



LM821 WiFi 802.11 b/g/n Module with IPEX Receptacle Host Controller Interface (HCI) via USB Interface

Product
Part No
Revised

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13/DEC/2016



Also available with Onboard Antenna. (LM820)

Features

- WiFi 802.11 b/g/n
- Operates in 2.4 GHz Frequency bands
- IPEX receptacle
- Plug and Play (Linux, MAC OSX and Windows XP – 10 compatible)
- Up to 150Mbps Data Transfer Rate
- 802.11e-compatible bursting and I standards
- BPSK, QPSK, 16 QAM and 64 QAM modulation schemes
- WEP, TKIP, and AES, WPA and WPA2 encryption schemes
- Fully-featured software utility for easy configuration and management

- CE/ R&TTE certified solution
- RoHS, REACH and WEEE compliant

Optional Features

- DC power input 3.3V or 5V
- WPS or PDN control function on half-hole pin 6
- Support LED function when choose WPS option

Overview

The LM821 WiFi USB module, fully supports IEEE 802.11 b, g and n standards.

It supports up to 150Mbps high-speed wireless network connections and is designed to provide excellent performance with low power consumption.

It is designed to be a highly cost-effective module that offers superior performance, better power management applications above its nearest competitors.

Onboard Antenna Option

This module is also offered with an Onboard Antenna (LM820). Please speak with our team for guidance when looking at this option.

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General Specification

Wireless

Wireless Standard	802.11 b/g/n, 802.3, and 802.3u
Module Type	Host Controller Interface (HCI)
OS Compatibility	Linux, MAC OSX and Windows XP – 10
Security	WEP, TKIP, AES, WPA and WPA2
Network Architecture	Ad hoc mode (Peer-to-Peer) and Infrastructure mode

Hardware

Chipset	Realtek
Antenna	IPEX receptical
Interfaces	USB 2.0 (Full Speed)

RF Characteristics

Tx Output Power	(+/- 2dBm): 13dBm@11n, 17dBm@11b, 15dBm@11g
Rx Sensitivity	11Mbps -80dBm@8%,54Mbps -70dBm@10%,130Mbps -64dBm@10%
Range (in open space)	Up to 180m
Current Consumption (DC 5V Module)	Transmit: 125 mA (Maximum) Receive: max 105 mA DC (Maximum)
Current Consumption (DC 3V3 Module)	Transmit: max. 172 mA (Maximum) Receive: max 139 mA (Maximum)
Data Transfer Rate	1,2,5.5,6,11,12,18,22,24,30,36,48,54,60,90,120 Mbps to a maximum of 150Mbps
Frequency	2.4GHz ISM Band
Modulation Scheme	BPSK/ QPSK/ 16-QAM/ 64-QAM
Spread Spectrum	IEEE 802.11b: DSSS (Direct Sequence Spread Spectrum) IEEE 802.11g/n: OFDM (Orthogonal Frequency Division Multiplexing)

Physical Characteristics

Operating Temperature	0°C to +50°C ambient temperature
Storage Temperature	-10°C to +70°C ambient temperature
Humidity	5% to 90% maximum (non-condensing)
Dimensions (L x W x H)	25mm x 12mm x 2mm
Weight	1.04 g
Certifications	CE/ R&TTE
Compliance	RoHS, REACH and WEEE

