AMBER
WIRELESS

Manual OPC1601

Version 1.9

BlueNiceCom 3

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1 General

BlueNiceCom 3
Bluetooth-Modul with UART-interface and integrated Chip-antenna

- Bluetooth Class 2 Modul

- Serial Port Profile (SPP)

- UART interface

- Integrated chip-antenne

- GAP & SDP support

AMBER wireless provides with the BlueNiceCom 3 a Bluetooth-module with an integrated chip-antenna, based on LMX9820A from National Semiconductor. This compact and inexpensive Bluetooth-version is qualified for a serial data transmission.

BlueNiceCom 3 comes with a SPP profile (Serial Port Profile) and works with other Bluetooth modules which support the same profile. Through the serial UART interface the BlueNiceCom will be connected to a processor or a direct to a system, according to the application.

Via an external processor or host (PC) all further available application profiles could be set on the SPP-profile, for example: Dial up Networking Profile, Fax Profile, LAN Access Profile.

The module has an integrated chip-antenna and can placed into a circuit like a SMD-part.

The controlling and setting is raised by a host processor. The module can be integrated easily in a system. According to the application and the settings the BlueNiceCom II can be work as a stand-alone-slave-module.

For a cable replacement or a point-to-multipoint (piconet) application a controlling through a processor is necessary. Up to 3 slaves could be managed by a master module.

2 Technical data:

|	
Voltage supply	2,85V to 3,6V
Current consumption	typ. 65 mA
RF output	typ. 2 dBm
Rx Sensitivity	typ. –82dBm
Datarate UART:	9,6 kbps to 921,6kbps
Interface	according to LMX9820A
Operating temperature	-30° bis +80°, optional an extended temperature range is possible
Dimension	27,5 x 16 x 3,5 mm
Miscellaneous	All further technical datas according to the LMX9820A Modul of National Semiconductor

2.1 Factory defaults

see LMX9820A Software User Guide

| Parameter	Factory defaults
BD_ADDR	<Variabel>
Device Name	" Serial Port Device "
Link Keys	< no >
Pin Code	"0000"
Class of Device	0x00000
SDP Records	1 SPP entry authentication and Encryption activated
SPP Ports to open	0000 0001
Default Connections	< no >
Preferred Master	0x00, false
UART Speed	0x03, 9600Baud
UART Parity	0x00, no parity
UARTNoofStopbits	0x00, 1Stopbit
Operation Mode	0x01, Automatic Mode
Inquiry Scan Mode	0x01, General Inquiry
Page Scan Mode	0x01, activated
Security Mode	0x02
Event Filter	0x01, Standard
Default Link Policy	0x000F
Default Link Timeout	0x7D00, 20 Sec
Default Audio Settings	0x00, 0x00 no codec, CVSD
Default Link Latency	0x00, Default 40 Slots

