



PRODUCT SPECIFICATION

TITLE

WiFi 6E FLEX CABLED SIDE-FED ANTENNA

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REVISION: F	ECR/ECN INFORMATION: EC No: 731790 DATE: 2022/12/12	TITLE: WiFi 6E Flex Cabled Side-fed Antenna Product Specification	SHEET No. 1 of 10
DOCUMENT NUMBER: PS-2069940100	CREATED / REVISED BY: Kang Cheng	CHECKED BY: Horace Ma	APPROVED BY: Benson Hung



PRODUCT SPECIFICATION

WiFi 6E Flex Cabled Side-fed Antenna

1.0 SCOPE

This Product Specification covers the mechanical, electrical and environmental performances specification for WiFi 6E Flex Cabled Side-fed Antenna.

2.0 PRODUCT DESCRIPTION

2.1 PRODUCT NAME AND SERIES NUMBER (S)

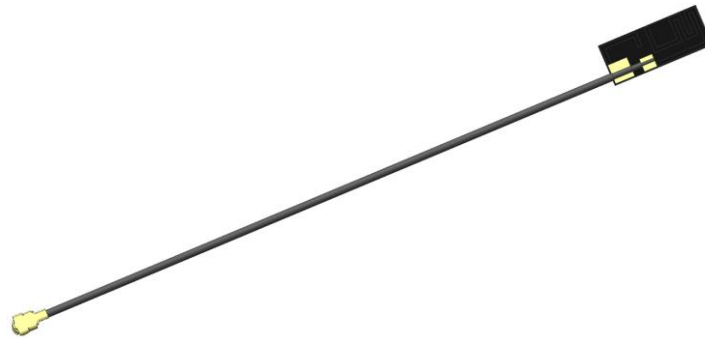
Product name: WiFi 6E Flex Cabled Side-fed Antenna
Series Number: 206994

2.2 DESCRIPTION

Series 206994 is a small monopole flexible antenna for 2.4/5/6GHz 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

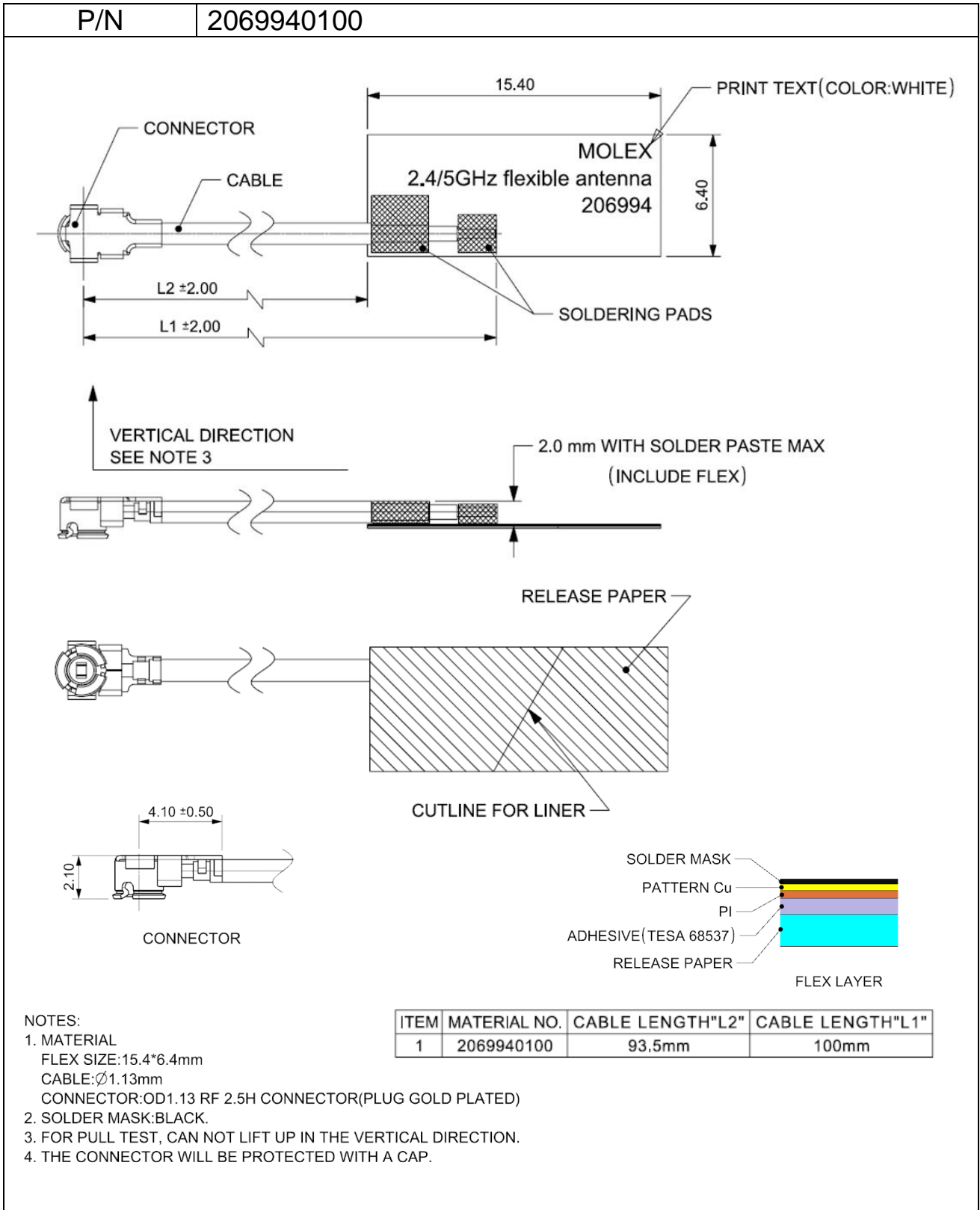
- 2400~2500MHz,5150~5850MHz, 5925~7125MHz, Linear polarization
- 15.4x6.4x0.15mm FPC size (not contain solder area)
- connector options: U.FL & MHF compatible
- Cable Ø1.13mm, standard length options (100mm)
- RoHS Compliant