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Pin Outs



DC Power Input

Module	Min	Typical	Max	Unit
DC 5V	4.75	5	5.25	V
DC 3.3V	3.135	3.3	3.465	V

Pin Assignments

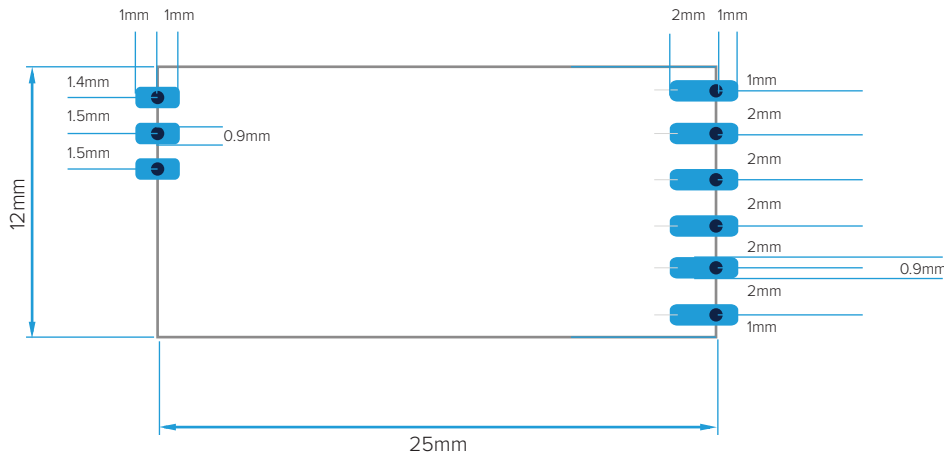
Pin	Pin Name	Type	Description
1	LED out	Output	LED output
2	GND	Ground	Common Ground
3	USB D+	I/O	USB D+
4	USB D-	I/O	USB D-
5	VCC	Power	DC Power Supply (Refer to DC Power Input table)
6	WPS or PDN	I/O	WiFi Protected Setup switch or Power Down switch (factory option)
7	GND	Ground	Common Ground
8	RF	-	Do not connect
9	GND	Ground	Common Ground

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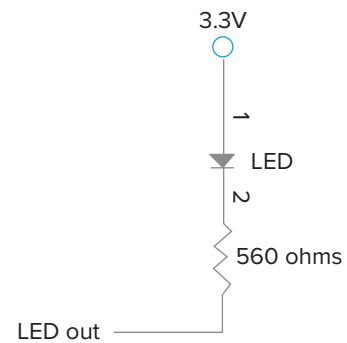
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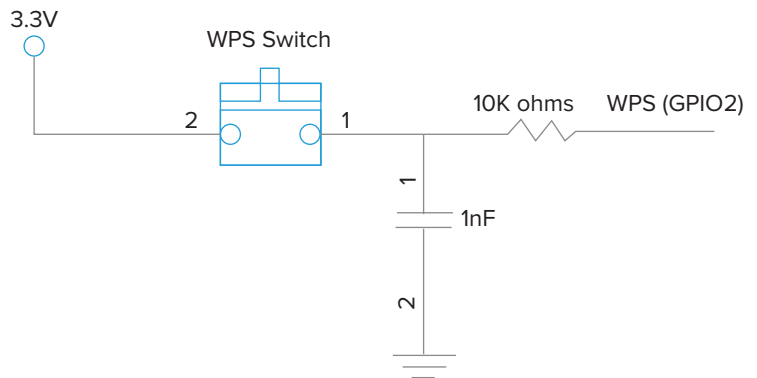
PCB Footprint



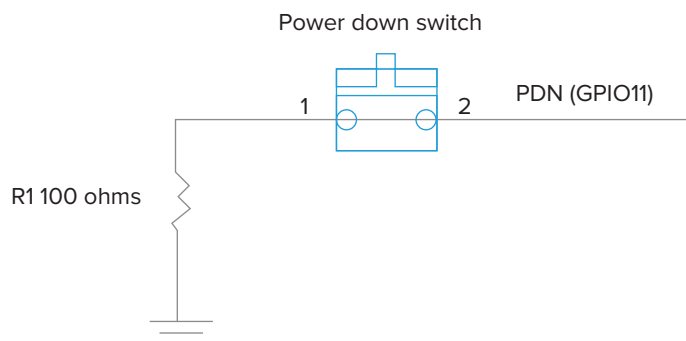
- The external circuit for WiFi activity LED (factory option)



- The function of pin 6 is optional to WPS (GPIO2) or power-down (GPIO11), a factory option.
The external circuit for WPS function input (factory option), uses a tact switch.



- The external circuit power-down function input (factory option) uses a push or toggle switch.

