TITLE

698~4000MHZ FLEXIBLE ANTENNA

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698~4000MHz FLEXIBLE ANTENNA

1.0 SCOPE

This Product Specification covers the mechanical, electrical and environmental performances specification for 698~4000MHz Flexible Antenna.

2.0 PRODUCT DESCRIPTION

2.1 PRODUCT NAME AND SERIES NUMBER (S)

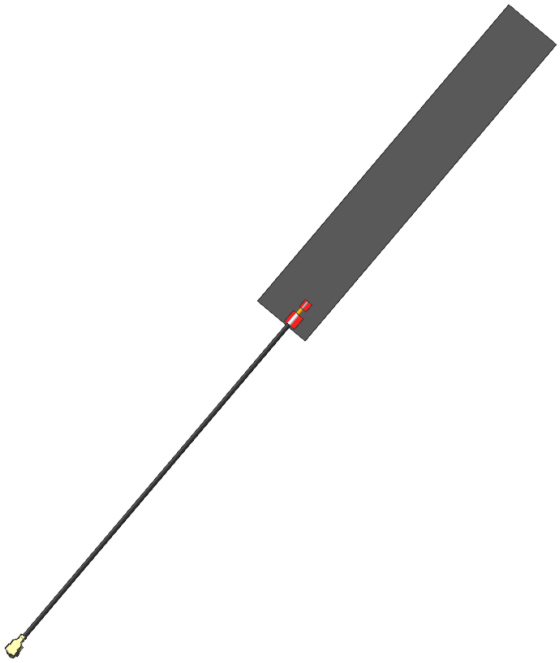
Product name: 698~4000MHz Flexible Antenna
Series Number: 209142

2.2 DESCRIPTION

209142 is monopole flexible antenna for 4G full LTE bands in the spectrum of 698~ 4000 MHz, also optimally covers 2G and 3G. Antenna 85x14.5x0.1mm is made from flexible polymer material, cable standard length 180mm. It can be easily installed by simply “peel and stick” on non-metal surface.

2.3 FEATURES

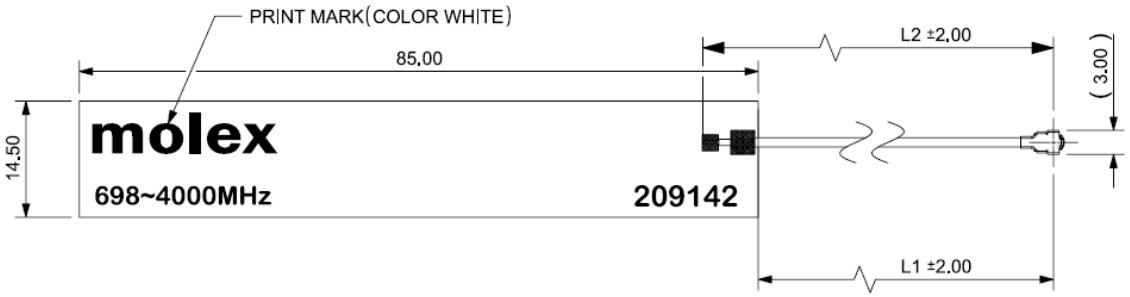
- 698~4000MHz, Linear polarization
- Antenna size 85x14.5x0.1mm
- IPEX MHF (U.FL compatible) connector
- Cable OD1.13mm, standard length options for 180 mm
- Cable and connector can be customized
- RoHS Compliant

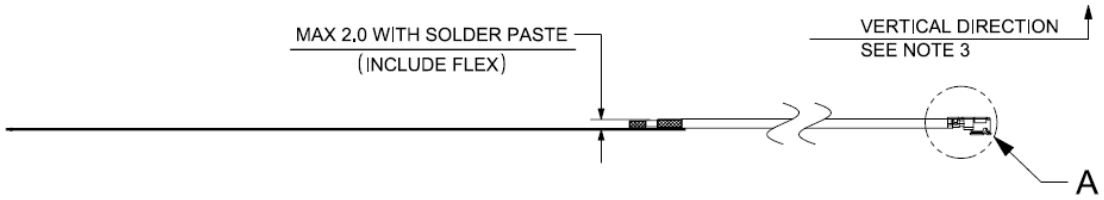


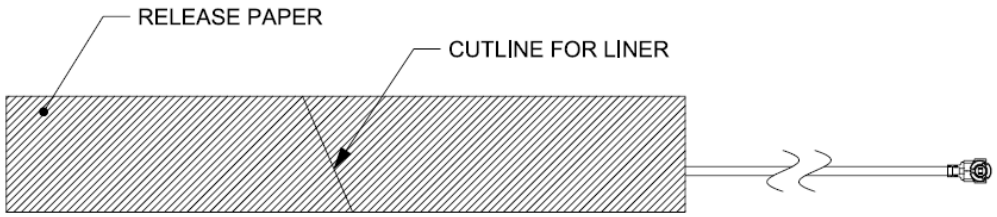
Molex 2091420180 698~4000MHz FLEXIBLE ANTENNA MODULE 3D VIEW