Antenna 3D View

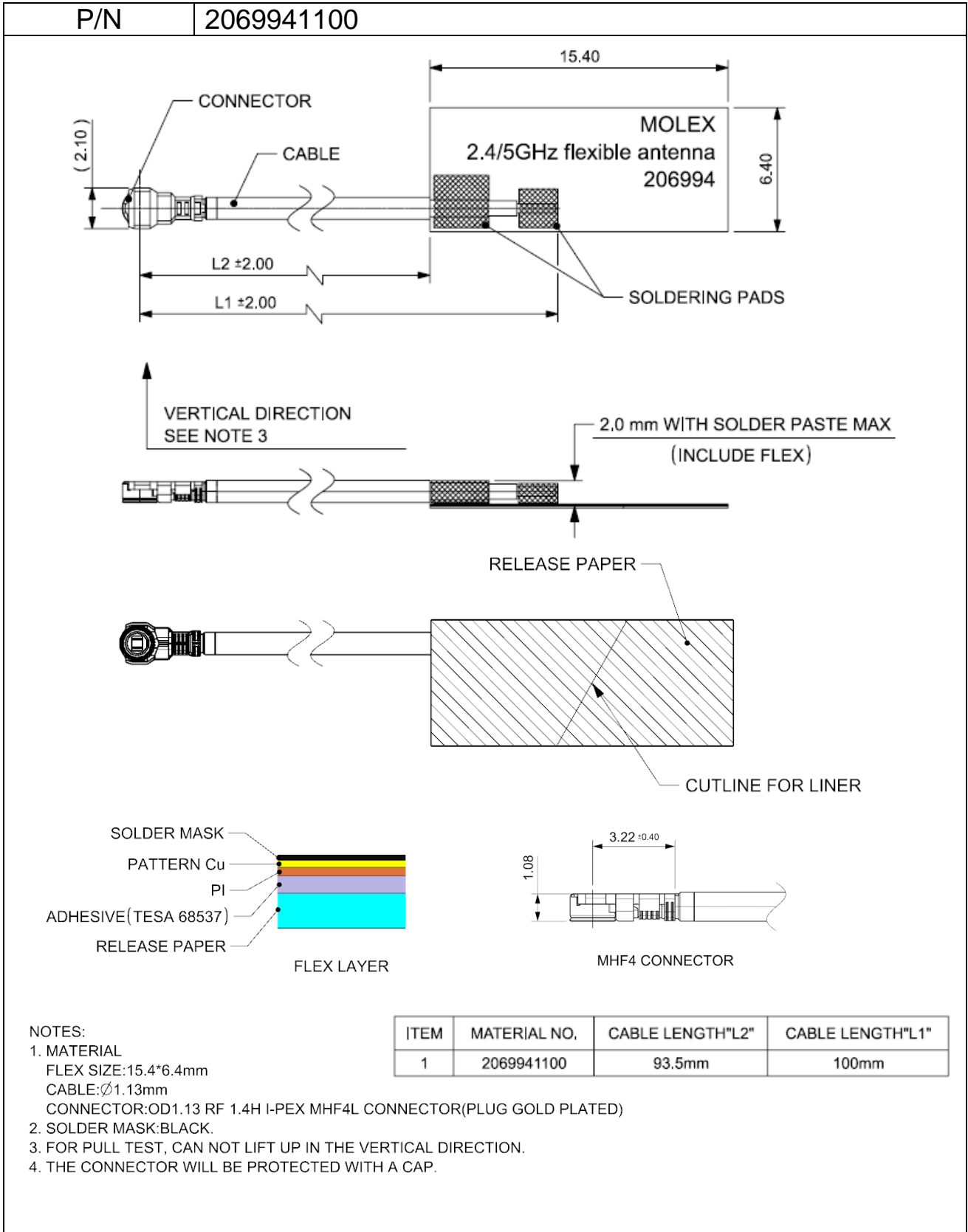
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2.4 PRODUCT STRUCTURE INFORMATION