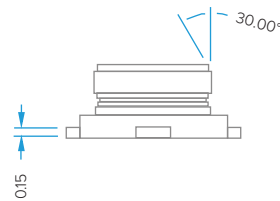
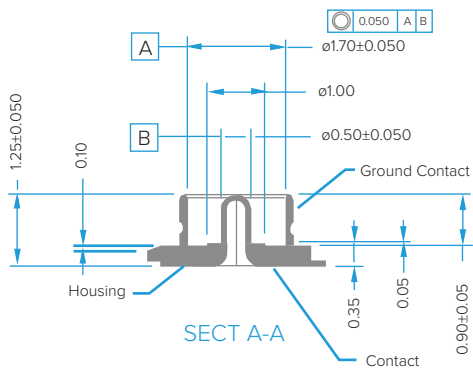
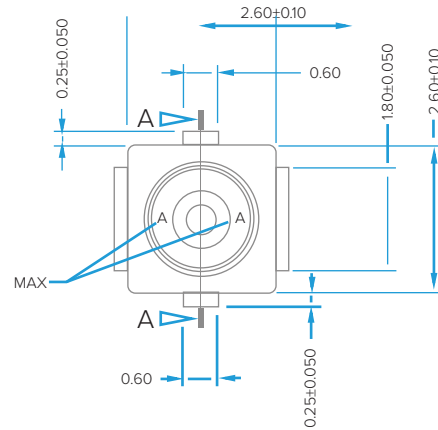
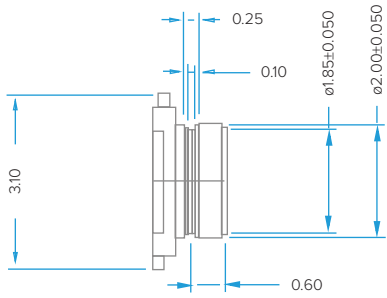


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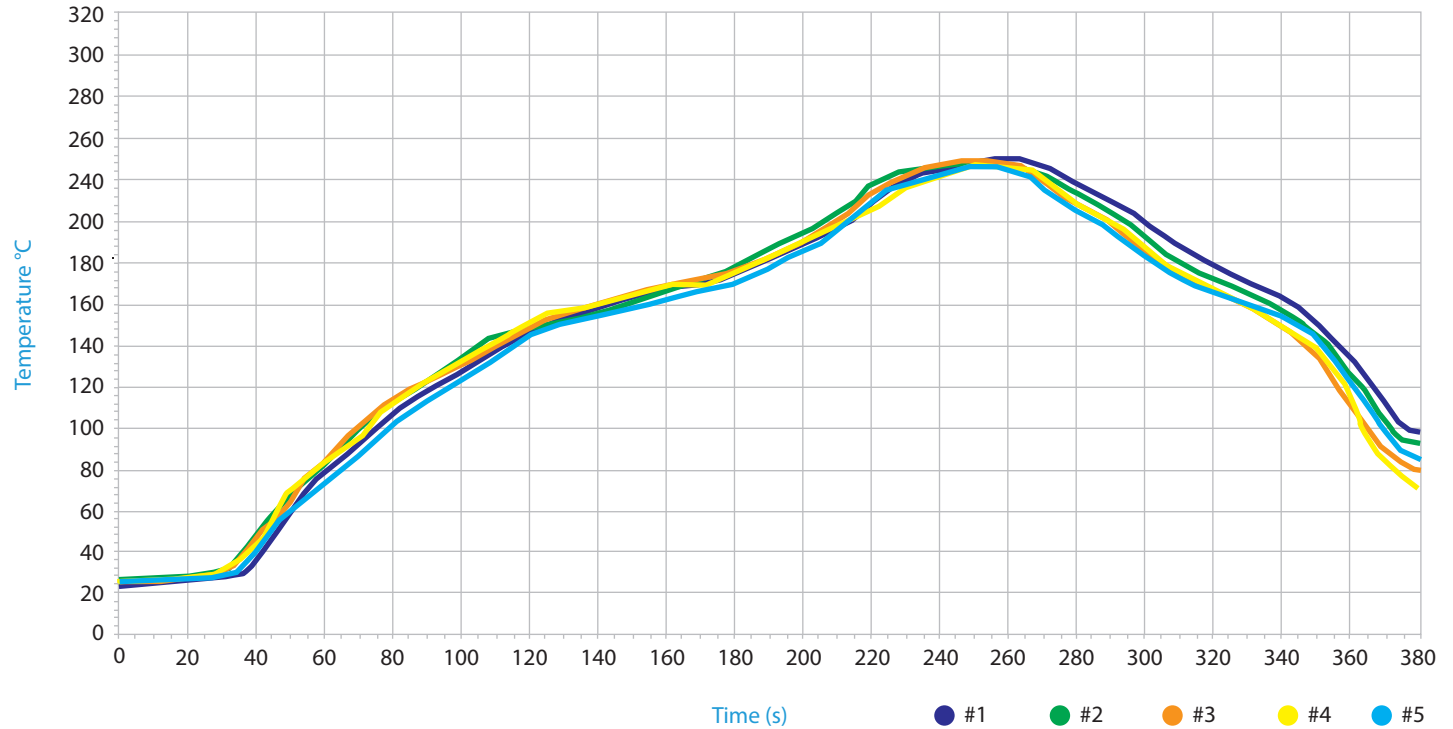
IPEX Connector Dimensions



