



PRODUCT SPECIFICATION

TITLE

2.4/5GHZ FLEXIBLE ANTENNA

TABLE OF CONTENTS

- 1.0 SCOPE
- 2.0 PRODUCT DESCRIPTION
- 3.0 APPLICABLE DOCUMENTS
- 4.0 GENERAL SPECIFICATION
- 5.0 ANTENNA SPECIFICATION
- 6.0 MECHANICAL SPECIFICATION
- 7.0 ENVIRONMENTAL SPECIFICATION
- 8.0 PACKING



REVISION: A	ECR/ECN INFORMATION: EC No: 173500 DATE: 2018/03/30	TITLE: 2.4/5GHZ FLEXIBLE ANTENNA	SHEET No. 1 of 7
DOCUMENT NUMBER: PS-2069940100	CREATED / REVISED BY: Kang Cheng 2018/03/30	CHECKED BY: Colin Xu 2018/03/30	APPROVED BY: Stary Song 2018/03/30

2.4/5GHz FLEXIBLE ANTENNA

1.0 SCOPE

This Product Specification covers the mechanical, electrical and environmental performances specification for 2.4/5GHz Flexible Antenna.

2.0 PRODUCT DESCRIPTION

2.1 PRODUCT NAME AND SERIES NUMBER (S)

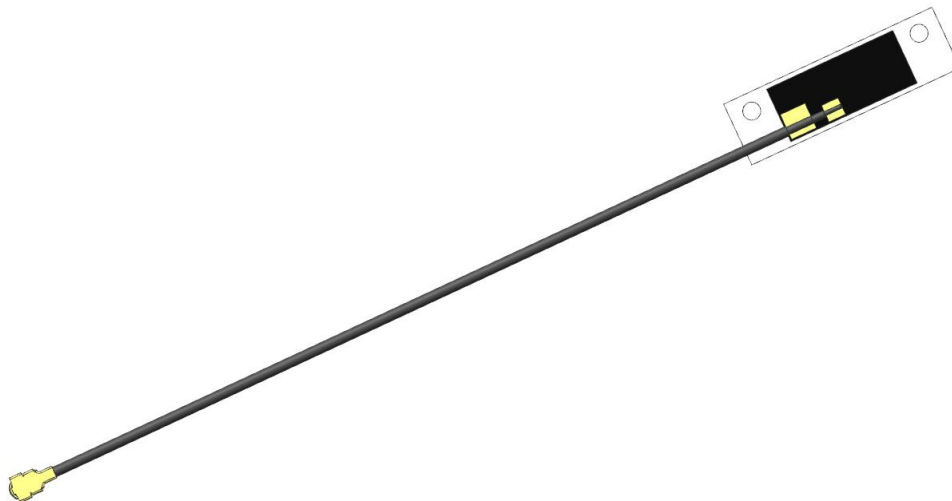
Product name: 2.4/5GHz Flexible Antenna
Series Number: 206994

2.2 DESCRIPTION

Series 206994 is a small monopole flexible antenna for 2.4/5GHz dual band. This antenna is made from poly-flexible material with small size 15.4*6.4*0.15mm, and has double-sided adhesive tape for easy “peel and stick” mounting.

2.3 FEATURES

- 2.4/5GHz, Linear polarization, peak gain 3.6dBi, efficiency 55% at 2.4GHz and 70% at 5.8GHz
- 15.4x6.4x0.15mm FPC size
- connector options: U.FL (IPEX MHF compatible)
- Cable OD1.13mm, standard length options (100mm)
- Cable and connector can be customized
- RoHS Compliant

