













<b>Operating Voltage</b>	DC 3.3V $\pm$ 9%
<b>Environmental</b>	
Operating Temperature	0 ~ 70°C
Storage Temperature	-40 ~ 85°C
<b>Physical Specification</b>	
Dimensions	29.85mm x 26.65mm x 1.5mm (Tolerance remarked in mechanical drawing)
Weight	3.28 g

### 3.1 Absolute Maximum Ratings

Symbol	Parameter	Max. Rating	Unit
Vdd33	Maximum I/O supply voltage	+3.6V	V

### 3.2 Recommended Operating Conditions

Symbol	Parameter	Rating	Unit
Vdd33	I/O voltage	3~3.6	V

### 3.3 Power Consumption

#### WLAN

<b>Test Bed</b>	<b>DELL Vostro 3450</b>					
<b>Test OS</b>	<b>Windows 8.1 Professional x64</b>					
<b>Test AP</b>	<b>NETGEAR R6300</b>					
<b>Driver Version</b>	<b>AZ_RTL8723AE_8723BE_8821AE_Win7_Win8.X_2012.16.0523.2014</b>					
<b>Test Voltage</b>	<b>3.3V</b>					
Item		2.4 GHz		5 GHz		Note
		Disable ASPM	L1 mode	Disable ASPM	L1 mode	
<b>No connect AP</b>	<b>AVG</b>	37.9 mA	27.9 mA	38.4 mA	28.1 mA	
	<b>MAX</b>	187.8 mA	186.3 mA	186.7 mA	188.0 mA	
	<b>MIN</b>	28.3 mA	16.4 mA	28.3 mA	16.4 mA	
<b>Connect AP</b>	<b>AVG</b>	116.1 mA	107.1 mA	116.3 mA	113.6 mA	
	<b>MAX</b>	285.9 mA	284.5 mA	198.1 mA	198.2 mA	
	<b>MIN</b>	84.4 mA	76.5 mA	85.7 mA	78.0 mA	
<b>WLAN RF OFF</b>		24.0 mA	23.9 mA	24.0 mA	24.1 mA	
<b>Transmit by HT40/VHT80</b>		257.8 mA	265.8 mA	359.5 mA	356.2 mA	
<b>Receiver by HT40/VHT80</b>		183.8 mA	183.9 mA	225.7 mA	223.2 mA	

Note:

1. The power consumption data were measured when NB operated in DC (battery) mode.
2. Bluetooth function is disabled.

**BT**

<b>Test Bed</b>		<b>DELL 3450</b>	
<b>Test OS</b>		<b>Windows 8.1 Professional x64</b>	
<b>Driver Version</b>		<b>RTBlueR_810.810.812.0402.2014</b>	
<b>Test Voltage</b>		<b>3.3V</b>	
<b>Item</b>		<b>Current value</b>	<b>Note</b>
<b>No connect BT device</b>	<b>AVG</b>	24.0 mA	
	<b>MAX</b>	35.8 mA	
	<b>MIN</b>	22.5 mA	
<b>connect BT device</b>	<b>AVG</b>	29.7 mA	
	<b>MAX</b>	41.1 mA	
	<b>MIN</b>	28.3 mA	
<b>BT RF OFF</b>		16.0 mA	
<b>Transmit by BER 2.1</b>		54.9 mA	
<b>Receiver by BER 2.1</b>		44.7 mA	

Note:

1. The power consumption data were measured when NB operated in DC (battery) mode.
2. WiFi function is disabled.

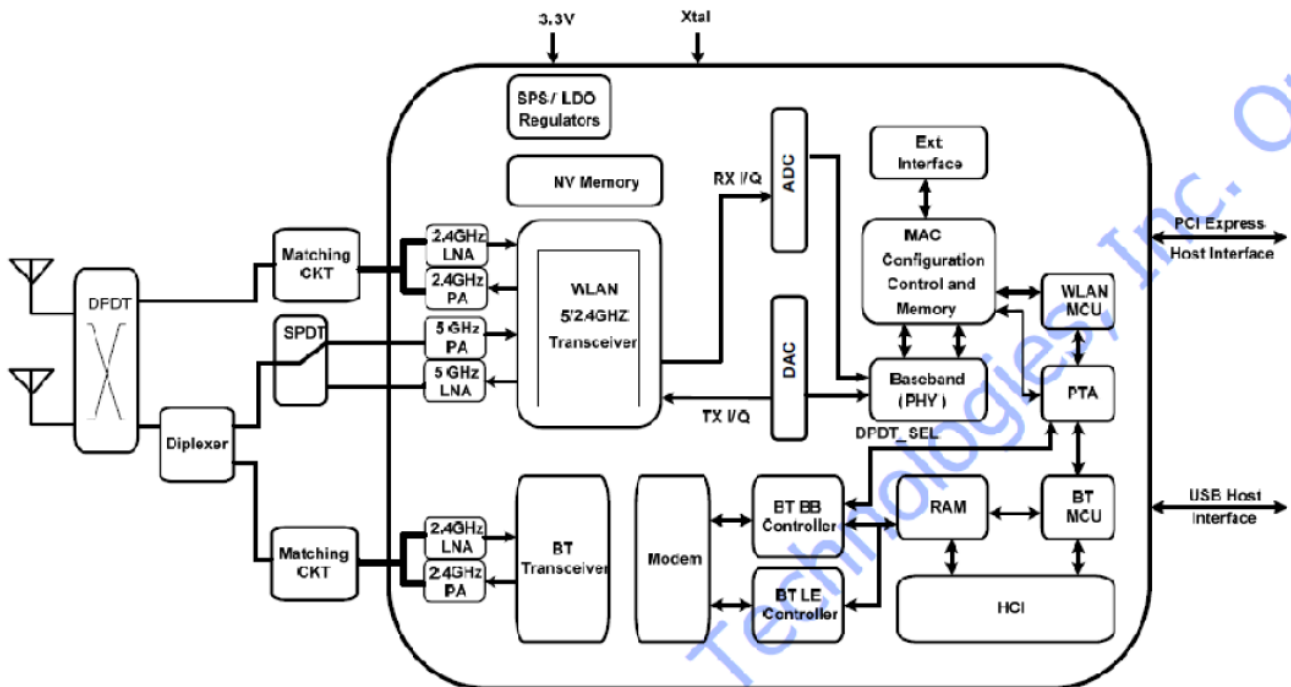
**4. Connector Pin-out Definitions**

<b>Pin No.</b>	<b>Definition</b>	<b>Basic Description</b>	<b>Type</b>
1	WAKE#	Open Drain active Low signal. This signal is used to request that the system return from a sleep/suspended state to service a function initiated wake event.	Output Open-Drain
2	NC	Floating Pin, No connect to anything.	Floating
3	NC	Floating Pin, No connect to anything.	Floating
4	GND	Ground	GND
5	NC	Floating Pin, No connect to anything.	Floating
6	NC	Floating Pin, No connect to anything.	Floating
7	CLKREQn	Reference clock request	Output
8	NC	Floating Pin, No connect to anything.	Floating
9	GND	Ground	GND
10	NC	Floating Pin, No connect to anything.	Floating
11	REFCLKN	Differential reference clock	Input
12	NC	Floating Pin, No connect to anything.	Floating
13	REFCLKP	Differential reference clock	Input
14	NC	Floating Pin, No connect to anything.	Floating

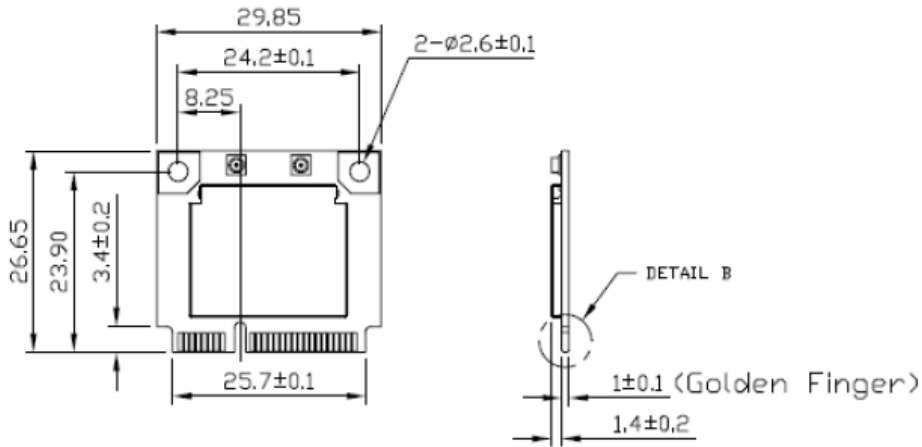


15	GND	Ground	GND
16	NC	Floating Pin, No connect to anything.	Floating
17	NC	Floating Pin, No connect to anything.	Floating
18	GND	Ground	GND
19	NC	Floating Pin, No connect to anything.	Floating
20	W_DISABLE#	WLAN disable control.	Input
21	GND	Ground	GND
22	PERSTn	PCI express fundamental reset	Input
23	PERn0	Differential transmit	Output
24	NC	Floating Pin, No connect to anything.	Floating
25	PERp0	Differential transmit	Output
26	GND	Ground	GND
27	GND	Ground	GND
28	NC	Floating Pin, No connect to anything.	Floating
29	GND	Ground	GND
30	NC	Floating Pin, No connect to anything.	Floating
31	PETn0	Differential receive	Input
32	NC	Floating Pin, No connect to anything.	Floating
33	PETp0	Differential receive	Input
34	GND	Ground	GND
35	GND	Ground	GND
36	USB_D-	USB Differential signal	Output/Input
37	GND	Ground	GND
38	USB_D+	USB Differential signal	Output/Input
39	NC	Floating Pin, No connect to anything.	Floating
40	NC	Floating Pin, No connect to anything.	Floating
41	NC	Floating Pin, No connect to anything.	Floating
42	NC	Floating Pin, No connect to anything.	Floating
43	GND	Ground	GND
44	LED_WLAN#	Active low signal. The signal is used to provide status indicators via LED.	Output
45	NC	Floating Pin, No connect to anything.	Floating
46	LED_BT#	Active low signal. The signal is used to provide status indicators via LED.	Output
47	NC	Floating Pin, No connect to anything.	Floating
48	NC	Floating Pin, No connect to anything.	Floating
49	NC	Floating Pin, No connect to anything.	Floating
50	GND	Ground	GND
51	BT_DISABLE_L	This pin can externally shut down the RTL8821AE BT function when BT_DISABLE_L is pulled Low. When this pin is pulled low, USB interface will be also disabled. This pin can be also defined as the BT Radio-off function with host interface remaining connected.	Input
52	+3.3Vaux	3.3V/3.3AUX power supply (Use 3.3AUX for WOWL supporting)	VCC

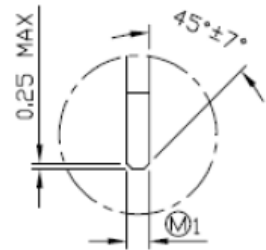
## 5. Block Diagram



## 6. Mechanical Dimensions



Tolerances unless otherwise specified :  $\pm 0.15\text{mm}$



DETAIL B  
 SCALE 3.000