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Soldering Reflow Chart



Speed (cm/min): 70.0

Name	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Zone 8	Zone 9	Zone 10
Max	158.0	160.0	170.0	170.0	180.0	180.0	190.0	220.0	235.0	250.0
Min	158.0	160.0	170.0	170.0	180.0	180.0	190.0	220.0	235.0	250.0
Length	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

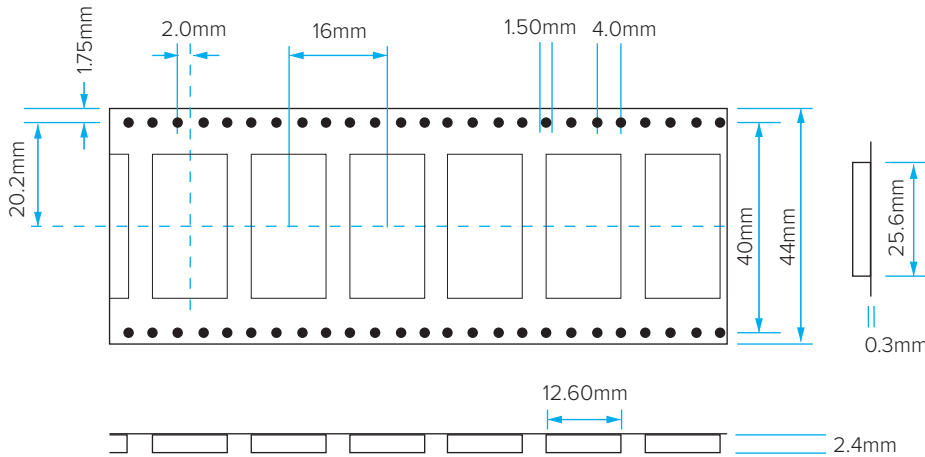
Probe	Liquidus Line		Maximum / Minimum		Slope	
	Rising 110.00-190.00	Above 230.0	Max	Min	Positive	Negative
#1	112.00	50.50	243.00	24.30	2.29	-2.97
#2	113.00	42.50	244.10	24.10	2.11	-3.08
#3	111.50	51.00	244.20	24.00	2.17	-2.69
#4	112.00	47.00	241.60	25.00	1.87	-2.13
#5	112.50	51.50	243.50	25.00	2.37	-1.95