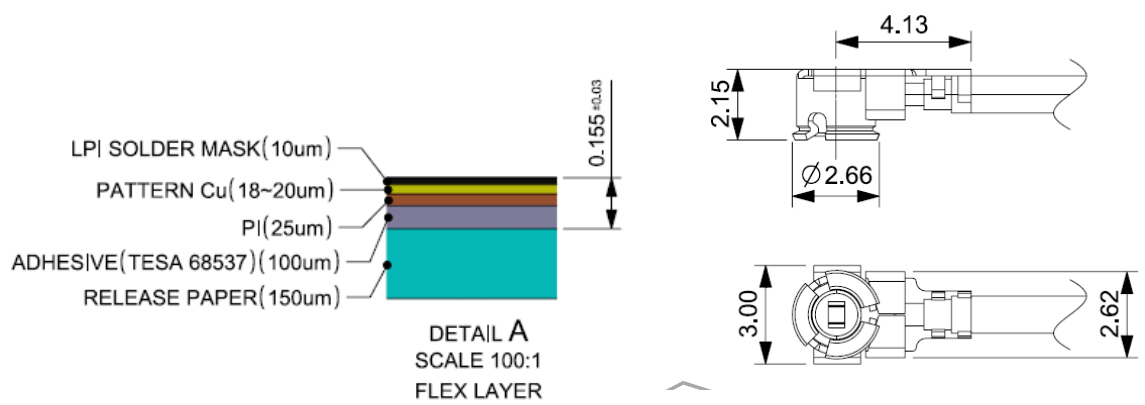
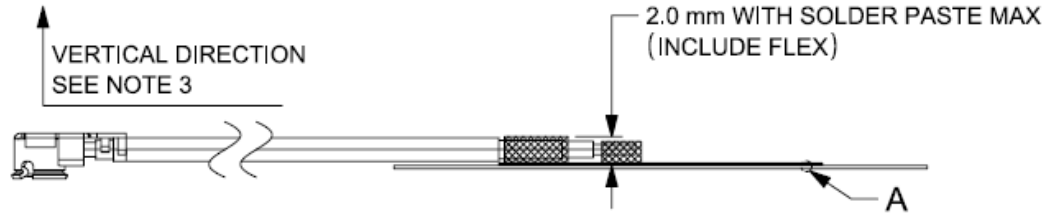
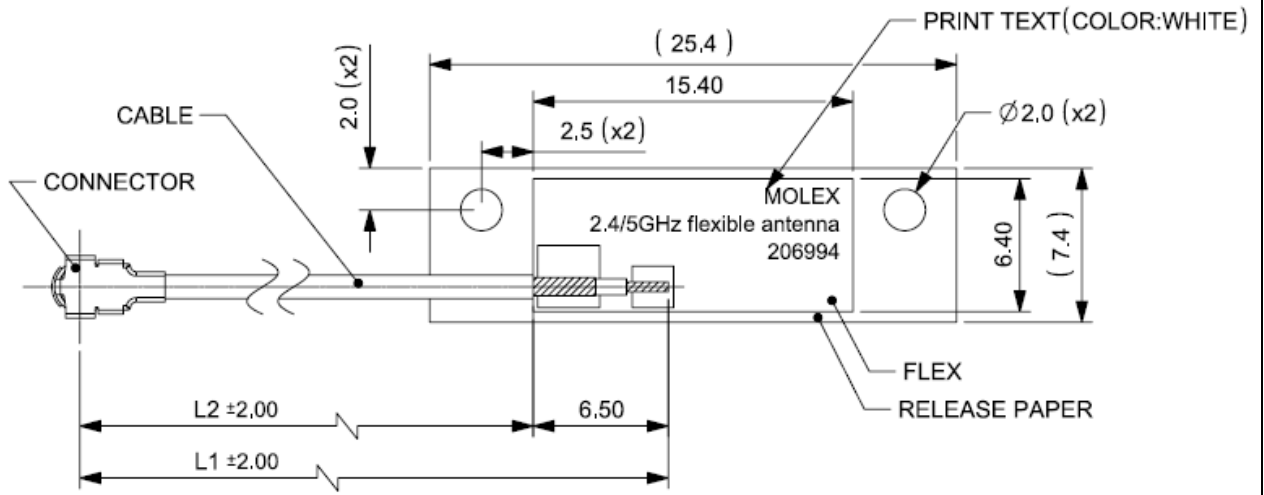


Molex 2069940100 2.4/5GHz Flexible Antenna 3D View

REVISION: A	ECR/ECN INFORMATION: EC No: 173500 DATE: 2018/03/30	TITLE: 2.4/5GHZ FLEXIBLE ANTENNA	SHEET No. 2 of 7
DOCUMENT NUMBER: PS-2069940100	CREATED / REVISED BY: Kang Cheng 2018/03/30	CHECKED BY: Colin Xu 2018/03/30	APPROVED BY: Stary Song 2018/03/30

2.4 PRODUCT STRUCTURE INFORMATION

P/N	2069940100
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NOTES:

- MATERIAL
 FLEX SIZE: 15.4*6.4mm
 CABLE: \varnothing 1.13mm
 CONNECTOR: OD1.13 RF 2.5H MHF-13-N-01 CONNECTOR (PLUG GOLD PLATED)
- SOLDER MASK: BLACK.
- FOR PULL TEST, CAN NOT LIFT UP IN THE VERTICAL DIRECTION.
- APPLICATION SPEC PLEASE REFER TO AS OF 2069940100.
- PRODUCT SPEC PLEASE REFER TO PS OF 2069940100.
- PACKAGING DRAWING PLEASE REFER TO PK OF 2069940100.
- THE CONNECTOR WILL BE PROTECTED WITH A CAP.