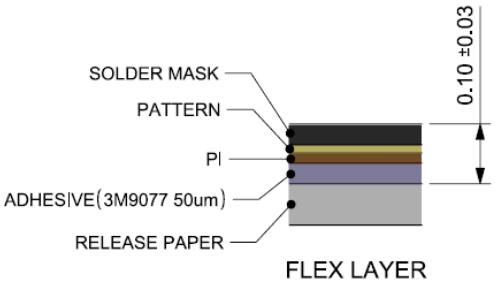
2.4 PRODUCT STRUCTURE INFORMATION

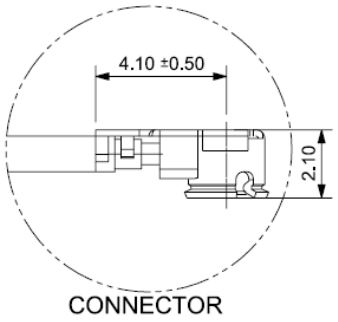
P/N	2091420180











NOTES:
1. MATERIAL:FLEX SIZE:85*14.5mm
   CABLE:∅1.13 mm
   CONNECTOR:OD1.13 RF 2.5H U.FL 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
5. CONNECTOR COMPATIBLE RECEPTACLE I-PEX P/N:20279-001E-01.

ITEM	MATERIAL NO.	"L1"-LENGTH	"L2"-LENGTH
1	2091420180	173 mm	180 mm

Mechanical Structure Information for 2091420180

3.0 APPLICABLE DOCUMENTS

Document	Number	Description
Sale Drawing(SD)	SD-2091420180	Mechanical Dimension of the product
Application Guide(AS)	AS-2091420180	Antenna Application and surrounding
Packing Drawing(PK)	PK-2091420180	Product packaging specifications

4.0 GENERAL SPECIFICATION

Product name	698~4000 MHz Flexible Antenna		
Part number	2091420180		
Frequency	698-960 MHz	1710-2690 MHz	3300-3800 MHz
Polarization	Linear		
Operating temperature	-40℃ to 85℃		
Storage temperature	-40℃ to 85℃		
RF Power	2 Watts		
Impedance with matching	50 Ohms		
Antenna type	Flex		
Connector type	U.FL (MHF compatible)		
User Implementation type	Adhesive 3M 9077		
Cable diameter	Ø1.13mm		
Single weight	1.164 g (P/N For 2091420180)		
Cable length	180 mm (P/N for 2091420180)		

5.0 ANTENNA SPECIFICATION.

5.1 ELECTRICAL REQUIREMENT

5.1.1 ELECTRICAL REQUIREMENTS FOR CABLE LENGHTH 180mm			
P/N	2091420180		
Frequency Range	698-960MHz	1710-2690MHz	3300-3800MHz
Peak Gain(Max)	1.2dBi	5.2dBi	2.7dBi
Average Total efficiency	>45%	>55%	>55%
Return Loss	< -10 dB	< -5 dB	< -5 dB

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.