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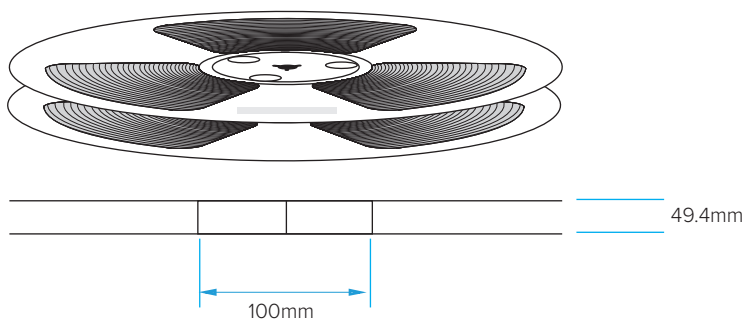
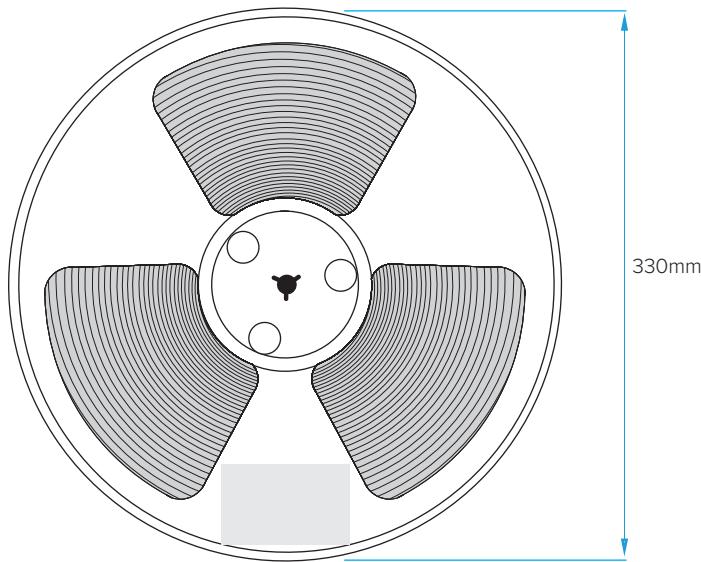
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Tape and Reel Packaging

Tape Dimensions



Reel Dimensions



Notes

- Carton Dimensions (L x W x H): 395mm x 360mm x 305mm

Quantities

- 1500 modules per Tape
- 5 Boxes per Carton
- 7500 modules per carton

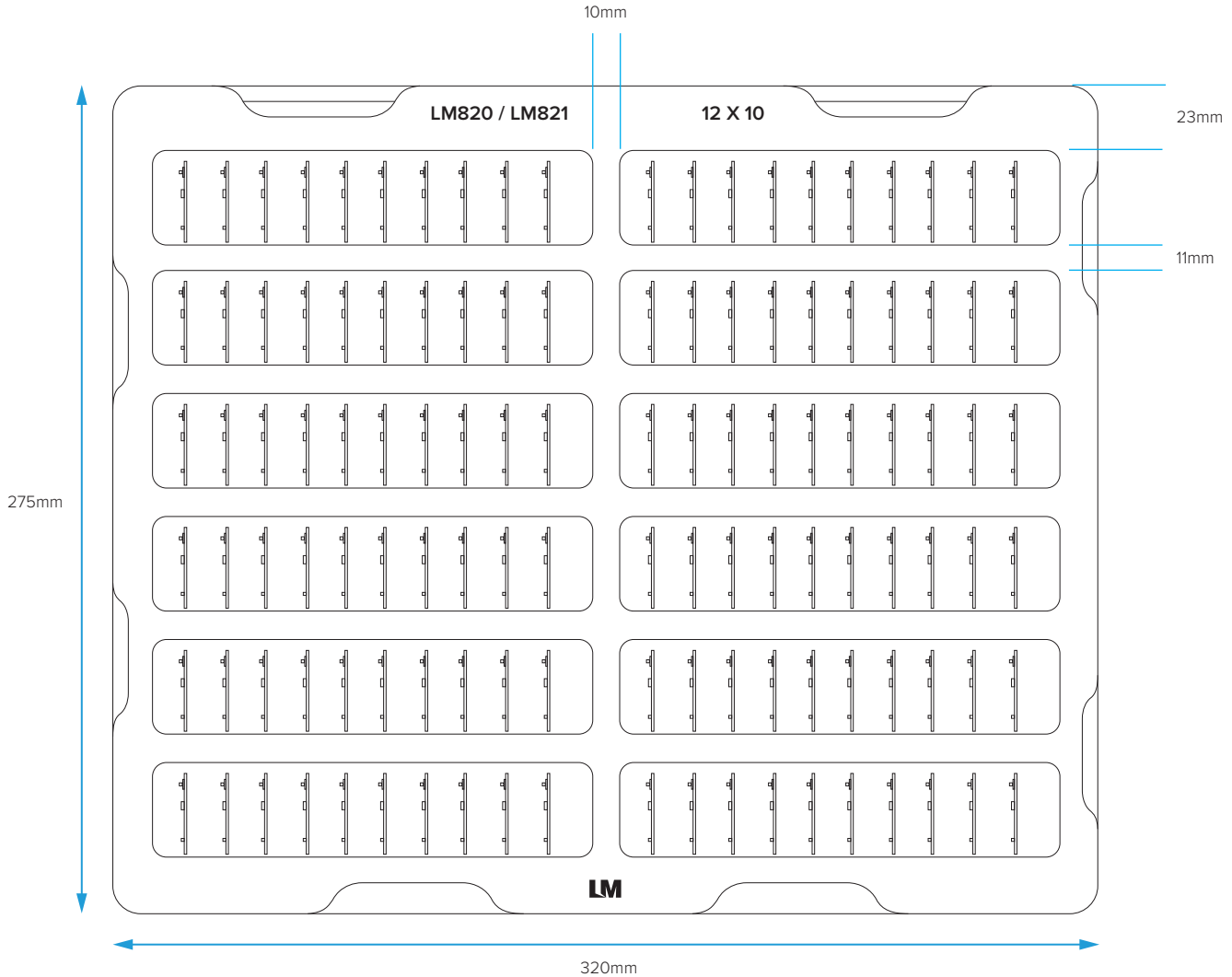
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Tray Packaging

