

BTMPC100 BTMPC101

Advance Information

BTMPC100/BTMPC101 Bluetooth Mini PCI Card

The BTMPC100/BTMPC101 Bluetooth™ Mini Peripheral Component Interconnect (PCI) card from Motorola is a type IIIA Mini PCI card that enables laptop PCs, desktop PCs, and other Mini PCI enabled (Windows) devices to interface with Bluetooth wireless technology.

The BTMPC100/BTMPC101 includes all software drivers necessary to support ad-hoc networking (without hub), peer-to-peer file transfers, data synchronization and wireless headset support. The Bluetooth software drivers support Microsoft Windows® 95, 98, ME, NT 4.0 and 2000. The software suite also includes applications for Bluetooth network management and country settings.

The BTMPC100/BTMPC101 product contains the following modules:

- Digianswer Bluetooth Software Suite
- Digianswer Bluetooth Baseband Stack
- Digianswer Bluetooth Radio:
 - BTMPC101 Power Class I (maximum +20 dBm)
 - BTMPC100 Power Class II (maximum +4 dBm)

1 Key Features

The BTMPC100 and BTMPC101 possess the following features:

- Implemented according to the PCI Special Interest Group Mini PCI Specification 1.0
- Operates on 3.3 V
- Supports the D0 and D3 cold power states
- Bluetooth Specification version 1.1. Core and Profiles compliant
- BTMPC101 supports Power Class I, +20 dBm (100 mW), with four attenuation steps
- BTMPC100 supports Power Class II, fixed operation, 0 dBm (1 mW)
- Two separate antenna connectors for diversity support
- Support for a transmitter on/off switch on the PC
- Safety and type approvals (refer to Section 2, “Motorola Product Approvals and Certifications,” in this document)
- Environmentally tested and approved according to PCI SIG’s *Mini PCI Conformance* check list

The BTMPC101 is a Bluetooth qualified, Class I module. The BTMPC100 is a Bluetooth qualified, Class II module. For more information, refer to the Qualified Products page at www.bluetooth.com.

To support FAA requirements, the Digianswer Bluetooth Radio module can be turned on and off with an external switch or from the application program.

These devices do not contain FLASH memory. Firmware is loaded from the host computer upon power-up and configuration. The firmware loader is part of the Digianswer Bluetooth Software Suite. Firmware upgrades are available through the product supplier.

The BTMPC100/BTMPC101 is built around the Digianswer AD21BT102 Bluetooth DSP, the National LMX5001 Baseband ASIC, and the National LMX3162 Bluetooth radio chip.

2 Motorola Product Approvals and Certifications

The BTMPC100 and BTMPC101 have been approved for use throughout many parts of the world as shown in the following sections.

2.1 Type Approvals

Table 1 lists the different types of approvals the BTMPC100/BTMPC101 has received throughout the world.

Table 1. Type Approvals

Continent	Geography	Wireless 2.4 GH –2.4835 GHz	EMC
Europe	European Union	ETS 300 328	ETS 300 826
	EFTA	ETS 300 328	ETS 300 826
	Poland	ETS 300 328	ETS 300 826
North America	Canada	FCC CFR47 Part 15.247	FCC CFR47 Part 15.249
	USA	FCC CFR47 Part 15.247	FCC CFR47 Part 15.249
Pacific	Australia	ETS 300 328	ETS 300 826
	Japan	ARIB STD-T66 (TELEC)	
	New Zealand	ETS 300 328	ETS 300 826
	Singapore	ETS 300 328	ETS 300 826

2.2 International Electrotechnical Commission 60950 CB Test Certificate Approvals

The BTMPC101/BTMPC100 has been UL certified for the following locations:

Australia	Canada ¹	China	United States of America ¹
India	Israel	Japan	European Free Trade Association (EFTA)
South Korea	Singapore	Slovakia	European Union (except Portugal)
South Africa	Russia	Ukraine	Czech Republic
Hungary	Poland	Slovenia	

1. USA and Canada are UL (Underwriters Laboratories 1950 Safety Standard) certified and listed, for the BTMPC100.

3 Electrical and Physical Specifications

Table 2 through Table 5 show the minimum and maximum specifications of the module, and Figure 1 shows the physical dimensions of the module.

