TITLE

868/915MHZ DIPOLE FLEXIBLE ANTENNA

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868/915MHZ DIPOLE FLEXIBLE ANTENNA

1.0 SCOPE

This document covers the mechanical, electrical and environmental specification.

2.0 PRODUCT DESCRIPTION

2.1 PRODUCT NAME AND SERIES NUMBER (S)

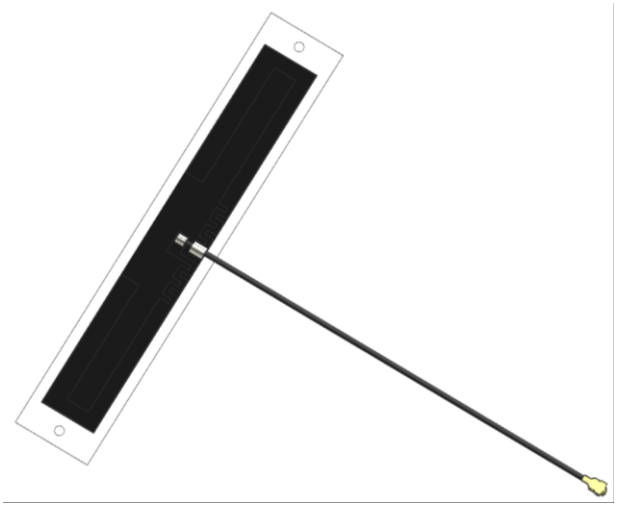
Product name: 868/915MHz Dipole Flexible Antenna
Series Number: 206764

2.2 DESCRIPTION

Series 206764 is similar to series 105262, both series are flexible antenna with cable enable direct connection to host PCB, both cover a typical dual band ISM from 863 – 928MHz.
The difference is 206764 is standard dipole type, the antenna size is a little larger but performance is better than 105262.

2.3 FEATURES.

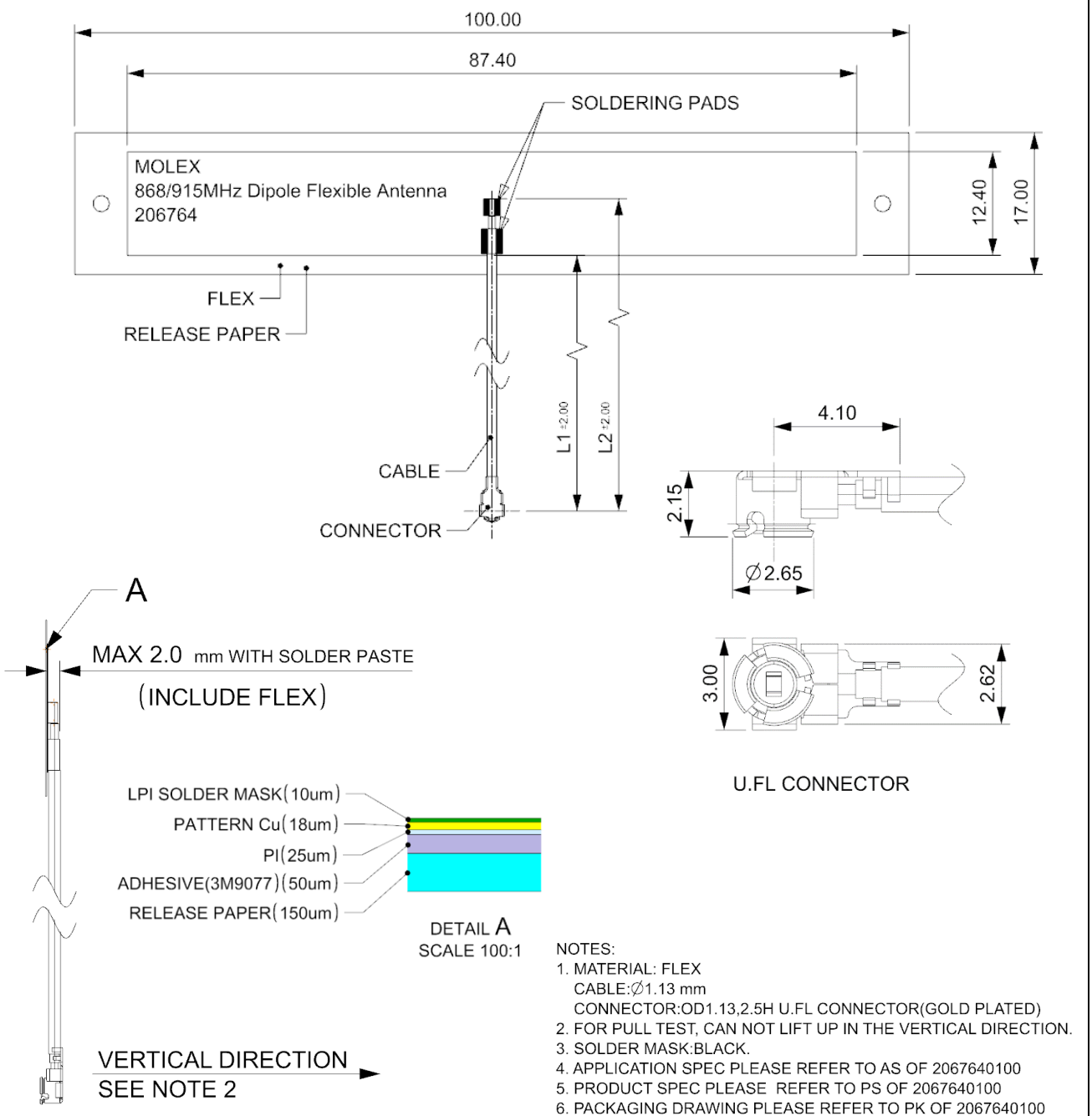
- Ground plane independent, balanced dual band antenna for ISM band (863~870MHz and 902~928MHz)
- Linear polarization, high efficiency over 65% on all bands (cable 100mm)
- FPC size: 87.4x12.4mm
- IPEX connector options: U.FL (IPEX MHF compatible)
- Cable OD1.13mm, 6 standard length options (50-300mm)
- Cable and connector can be customized
- RoHS Compliant