- NOTES:
1. MATERIAL
FLEX SIZE: 15.4*6.4mm
CABLE: \varnothing 1.13mm
CONNECTOR: OD1.13 RF 2.5H CONNECTOR (PLUG GOLD PLATED)
 2. SOLDER MASK: BLACK.
 3. FOR PULL TEST, CAN NOT LIFT UP IN THE VERTICAL DIRECTION.
 4. THE CONNECTOR WILL BE PROTECTED WITH A CAP.

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Mechanical Structure Information for 2069941100

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3.0 APPLICABLE DOCUMENTS

DOCUMENT	NUMBER	DESCRIPTION
Sales Drawing (SD)	SD-2069940100	Mechanical Dimension of the product
	SD-2069941100	
Application Guide (AS)	AS-2069940100	Antenna Application and surrounding
Packing Drawing (PK)	PK-2069940100	Product packaging specifications
	PK-2069941100	

4.0 GENERAL SPECIFICATION

Product name	WiFi 6E Flex Cabled Side-fed Antenna		
Part number	206994-0100	206994-1100	
Frequency	2.4GHz-2.5GHz	5.15GHz-5.85GHz	5.925GHz-7.125GHz
Polarization	Linear		
Operating Temperature	-40°C to 85°C		
Storage Temperature	-40°C to 85°C		
RF Power	2 Watts		
Impedance with matching	50 Ohms		
Antenna type	FPC Self-adhesive		
Connector type	MHF-I compatible	MHF-4L compatible	
User Implementation type	Adhesive TESA 68537		
Cable diameter	Ø1.13mm		
Net weight	0.571g	0.471g	
Cable length	100mm		

Adhesive Application

Bond strength is dependent upon the amount of adhesive-to-surface contact developed. Firm application pressure helps develop better adhesive contact and improves bond strength.

To obtain optimum adhesion, the bonding surfaces must be clean, dry, and well unified. Some typical surface cleaning solvents are isopropyl alcohol/water mixture or heptane. Ideal tape application temperature range is 70°F to 100°F (21°C to 38°C). Initial

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tape application to surfaces at temperatures below 50°F (10°C) is not recommended because the adhesive becomes too firm to adhere readily. However, once properly applied, low temperature holding is generally satisfactory.

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

ANTENNA PERFORMANCE FOR CABLE LENGTH 100mm			
P/N	2069940100		
Frequency Range	2.4GHz-2.5GHz	5.15GHz-5.85GHz	5.925GHz-7.125GHz
Peak Gain (Max)	3.6dBi	3.6dBi	2.7dBi
Total efficiency	>55%	>70%	>40%
Return Loss	<-10dB	<-5dB	<-3dB

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.

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6.0 MECHANICAL SPECIFICATION

All measurements in this document are done with the part no.2069940100 with a cable length of 100mm.

DESCRIPTION	TEST CONDITION	TEST RESULT
Pull test	<ol style="list-style-type: none">1. Test Machine: Max intelligent load tester2. Stick the flex antenna on a plastic board, pull cable in axial direction.	Pull force >8N
Un-mating force (connector)	Solder the receptacle connector to the test board, then place the board and plug on push-on/pull-off machine, and repeat mating and un-mating 30 cycles at a speed 25 ± 3 mm/min. along the mating axis.	Un-mating force: 0.5 kgf min