2.2 Pin assignment

2.2.1 Pinning

TOP VIEW
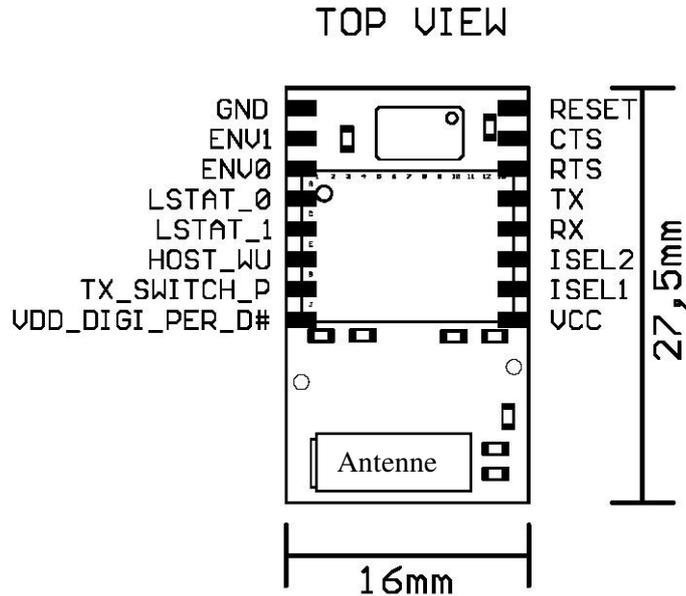
2.2.2 Pin-Table

ST1		
Pin Nr.	Signal of BlueNiceCom 3	Signal of LMX 9820
1	VCC	Voltage supply (2,85V bis 3,6V)
2	ISEL1	Input Isel1 of LMX9820A
3	ISEL2	Input Isel2 of LMX9820A
4	RX	Input Uart_rx of LMX9820A
5	TX	Output Uart_tx of LMX9820A
6	RTS	Output Uart_rts of LMX9820A
7	CTS	Input Uart_cts of LMX9820A
8	RESET	Input Reset_b and Reset_5100 of LMX9820A
9	GND	Ground
10	ENV1	Input Env1 of LMX9820A
11	ENV0	Input Env0 of LMX9820A
12	LSTAT_0	Output Lstat_0 of LMX9820A
13	LSTAT_1	Output Lstat_1 of LMX9820A
14	HOST_WU	Output Host_wu of LMX9820A
15	TX_SWITCH_P	Output TX_Switch_P of LMX9820A
16	VDD_DIGI_PWR_D#	Input VDD_DIGI_PWR_D# of LMX9820A

The signal level correspond to the power supply (2,85V bis 3,6V) of BlueNiceCom 3 and must be aligned if the Hostsystem has a different signal level.

2.3 Dimension

BlueNiceCom 3 has 1mm x 2mm soldering pads with a raster of 2mm to be solder direct on a motherboard.
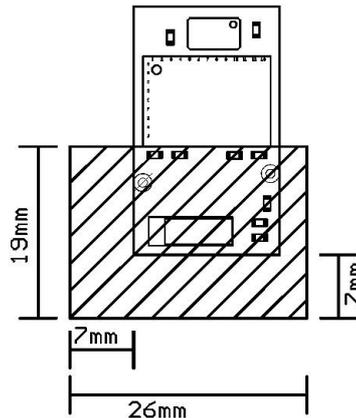
TOP VIEW
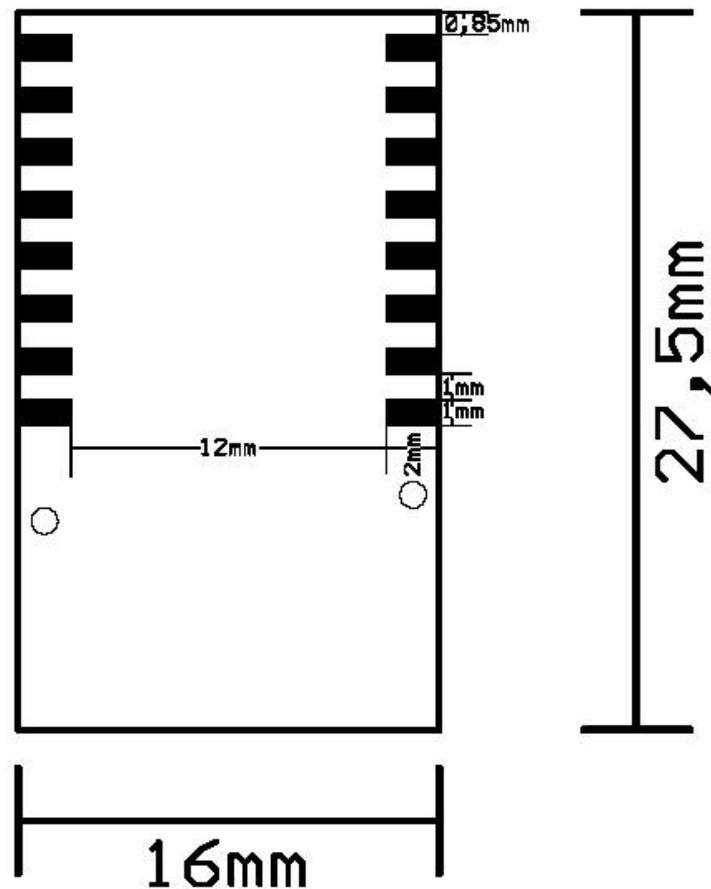
3 Details for Layout

To achieve the maximum of range no metall has to be near or under the antenna. The antenna should have a distance of 8mm to any gound, strip line or component. Most suitable is to place the antenna at the margin of the motherboard.
The figure shows the area which should be free of metal (ground, strip line, components, etc..).