ITEM	MATERIAL NO.	CABLE LENGTH "L2"	CABLE LENGTH "L1"
1	2069940100	93.5mm	100mm

Mechanical Structure Information for 2069940100

REVISION: A	ECR/ECN INFORMATION: EC No: 173500 DATE: 2018/03/30	TITLE: 2.4/5GHZ FLEXIBLE ANTENNA	SHEET No. 3 of 7
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PRODUCT SPECIFICATION

3.0 APPLICABLE DOCUMENTS

Document	Number	Description
Sales Drawing(SD)	SD-2069940100	Mechanical Dimension of the product
Application Guide(AS)	AS-2069940100	Antenna Application and surrounding
Packing Drawing(PK)	PK-2069940100	Product packaging specifications

4.0 GENERAL SPECIFICATION

Product name	2.4/5GHz Flexible Antenna
Part number	2069940100
Frequency	2.4GHz-2.5GHz
	5.15GHz-5.85GHz
Polarization	Linear
Operating with matching	-30°C to 85°C
Storage with matching	-40°C to 95°C
RF Power	2 Watts
Impedance with matching	50 Ohms
Antenna type	FPC Self-adhesive
Connector type	U.FL (MHF compatible)
User Implementation type	Adhesive TESA 68537
Cable diameter	Ø1.13mm
Cable length	100mm



REVISION: A	ECR/ECN INFORMATION: EC No: 173500 DATE: 2018/03/30	TITLE: 2.4/5GHZ FLEXIBLE ANTENNA	SHEET No. 4 of 7
DOCUMENT NUMBER: PS-2069940100	CREATED / REVISED BY: Kang Cheng 2018/03/30	CHECKED BY: Colin Xu 2018/03/30	APPROVED BY: Stary Song 2018/03/30



PRODUCT SPECIFICATION

5.0 ANTENNA SPECIFICATION

All measurements are done of the antenna mounted on a PC/ABS material block of 1mm thickness with VNA Agilent 5071C and Over-The-Air (OTA) chamber.

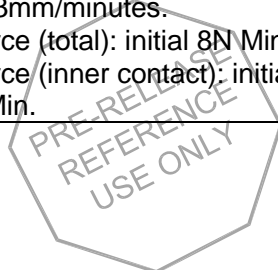
5.1 ANTENNA PERFORMANCE

5.1.1 ANTENNA PERFORMANCE FOR CABLE LENGTH 100mm		
P/N	2069940100	
Frequency Range	2.4GHz-2.5GHz	5.15GHz-5.85GHz
Peak Gain(Max)	3.6dBi	3.6dBi
Total efficiency	>55%	>70%
Return Loss	<-10dB	<-5dB

Note that the above antenna performance is measured with just the antenna mounted on a PC/ABS block to similar a free-space condition. When implement into the system, the frequency resonant might be off-tune due to the loading of surrounding components especially metal plane. This off-tune can be compensated through matching. Although module manufacturers specify a peak gain limit, it is based on free-space conditions. The peak gain will be degraded by 1 to 2dBi in the actual implementation as the radiation pattern will change due to the surround components. As such, during selection of antenna, you can select one with high peak gain to compensate for the loss. Molex can offer assistant to choose the best location and best tuning in-order to meet this peak gain requirement.

6.0 MECHANICAL SPECIFICATION

DESCRIPTION	SPECIFICATION
Pull Test	<ol style="list-style-type: none"> 1. Test Machine: Max intelligent load tester 2. The flexible antenna attached to the plastic plate, the cable pulled to the axial direction. 3. Pull force >8N
Un-mating force (connector)	<ol style="list-style-type: none"> 1. Mate the receptacle that is soldered onto a PCB and plug at a speed of 25±3mm/minutes. 2. Un-mating force (total): initial 8N Min. after 30 cycles 5N Min. 3. Un-mating force (inner contact): initial 0.15N Min. after 30 cycles 0.1N Min.