Molex 206764**** 868/915MHz Dipole Flexible Antenna 3D View

2.4 PRODUCT STRUCTURE INFORMATION

P/N	206764****



NOTES:
1. MATERIAL: FLEX
   CABLE:∅1.13 mm
   CONNECTOR:OD1.13,2.5H U.FL CONNECTOR(GOLD PLATED)
2. FOR PULL TEST, CAN NOT LIFT UP IN THE VERTICAL DIRECTION.
3. SOLDER MASK:BLACK.
4. APPLICATION SPEC PLEASE REFER TO AS OF 2067640100
5. PRODUCT SPEC PLEASE REFER TO PS OF 2067640100
6. PACKAGING DRAWING PLEASE REFER TO PK OF 2067640100

GENERAL TOLERANCE TABEL	
Tolerance Description	Tolerance(mm)
Copper edge to Copper edge	+/-0.05
Copper edge to Polymer edge	+/-0.2
Die cut outline	+/-0.15
Die Cut Hole diameter	+/-0.1
Die cut hole to Die cut outline	+/-0.15
Solder mask opening	+/-0.3

ITEM	MATERIAL NO.	CABLE LENGTH"L1"	CABLE LENGTH"L2"
1	2067640050	43.3mm	50mm
2	2067640100	93.3mm	100mm
3	2067640150	143.3mm	150mm
4	2067640200	193.3mm	200mm
5	2067640250	243.3mm	250mm
6	2067640300	293.3mm	300mm

Mechanical Structure Information for 206764**** (U.FL Connector)

3.0 APPLICABLE DOCUMENTS

Document	Number	Description
Sales Drawing(SD)	SD-2067640100	Mechanical Dimension of the product
Application Guide(AS)	AS-2067640100	Antenna Application and surrounding
Packing Drawing(PK)	PK-2067640100	Product packaging specifications

4.0 GENERAL SPECIFICATION

Product name	868/915MHz Dipole Flexible Antenna
Part number	206764****
Frequency	863~870MHz; 902~928MHz
Polarization	Linear
Operating with matching	-30℃ to 85℃
Storage with matching	-40℃ to 95℃
RF Power	2 Watts
Impedance with matching	50 Ohms
Antenna Assembly type	FPC Self-adhesive
Connector type	U.FL (MHF compatible)
Adhesive	3M9077
Cable diameter	Ø1.13mm
Cable length	50mm (P/N for 2067640050) 100mm (P/N for 2067640100) 150mm (P/N for 2067640150) 200mm (P/N for 2067640200) 250mm (P/N for 2067640250) 300mm (P/N for 2067640300)

5.0 ANTENNA SPECIFICATION

All measurements are done of the antenna mounted on a PC/ABS material block of 2mm thickness with VNA Agilent 5071C and Over-The-Air (OTA) chamber. All measurements in this document are done with the part no.2067640100 different cable length.

5.1 ANTENNA PERFORMANCE

5.1.1 ANTENNA PERFORMANCE FOR CABLE LENGTH 50mm	
P/N	2067640050
Frequency Range	863-928MHz
Peak Gain(Max)	1.3dBi
Total efficiency	>71%
Return Loss	< -9 dB

5.1.2 ANTENNA PERFORMANCE FOR CABLE LENGTH 100mm	
P/N	2067640100
Frequency Range	863-928MHz
Peak Gain(Max)	1.2dBi
Total efficiency	>70%
Return Loss	< -9 dB

5.1.3 ANTENNA PERFORMANCE FOR CABLE LENGTH 150mm	
P/N	2067640150
Frequency Range	863-928MHz
Peak Gain(Max)	1.1dBi
Total efficiency	>69%
Return Loss	< -9 dB

5.1.4 ANTENNA PERFORMANCE FOR CABLE LENGTH 200mm	
P/N	2067640150
Frequency Range	863-928MHz
Peak Gain(Max)	1.0dBi
Total efficiency	>68%
Return Loss	< -9 dB

5.1.5 ANTENNA PERFORMANCE FOR CABLE LENGTH 250mm	
P/N	2067640250
Frequency Range	863-928MHz
Peak Gain(Max)	0.9dBi
Total efficiency	>67%
Return Loss	< -9 dB

5.1.6 ANTENNA PERFORMANCE FOR CABLE LENGTH 300mm	
P/N	2067640300
Frequency Range	863-928MHz
Peak Gain(Max)	0.8dBi
Total efficiency	>66%
Return Loss	< -9 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.