Tray Dimensions



Notes

- Anti-Static PS Tray, Black .
- Material Thickness: 1mm
- Height of Tray: 20mm
- Carton Dimensions (L x W x H):
340mm x 290mm x 385mm

Quantities

- 120 modules per Tray
- 20 Boxes per Carton
- 2400 modules per Carton

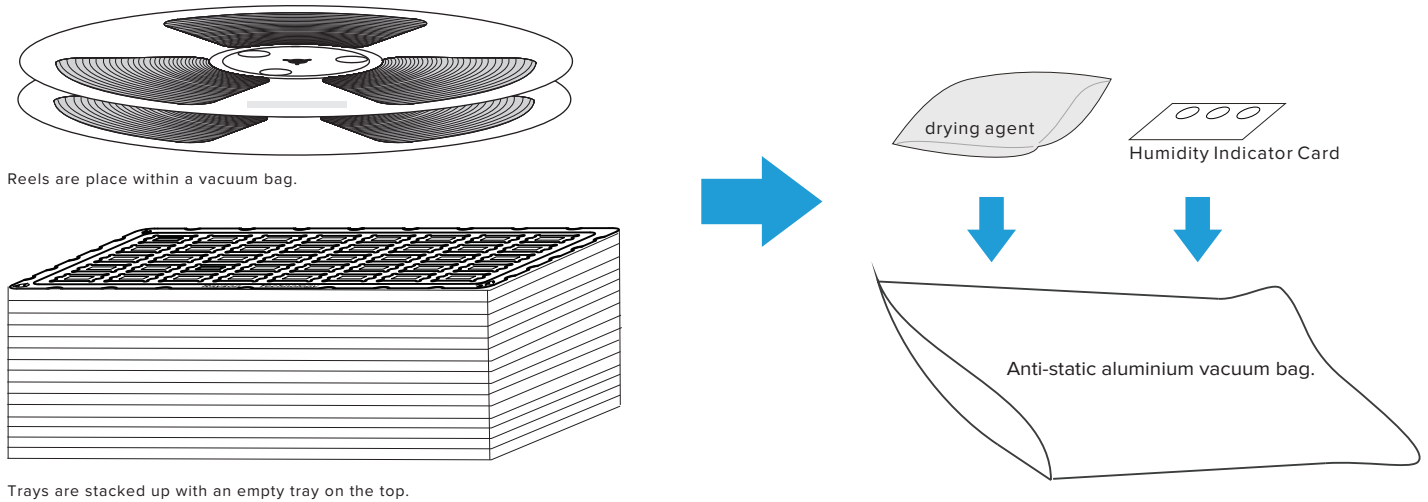
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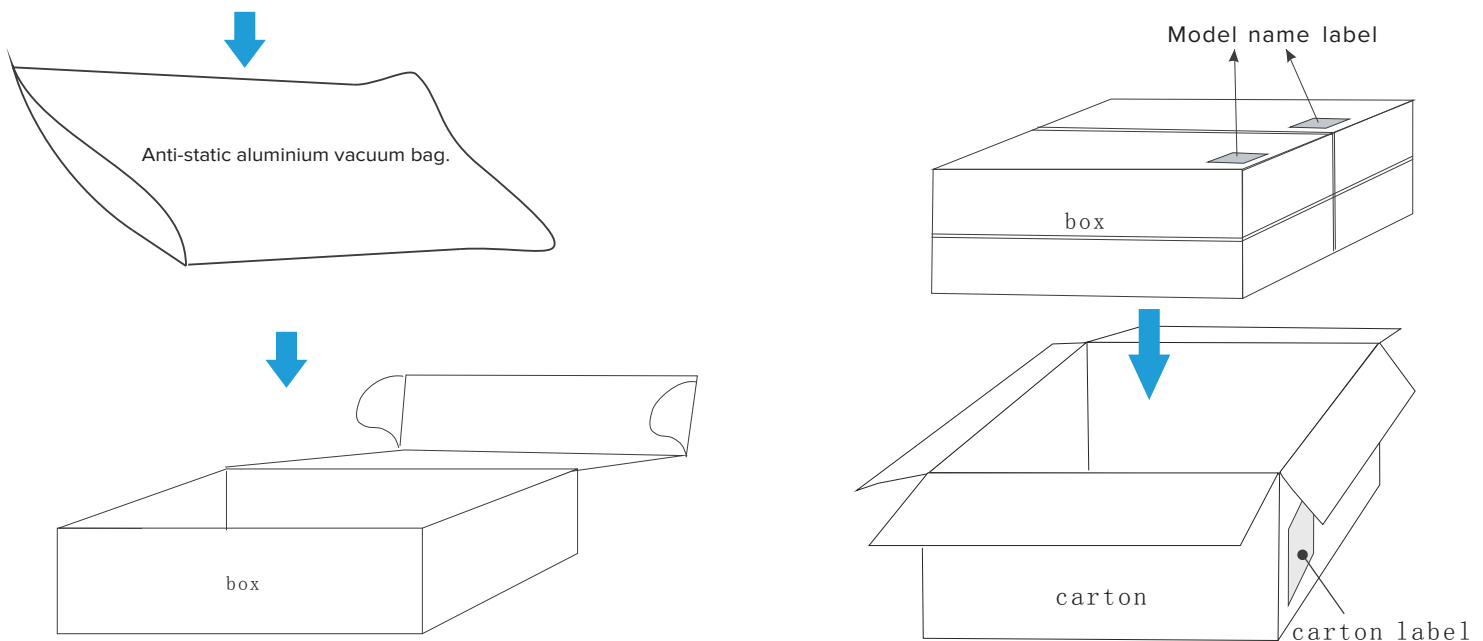
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Packaging for Tape & Reel / Tray

The trays/reels are stacked and inserted into an anti-static vacuum bag and the Anti-Static Label, Model Name Label and Moisture Sensitive Labels stuck on.



The vacuum bag is placed inside the box and a Model Name Label stuck on the front-side of each box.



Each carton contains 4 boxes.

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LM821 Packaging Options



821-0463

5V Module

1 x LM821 SMT HCI 802.11n 150Mbps USB IPEX receptical Module Tray



821-0464

3.3V Module

1 x LM821 SMT HCI 802.11n 150Mbps USB IPEX receptical Module Tray



821-0468

3.3V Module

1 x LM821 SMT HCI 802.11n 150Mbps USB IPEX receptical PDN-pin 6 Module Tape & Reel

- See our website to download any applicable Product Software, Manuals and Notes - <http://www.lm-technologies.com/downloads>