REVISION: A	ECR/ECN INFORMATION: EC No: 173500 DATE: 2018/03/30	TITLE: 2.4/5GHZ FLEXIBLE ANTENNA	SHEET No. 5 of 7
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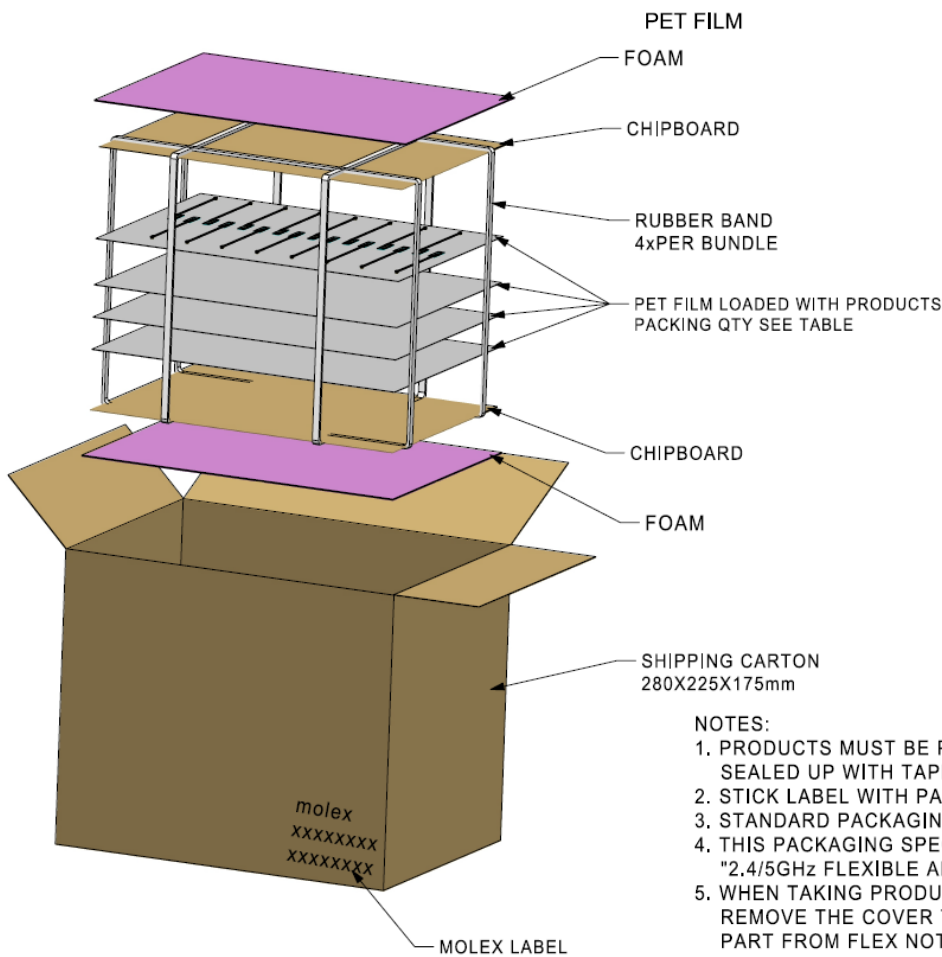
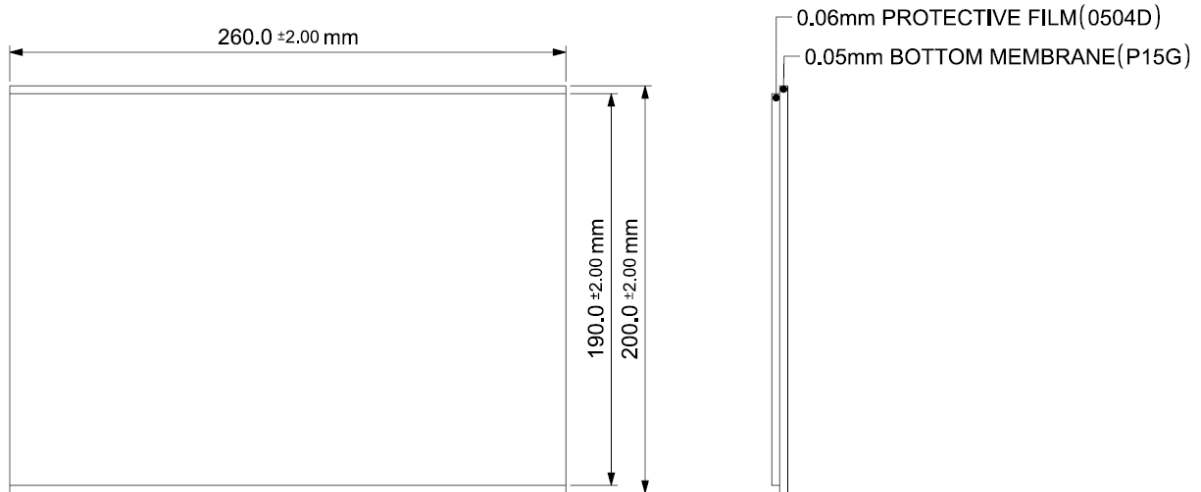
PRODUCT SPECIFICATION

