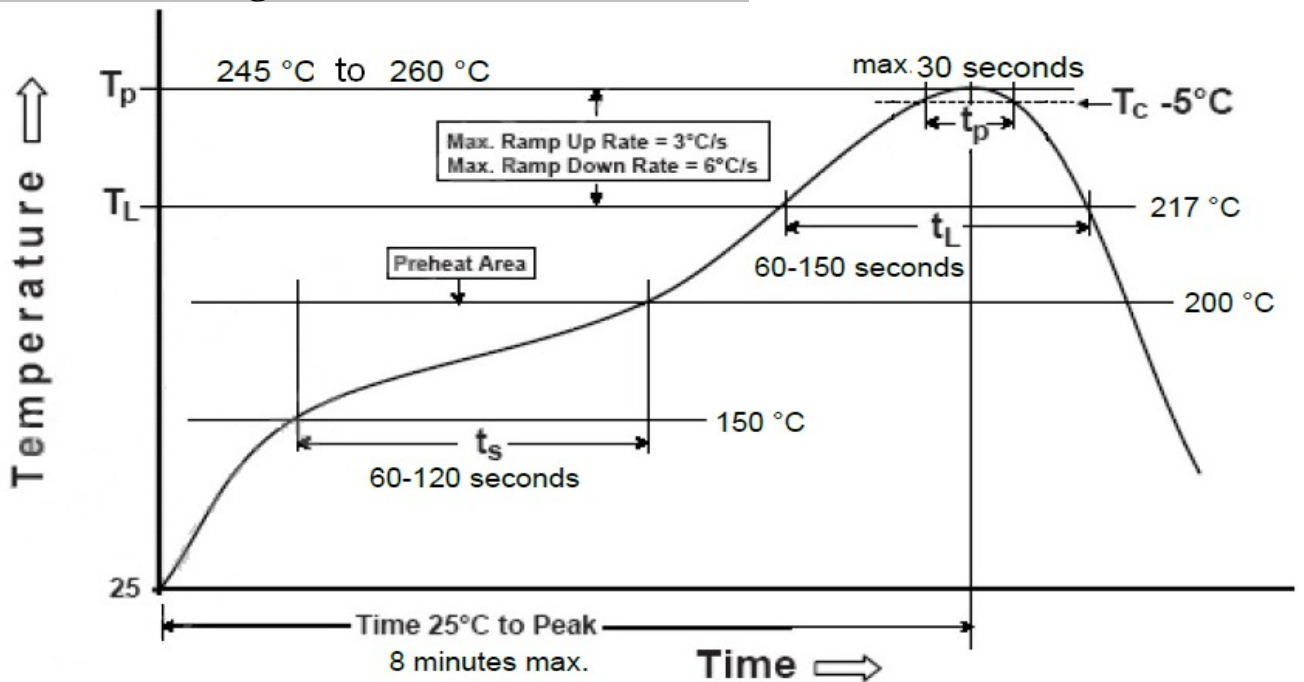


Figure 3: SKW92 Typical Lead-free Soldering Profile

Note: The final soldering temperature chosen at the factory depends on additional external factors like choice of soldering paste, size, thickness and properties of the baseboard, etc. Exceeding the maximum soldering temperature in the recommended soldering profile may permanently damage the module.

Ordering Information

Module No.	Antenna Connector Type	SPI Flash Size
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SKW92_8	IPEX Connector	8M Bytes
SKW92_16	IPEX Connector	16M Bytes

FCC Statement

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the
- Consult the dealer or an experienced radio/TV technician for help receiver is connected.

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation

FCC Caution: Any changes or modification not expressly approved by the party responsible for compliance could void the user's authority to operate.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.

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FCC Radiation Exposure Statement

The modular can be installed or integrated in mobile or fix devices only. This modular cannot be installed in any portable device, for example, USB dongle like transmitters is forbidden. This modular complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This transmitter must not be collocated or operating in conjunction with any other antenna or transmitter.

If the FCC identification number is not visible when the module is installed inside another device, then the outside of the device into which the module is installed must also display a label referring to the enclosed module.

This exterior label can use wording such as the following:

"Contains Transmitter Module FCC ID:2ACOE-SKW92 Or Contains FCC ID:2ACOE-SKW92"
when the module is installed inside another device, the user manual of this device must contain below warning statements;

1. This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference.

(2) This device must accept any interference received, including interference that may cause undesired operation.

2. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

The devices must be installed and used in strict accordance with the manufacturer's instructions as described in the user documentation that comes with the product.

3. Integrator is responsible for final compliance of the end-product

> > that integrates this modular transmitter.

> > 15B Compliance on final product with integrated modular transmitter

> > 15C Evaluation of RF Parameter of the modular transmitter (e.g.

> > Fundamental, Out-of-Band Emissions)

4. Integration strictly limited to host platform (Wireless Router and similar devices)

5. This module is not shielding.

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This device is intended only for OEM integrators under the following conditions:

- 1) The antenna must be installed such that 20 cm is maintained between the antenna and usersc.
- 2) The transmitter module may not be co-located with any other transmitter or antenna.
- 3) For all products market in United States, OEM has to limit the operation channels in CH1 to CH11 for 2.4G band by supplied firmware programming tool. And OEM shall not supply any tool or info to the end-user regarding to change the domain selection. As long as 3 conditions above are met, further transmitter test will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed (for example, digital device emissions, PC peripheral requirements, etc.).

IMPORTANT NOTE: In the event that these conditions cannot be met (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization is no longer considered valid and the FCC ID cannot be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization.

End Product Labeling

This transmitter module is authorized only for use in device where the antenna may be installed such that 20 cm may be maintained between the antenna and users
The final end product must be labeled in a visible area with the following: "Contains FCC ID: 2ACOE-SKW92".

Module Antenna Type: PCB PIN ANT, 1.5dBi gain