The area off 12mm between the soldering pads on the bottom side should (e.g. with adhesive tape) additional isolated, if any strip line is under the module to avoid any short circuit.

4 Soldering & Reflow

4.1 Description

- Reflow appropriate

- The temperature curve depends on the motherboard it´s character.

- Depending on the limit values of the components following limits are not allowed to excess-

   225°C (LMX)
   220°C max. 10s (Chip-antenna)
   200°C max. 40s (Chip-antenna)
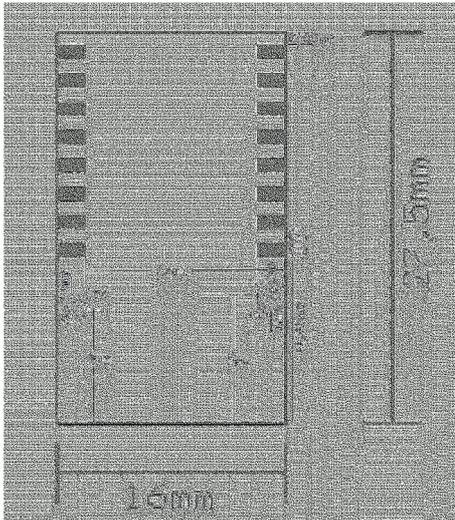
4.2 Recommendation for Footprints:
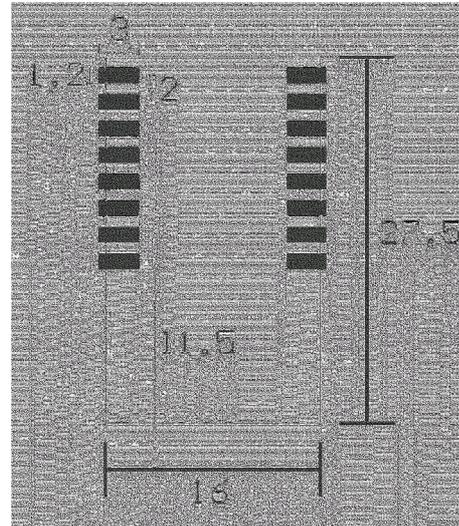

Abbildung 1: **Bluenicecom 3**

Abbildung 2: **Vorschlag for Footprint**

5 Further range of products around BlueNiceCom 3

Software-Tools:

C-Tools for controlling the LMX9820A.

Evaluation-Kit: 1 BlueNiceCom II module; 1 2,4GHz antenna; 1 RS232 board with Sub-D-9 connector and LED´s; batteries for power supply; 1 USB-Bluetoothmodule for a second station – to build up a Bluetooth radio link immediately, documentation and software.

6 Declaration of conformity

DECLARATION OF CONFORMITY
Directive 99/5/EG

Supplier Name: AMBER wireless GmbH

Supplier Address: Albin-Köbis-Straße 18
                   51147 Köln
                   Tel. ++49-2203-6991950

declare on our sole responsibility, that the following product:

Kind of equipment: Bluetoothmodule

Type-designation: **BlueNiceCom III**

is in compliance with following norm(s) or document(s):

EN 300 328 V1.6.1 (2004-11)
EN 301 489-1, -3 V1.5.1 (2003-12)
EN50371 December 2002
EN 60950
FCC Part 15.247
FCC Grantee Code: R7T

Bluetooth Qualified Product Notice : GRA_013_04
Bluetooth listing identifier: B01572

Köln, 30.03.2005
place and date of issue

Manufacturer/Authorized representative
Heinz Brych (General Manager)

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