7.0 ENVIRONMENTAL SPECIFICATION

DESCRIPTION	SPECIFICATION
Temperature /Humidity cycling	<ol style="list-style-type: none"> 1.The device under test is kept for 30 mins in an environment with a temperature of -40 °C. 2. Kept for 4 Hours in an environment with a temperature of 85 degrees and a relative humidity of 95%. 3. Kept for 2 Hours in an environment with a temperature of 125 degrees and a relative humidity of 95%. 4. The cycle is repeated until a total of 40 cycles have been completed. Hereafter the conditions are stabilized at room temperature. 5. Parts meet antenna performance per section 5.0 before and after test. 6. No cosmetic problem (No soldering problem; No adhesion problem of glue.
Temperature Shock	<ol style="list-style-type: none"> 1.The device under test at -40 °C⇔125 °C by 100 cycles, Dwell of 30 mins, transition time between Dwell 30 secs (~ 61 mins / cycle) and each item should be measured after exposing them in normal temperature and humidity for 24 h. 2. Parts meet antenna performance per section 5.0 before and after test. 3. No cosmetic problem (No soldering problem; No adhesion problem of glue) .
High Temperature	<ol style="list-style-type: none"> 1.Temperature:125°C, time:1008 hours 2.There is no substantial obstruction to air flow across and around the samples, and the samples are not touching each other 3. Parts meet antenna performance per section 5.0 before and after test. 4. No cosmetic problem (No soldering problem; No adhesion problem of glue) .
Salt mist test	<ol style="list-style-type: none"> 1. The device under test is exposed to a spray of a 5% (by volume) resolution of NaCl in water for 2 hours. Thereafter the device under test is left for 1 week in room temperature at a relative humidity of 95%. The cycle is repeated until a total of 2 cycles have been completed. Here after the conditions are stabilized at room temperature. 2. Parts meet antenna performance per section 5.0 before and after test. 3. No visible corrosion. Discoloration is acceptable.

REVISION: A	ECR/ECN INFORMATION: EC No: 173500 DATE: 2018/03/30	TITLE: 2.4/5GHZ FLEXIBLE ANTENNA	SHEET No. 6 of 7
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8.0 PACKING



NOTES:

1. PRODUCTS MUST BE PACKED IN CARTONS AND SEALED UP WITH TAPE.
2. STICK LABEL WITH PART NUMBER AND DATE CODE.
3. STANDARD PACKAGING QUANTITY: SEE TABLE.
4. THIS PACKAGING SPECIFICATION TO BE USED FOR "2.4/5GHZ FLEXIBLE ANTENNA".
5. WHEN TAKING PRODUCT FROM PET FILM, PLEASE REMOVE THE COVER TAPE FIRST, THEN PICK UP THE PART FROM FLEX NOT THE CABLE, TO AVOID SOLDER JOINT DAMAGE.

Part Number	PCS/FILM	FILMS/BUNDLE	BUNDLES/CARTON	QTY/CARTON
2069940100	16	20	3	960PCS

Packaging information for 2069940100

REVISION: A	ECR/ECN INFORMATION: EC No: 173500 DATE: 2018/03/30	TITLE: 2.4/5GHZ FLEXIBLE ANTENNA	SHEET No. 7 of 7
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