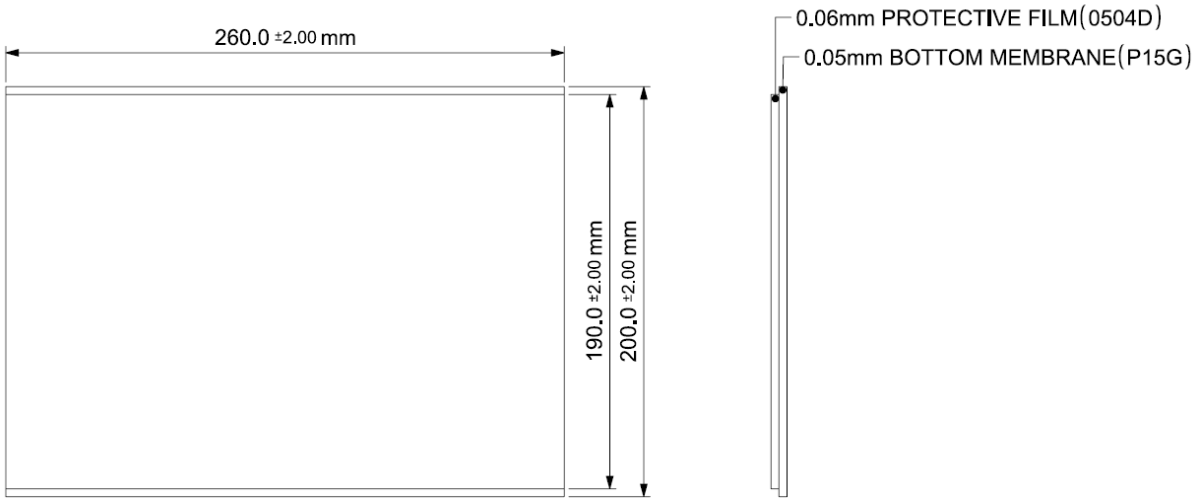
6.0 MECHANICAL SPECIFICATION

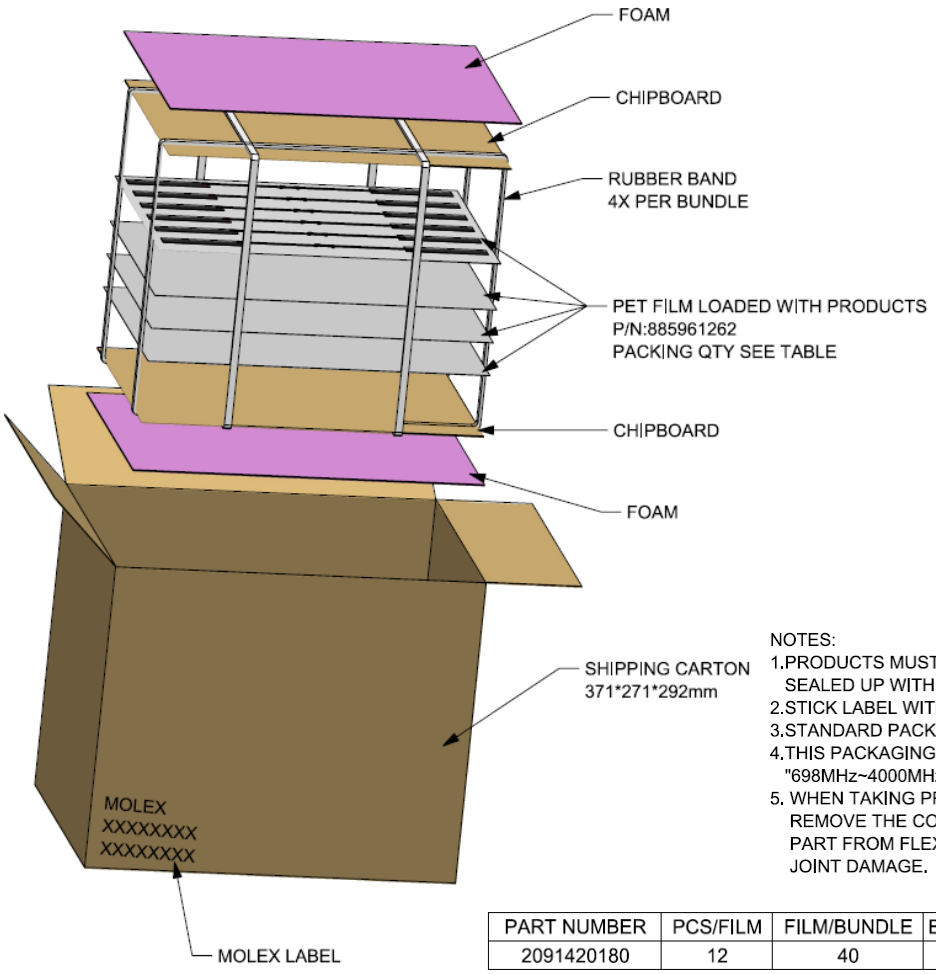
DESCRIPTION	TEST CONDITION	TEST RESULT
Pull Test	1. Test machine: Max intelligent load tester 2. Stick the flex antenna on a plastic board, pull cable in axial direction.	Pull force >8N
Un-mating force (connector)	Solder the receptacle connector to the test board ,then place the board and plug on push-on/pull-off machine, and repeat mating and un-mating 30 cycles at a speed 25±3mm/min. along the mating axis.	Un-mating force : 0.5 kgf min

7.0 ENVIRONMENTAL SPECIFICATION

DESCRIPTION	SPECIFICATION
Temperature /Humidity Cycling	1.The device under test is kept for 30 mins in an environment with a temperature of -40 ℃. 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. Transfer temperature 8℃ per min. 5. Parts should meet RF spec before and after test. 6. No cosmetic problem (No soldering problem; No adhesion problem of glue.)
Temperature Shock	1.The device under test at -40 ℃⇔125 ℃ 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	1.Temperature:125℃, 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	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 accept.

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 "698MHz~4000MHz 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	FILM/BUNDLE	BUNDLE/CARTON	PCS/CARTON
2091420180	12	40	5	2400PCS

PACKAGING INFORMATION FOR 2091420180