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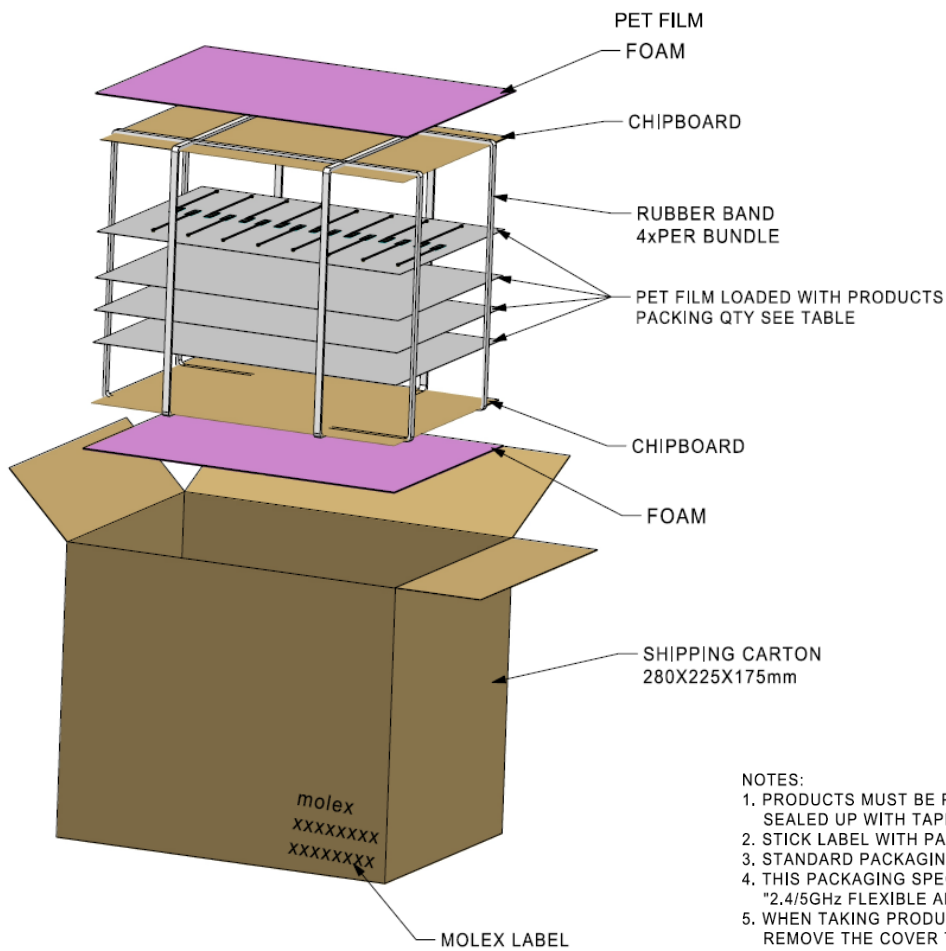
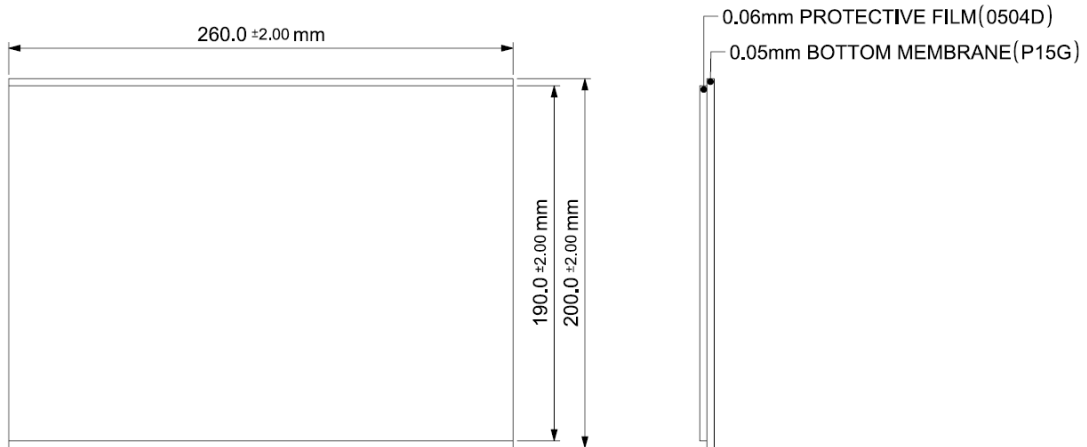
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7.0 ENVIRONMENTAL SPECIFICATION

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 should meet RF spec 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 should meet RF spec 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 should meet RF spec 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 should meet RF spec before and after test. 3. No visible corrosion. Discoloration is acceptable.

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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
2069941100	16	20	5	1600PCS

Packaging information for 206994 series

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9.0 OTHER MOLEX ANTENNA PRODUCTS

Please refer to the Antenna products in Molex home page to view all the Molex Antenna products.

<https://www.molex.com>

Molex, LLC
2222 Wellington Court
Lisle, IL 60532
USA

10.0 CHANGE HISTORY

CHANGE HISTORY		
REV	DATA	DESCRIPTION
D	2020/07/03	Add 6-7.125GHz frequency range
E	2020/08/31	5.1-Peak Gain 2.4-2.5GHz changed
F	2022/12/02	Added section: Other Molex Antenna Products

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