5.2 CABLE LOSS

DESCRIPTION	TEST CONDITION	REQUIREMENTS
Frequency Range	0~1GHz	0~1GHz
Attenuation	1m cable measured by VNA5071C	≤1dB/m

Balance antenna resonance is insensitive to cable's length, but the cable's loss will affect the total efficiency.

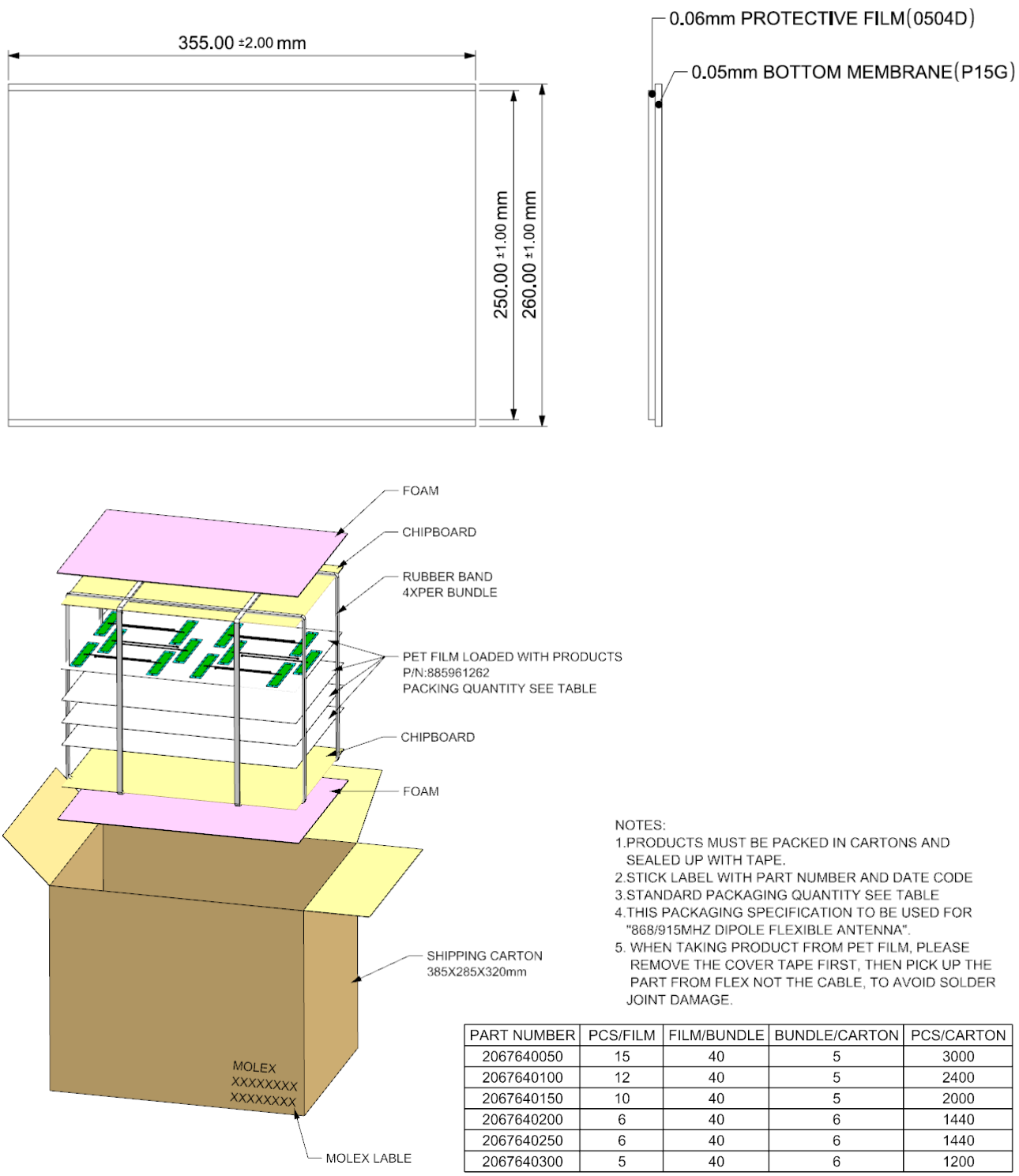
6.0 MECHANICAL SPECIFICATION

DESCRIPTION	SPECIFICATION
Pull Test	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)	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.

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. 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	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 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	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 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	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.

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 "868/915MHZ DIPOLE 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
2067640050	15	40	5	3000
2067640100	12	40	5	2400
2067640150	10	40	5	2000
2067640200	6	40	6	1440
2067640250	6	40	6	1440
2067640300	5	40	6	1200

Packaging information for 206764****