Table 2. Power Supply Requirements

Consumption	Parameter	Unit	Minimum	Nom.	Maximum
	Supply voltage 3.3 V/3.3 V AUX ^(1, 2)	Vdc	3.13	3.3	3.6
	Noise on supply under any condition	mV _{pp}	—	—	30
RX	3.3 V supply	mA	—	—	140
TX	3.3 V-supply (+20 dBm operation)	mA	—	—	340
	(+0 dBm operation)	mA	—	—	155
Idle	3.3 V supply	mA	—	—	60
	Power dissipation, running	W	—	<0.5	2.0
	Power dissipation, D0 uninitialized	W	—	—	0.23

1. This range is the maximum deviation (peak value including noise, ripple, and spikes on the supply).
2. The supply voltage is the actual voltage measured at the Mini PCI card connector pins.

3.1 Radio Specification

Maximum and/or minimum specifications are guaranteed over the full operating temperature range. The cited target specifications represent expected, typical performance at normal operating conditions and at 2440 MHz. Parameters not mentioned are according to Mini PCI specifications and/or Bluetooth specifications.

Table 3. Transmitter Performance¹

Class	Parameter	Unit	Minimum	Nom.	Maximum
Class I	Power step 1	dBm	14	17	17.5
	Power step 2	dBm	—	11	—
	Power step 3	dBm	—	6	—
	Power step 4	dBm	-6	1	4
Class II	Fixed operation	dBm	-6	1	4
	Return loss on antennas	dB	—	-10	-6

1. The transmitter is designed to work with an antenna peak gain of up to 2.5 dBi (typical chip antenna). This is due to the device's restraint on peak radiated power (less than 20 dBm EIRP). Reference planes are the antenna connectors.

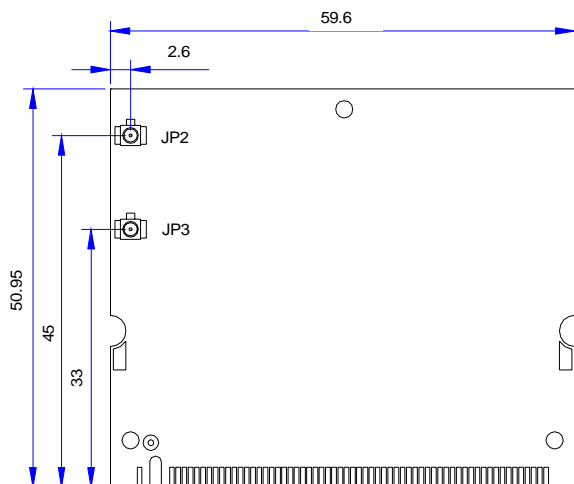
Table 4. Receiver Performance

Parameter	Unit	Minimum	Nom.	Maximum
Rx sensitivity (0.1% BER)	dBm	-78	-85	—
Co-channel interference suppression	C/I dB	+14	+12	—
1 MHz interference suppression	C/I dB	+4	0	—
2 MHz interference suppression	C/I dB	-30	-35	—
3 MHz interference suppression	C/I dB	-40	-43	—

Table 5. Range Characteristics

Parameter Class I and Class II	Min	Nom	Max	Unit
Range full duplex connection — Class I ⁽¹⁾	250	—	—	Meter
Range full duplex connection — Class II ⁽¹⁾	50	—	—	Meter

1. Range test is made in connection full duplex (431 kbps/431 kbps) in open air and line of sight. Depends on actual antenna performance.



NOTES:
 Building height (on top): 2.40 mm
 Height (on backside): 1.4 mm
 Printed board thickness: 1.0 mm
 JP2, JP3 are antenna connectors
 Note: antennas are not part of the BTMPC100/BTMPC101

Figure 1. Mini PCI Card Dimensions

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